

# **How do surveyed Substance Abuse Policies for Anaesthesia in New Zealand District Health Board hospitals compare with international expert guidelines?**

---

Catherine McCall

A thesis submitted for the degree of  
Master of Health Science (Nursing)  
University of Otago, Dunedin, New Zealand

September 2012

## ABSTRACT

Diversion of drugs from clinical practice with subsequent impairment, plus or minus addictive disease has a history that parallels medicine itself. For decades the association between addictive disease and clinical practice has been acknowledged by medicine and nursing alike, with significant morbidity and mortality reported for over a century. The incidence of abuse of drugs diverted from clinical anaesthesia is approximately 2% and there has been little significant reduction demonstrated over the preceding forty years. This research provides a description of New Zealand District Health Board staff substance abuse management and policy documents for benchmarking against selected international recommendations.

The aim of this study was to examine how substance abuse policy, education programme curriculum and practice in all twenty of New Zealand District Health Board hospital departments of anaesthesia compare with selected international recommendations. Existing international substance abuse policy documents developed for application in anaesthesia departments acknowledge addiction to drugs diverted from clinical practice as an inherent and serious risk experienced by those who work in anaesthesia. These guideline documents outline strategies to support the prevention, identification, and intervention of individuals impaired by abuse of diverted drugs.

A quantitative approach was utilised, this approach included the development of two non validated survey tools and a survey instrument

pilot exercise. Eighteen of the twenty departments of anaesthesia clinical directors invited to participate did so with the return of the questionnaire survey; and all twenty District Health Boards participated with information about substance abuse policy documents.

The key findings from this study identify that while all participants acknowledged substance abuse as an inherent risk associated with the practice of anaesthesia, very few organisations were prepared by way of a robust, evidence based policy document. Twelve of the twenty District Health Boards in New Zealand were found to have no substance abuse policy document and of the eight District Health Boards that did have a substance abuse policy only two of these documents had been specifically written for the department of anaesthesia.

The risks associated with abuse and addiction to drugs diverted from anaesthesia continues to be of significant concern in New Zealand. This study concludes that New Zealand District Health Board departments of anaesthesia are infrequently supported by robust policy documents despite the acknowledgement of substance abuse as an inherent risk and the presence of a sound document recently published by the Australasian Continuing Education Coordinating Committee [ACECC] which is comprehensive and represent co-operative engagement from key stake holders (ACECC, 2011).

## ACKNOWLEDGEMENTS

This work has been made possible by the generous contribution of time and considered thought by the participants, the doctors of anaesthesia in District Health Board departments of anaesthesia within New Zealand. Staff from the departments of anaesthesia and human resources also offered time and energy tracking documents and policies, thank you.

This thesis is the final harvest of a long relationship with the University of Otago; Centre for Postgraduate Nursing Studies, in particular Associate Professor Lisa Whitehead. Her influence has been long standing and she has been an inspirational supervisor, and Virginia Maskill who has contributed significant insight both to this study and the demanding process of thesis preparation. Of significance also was Dr Maree Inder whose kind intellect and sustained support have been so important and finally the Canterbury District Health Board who have been of considerable support in this work.

This thesis was unexpectedly written with the backdrop of a disaster, the devastating Christchurch earthquakes of 2010 and 2011. The dignity and courage of thousands of locals and those who came to help is impossible to adequately articulate. I would however single out Dr Husam Al-Ani who died while working in a central city youth health practice, my sister Sue who despite serious injury never lost concern for others and only once lost her sense of humour. I would also acknowledge my parents Beth and Ron, and my partner Gayle for her endless steadfastness.

My final word is to acknowledge those who are affected one way or another by the disease of addiction to drugs used in the work of anaesthesia.

# TABLE OF CONTENTS

<u>ABSTRACT</u>	i
<u>ACKNOWLEDGEMENTS</u>	iii
<u>TABLE OF CONTENTS</u>	iv
<u>LIST OF TABLES AND FIGURES</u>	vii
<b><u>CHAPTER ONE: INTRODUCTION AND OVERVIEW</u></b>	<b>1</b>
1.1 INTRODUCTION AND BACKGROUND	2
1.2 AIMS OF THE STUDY	4
1.3 SIGNIFICANCE OF THE STUDY	5
1.4 OVERVIEW OF THE STUDY	6
<b><u>CHAPTER TWO: LITERATURE REVIEW</u></b>	<b>9</b>
2.1 HISTORY OF HUMAN ADDICTION	10
2.2 DEFINITION AND CLASSIFICATION OF ADDICTION	15
2.2.1 TERMINOLOGY	16
2.3 AETIOLOGY OF ADDICTIVE DISEASE	18
2.3.1 THE SUSCEPTIBLE INDIVIDUAL	20
2.3.2 NEUROPLASTIC CHANGES	23
2.4 AETIOLOGY OF ADDICTIVE DISEASE IN THOSE WHO WORK WITH ANAESTHESIA	27
2.4.1 THE SUSCEPTIBLE INDIVIDUAL IN ANAESTHESIA	29
2.4.2 A FAVOURABLE ENVIRONMENT	30
2.5 PROGRESSION OF ADDICTIVE DISEASE IN AFFECTED INDIVIDUALS WHO WORK WITH ANAESTHESIA	32

2.5.1 DESCRIPTION OF ABUSED AGENTS	33
2.5.2 DRUG DIVERSION METHODS	34
2.5.3 SIGNS AND SYMPTOMS OF ADDICTIVE DISEASE	35
2.5.4 CONSEQUENCES OF ADDICTION	36
2.5.5 EPIDEMIOLOGY OF ADDICTIVE DISEASE IN DEPARTMENTS OF ANAESTHESIA	37
2.7 SELECTED INTERNATIONAL SUBSTANCE ABUSE POLICIES	46
2.7.1 PHILOSOPHY OF CARE	48
2.7.2 EDUCATIONAL CURRICULUM	50
2.7.3 DRUG TESTING	53
2.7.4 CONTROLLED DRUG ACCOUNTABILITY	55
2.7.5 INTERVENTION	58
2.7.6 TREATMENT	61
2.7.7 MONITORED RE-ENTRY TO PRACTICE	62
2.7.8 DISMISSAL / TERMINATION	63
2.7.9 POLICE	63
2.7.10 REPORTING TO REGULATORY BODIES	64
2.8 SUMMARY	65
<b><u>CHAPTER THREE: METHODOLOGY AND METHODS</u></b>	67
3.1 OVERVIEW OF QUALITATIVE RESEARCH	67
3.2 RESEARCH AIMS	68
3.3 RESEARCH DESIGN AND INSTRUMENT DEVELOPMENT	69
3.3.1 DEVELOPMENT OF INSTRUMENTS	70
3.3.2 DESCRIPTION OF THE INSTRUMENTS	71
3.3.3 PILOT STUDY	73
3.3 RECRUITMENT AND DATA COLLECTION	73



## **LIST OF TABLES AND FIGURES**

<b><i>TABLE ONE:</i></b>	65
Summary of content themes within grey literature	
<b><i>TABLE TWO:</i></b>	81
Demographic range of staff numbers by occupational title across District Health Boards	
<b><i>TABLE THREE:</i></b>	118
Recommendations, related goals and suggested leadership	
<b><i>FIGURE ONE:</i></b>	83
Primary philosophy underpinning the approach to working with impaired colleagues	
<b><i>FIGURE TWO:</i></b>	84
Provision of substance abuse education	
<b><i>FIGURE THREE:</i></b>	86
Factors that undermine collegial intervention	
<b><i>FIGURE FOUR:</i></b>	87
Organisational staff support mechanisms	
<b><i>FIGURE FIVE:</i></b>	88
New Zealand District Health Board substance abuse policy status	
<b><i>FIGURE SIX:</i></b>	89
Key policy recommendations	
<b><i>FIGURE SEVEN:</i></b>	91
Recommended policy features	

# CHAPTER ONE

## INTRODUCTION AND OVERVIEW

The meaning, impact, and experience of substance abuse and addiction amongst those who work with anaesthesia are varied; in the author's experience this impact has been profound. In December 2006 the anaesthesia department within which the author works was saddened by the sudden death of a colleague, the consequence of a diverted drug dose. The experiences within the department as this loss was processed raised questions which warranted further attention and from this the following study resulted.

Anaesthesia workers are dying. Abuse of, and addiction to, drugs diverted from clinical practice are the most significant occupational hazards faced by those who work with anaesthesia (Tetzlaff, Collins, Brown, Pollock, & Popa, 2010). Addiction is a chronic relapsing disorder of the brain, marked by profound exposure-induced dysregulation of cerebral reward circuitry and aberrant learning processes (Contet, Kieffer, & Befort, 2004). The relationship between addiction and those who work with anaesthesia is long standing, complex, and not fully understood. Moreover, addiction insidiously co-exists within a professional culture disabled by cognitive dissonance, denial, deficits in knowledge, and a gulf in understanding (Bryson & Silverstein, 2008; Collins, McAllister, Jensen, & Gooden, 2005; Fry, 2005; Roche, 2007; Shaw, McGovern, Angres, & Rawal, 2004; Talbert, 2009). Roche (2007) sets the anaesthesia team the challenge to "establish a culture of courage" in which impaired colleagues are cared for with compassion,

confidentiality, and integrity (p.17). As Roche (2007) asserts “If not us, then who” (p.16).

## 1.1 INTRODUCTION AND BACKGROUND

The diversion of drugs from clinical anaesthesia by staff, for the purpose of experimentation, abuse, and addiction is an enduring phenomenon (Collins et al., 2005; Farley, 1991). Addictive disease in this context is distinguished by an association with significant morbidity and mortality (Shaw et al., 2004). Much of the academic evidence reports substance abuse amongst medical staff, particularly in anaesthesia. Some literature compares and/or examines other medical disciplines; although the nursing profession has rarely been studied (Luck & Hedrick, 2004; Tanga, 2011).

Medical historians have documented the intimate relationship between physician and pharmacology for more than a century, a relationship that not infrequently, has involved experimentation and addiction to therapeutic drug preparations (Brownstein, 1993; Gold et al., 2006; Kornetsky, 2003). This behaviour has been punctuated at intervals by substantial professional concern, and over the last four decades has led to the development of a therapeutic response based on intervention, assessment, diagnosis, treatment, and rehabilitation, as an alternative to the traditional disciplinary approach (Munroe, Pearson, & Kenaga, 2008; Talbott & Wright, 1987, as cited in Roche, 2007). This philosophy of humane concern toward colleagues impaired by drug abuse and addiction is grounded in the scientific knowledge of neuroplasticity, namely when the brain structure is literally re-shaped by experiences and

addictive substances (Doidge, 2010). With the goal of preserving lives and careers, substance abuse policy documents have been developed by leading international anaesthesia organisations (American Association of Nurse Anesthesia [sic] (AANA), 2010; Association of Anaesthetists of Great Britain and Ireland (AAGBI), 2011; Anaesthesia Continuing Education Coordinating Committee (ACECC), 2011; American Society of Anesthesiologists [sic] (ASA), n.d; The coalition for the Prevention of Substance Abuse in Anesthesia [sic] (ALL Anesthesia [sic]), 2007). Of particular interest in this current study was the examination of international policy recommendations as a standard against which New Zealand substance abuse policy documents could be benchmarked.

What is understood about the aetiology of addictive disease is that causative factors precede the initial dose. Biogenetic predisposition, traumatic early experiences, and exposure to addictive substances constitute vulnerability, not only to the initial volitional drug experimentation but also to the evolution of addictive disease and the underpinning neurobiological changes (Angres & Bettinardi-Angres, 2008). Disease aetiology is also profoundly influenced by several factors unique to the anaesthetic environment, including both physical and psychosocial factors (Bryson & Silverstein, 2008; Domino et al., 2005; Gold et al., 2006; Lillibridge, Cox, & Cross, 2002; McAuliffe et al., 2006; Tetzlaff et al., 2010). Furthermore, of enormous significance is the potency of diverted drugs particular to anaesthetic practice, with the associated extra ordinary psychoactive potential and related galloping tolerance (Alexander, Checkoway, Nagahama, & Domino, 2000; Roche, 2007).

Epidemiological data, albeit with noted methodological limitations, reports the incidence of abuse of diverted drugs by anaesthesia staff to be approximately 2%; a significant number of whom will develop addictive disease and of those many will not survive (Booth et al., 2002; Bryson & Levine, 2008; Saunders, 2006; Shaw et al., 2004). Australasian figures report a 66% departmental incidence of diverted substance abuse, with an associated mortality rate of 24%. Eighty-four percent of these departments had no substance abuse policy in place (Fry, 2005).

## 1.2 AIMS OF THE STUDY

The aim of this study was to benchmark substance abuse policy documents within New Zealand District Health Boards against policy recommendations published by selected anaesthesia organisations from Australasian, North America, Great Britain, and Ireland. This was explored by undertaking the following:

- i. Identifying, pooling, and synthesizing current substance abuse policy recommendations published by selected anaesthesia organisations from Australasia, North America, Great Britain and Ireland.
- ii. Surveying the demographic profile of departments of anaesthesia in New Zealand District Health Boards.
- iii. Surveying the practice of senior anaesthetic consultants around staff substance abuse.
- iv. Exploring the provision of substance abuse education for staff in anaesthesia departments.

Based on these findings the study then compared:

- i. The content of substance abuse policies and educational curricula currently implemented in New Zealand District Health Board departments of anaesthesia.
- ii. The current practice pertaining to the identification and management of substance abuse in New Zealand District Health Board departments of anaesthesia.
- iii. The findings of the current study with international recommendations

### 1.3 SIGNIFICANCE OF THE STUDY

Strengthening departmental wellbeing involves the establishment of a therapeutic collegial response to impairment caused by substance abuse and addiction (Berry, Crome, Plant, & Plant, 2000). Whilst acknowledging the complexity and inherent risks associated with addictive disease pathology, diagnosis, and intervention, professional guidance must be prepared in advance and based on sound professional ethics and advanced psychiatric practice (Roche, 2007). Existing research reports many anaesthesia workers within New Zealand and Australia are not working with the support of a robust substance abuse policy document; only nineteen percent of Australasian departments surveyed reported having a substance abuse policy in place (Fry, 2005). Furthermore, the New Zealand Nurses Organisations and the Nursing Council of New Zealand do not have substance abuse policies (B. O'Brien, personal communication, March 20, 2012; T. Halswell, personal

communication, September 13, 2012: H. de Montalk, personal communication, September 18, 2012).

Within the international context anaesthesia organisations have, over the last decade implemented a professional, compassionate, and confidential response aimed at minimising the negative sequelae associated with drug abuse in the anaesthesia setting. These organisations are the Coalition for the Prevention of Substance Abuse in Anesthesia [*sic*] (All Anesthesia [*sic*]) of North America, the American Association of Nurse Anesthetists [*sic*] (AANA), the Welfare of Anaesthetists Special Interest Group of Australia and New Zealand, associated with the Anaesthesia Continuing Education Coordinating Committee (ACECC), and the Association of Anaesthetists of Great Britain and Ireland (AAGBI). Remarkably, evidence from epidemiological study findings over recent decades have provided little reassurance that substance abuse minimisation strategies are working, with findings suggesting that these strategies have failed to influence morbidity and mortality in a meaningful way (Berge, Seppala, & Lanier, 2008; Collins et al., 2005; Fry, 2005; Tetzlaff, Zura, Maurer, & Collins, 2007; Wilson et al., 2008; Wischmeyer et al., 2007).

#### 1.4 OVERVIEW OF THE STUDY

Chapter two presents a review of the academic and grey literature under the subheadings: history of human addiction, definition and classification of addiction, terminology, aetiology of addictive disease, the susceptible individual, neuroplastic changes, aetiology of addictive

disease in those who work with anaesthesia, the susceptible individual in anaesthesia, a favourable environment, progression of addictive disease in affected individuals who work with anaesthesia, description of abused agents, drug diversion methods, signs and symptoms of addictive disease, consequences of addiction, and epidemiology of addictive disease in departments of anaesthesia. The international professional response as represented by substance abuse policy recommendations is explored under the headings: selected international substance abuse policies, philosophy of care, education curriculum, drug testing, controlled drug accountability, intervention, treatment, monitored re-entry to practice, dismissal/termination, police, and reporting to regulatory bodies.

Chapter three presents the chosen methodology and the rationale for electing a quantitative methodological approach to answer the research question and study aims. A description of the sample is provided with the inclusion criteria outlined. The research design and the research tool development process are explained and a description of the two tools; survey questionnaire IA, IB and data extraction tool II, utilised in this study are presented including an outline of the pilot study. Participant recruitment is described and the data analysis approach explained. Finally, ethical and cultural considerations are outlined.

Chapter four presents the findings from the tools utilised in this study; the survey questionnaire IA, IB and data extraction tool II. The three major domains of findings are: departmental demographics (survey

questionnaire IA) and substance abuse practices of senior anaesthesia staff (survey questionnaire IB) and the content of substance abuse policy documents (data extraction tool II).

Chapter five discusses key finding of the current study. The number of substance abuse policy documents identified in New Zealand District Health Boards will be discussed and compared with international findings synthesised for benchmarking. Variances between substance abuse practice description and substance abuse policy findings will be discussed in the context of international findings. The influence of demographic data in this study will be considered. The study limitations and strengths will be presented, followed by summary and conclusions. Finally, suggested recommendations will be articulated.

# CHAPTER TWO

## LITERATURE REVIEW

This chapter presents a review of the academic and grey literature pertaining to addictive disease in those who work with anaesthesia. A brief history of human addiction and a review of definitions and diagnostic criteria will be presented. The disease of addiction will be explained and the relevance of addiction within the context of the anaesthesia department will be explored through the examination of aetiology and epidemiology. Finally, a review of leading selected international substance abuse policy documents will be described.

The review of literature that formed the foundation of this research study and informed the development of the research tools was undertaken with the following strategy. Scholarly articles were identified from database searches of MEDLINE, CINAHL, PsycINFO, and EMBASE utilising selected, relevant medical subject headings. Cochrane and JBI were excluded as review articles were not utilised. The date range explored was 1970 through to current, although most literature was focused in the most recent decade. Searches were further limited to those published in English. Searches were primarily progressed using keywords and Boolean operators to expand, join, and exclude identified literature. Concept and phase searches were conducted in a similar manner. Keyword searches included relevant synonyms, alternate spellings, and variant terms; anaesthetist, anesthesiologist, doctor, medical staff, nurse, nurse anesthetist, drug

abuse, addiction, misuse, diversion, and dependence. Finally, citation sourcing was used to identify other influential scholarly work. The resultant evidence was scrutinised for eligibility based on methodology, rigour, and validity. Articles were also sifted for relevance based on date and country of publication and a focus on addiction to diverted drugs. Articles focusing on abuse or addiction to alcohol, prescription medication, or illicit drugs were excluded. Psychiatric and medical texts were utilised. Grey literature, in particular policy and guideline documents were sourced via anaesthesia association and organisation websites and guideline repositories; NHS Evidence: National Library of Guidelines, TRIP: Turing Evidence into Practice, and the National Guideline Clearinghouse.

## 2.1 HISTORY OF HUMAN ADDICTION

The relationship between mammalian evolution, human consumption, and the neurobiological capacity for addiction to psychoactive substances is extremely long standing, particularly in the case of opium (Berridge & Mars, 2004; Jaffe & Jaffe, 2008). Historians acknowledge that humankind has had an uninterrupted relationship with opioids for several thousand years (Brownstein, 1993). The consumption of psychoactive substances appears to be a foregone conclusion for some and addiction virtually inevitable for others, as predisposing factors collide with drug availability (Bryson & Silverstein, 2008; Cloninger, 2008).

Over the centuries numerous preparations of *papaver somniferum* extract have been used in both therapeutic and hedonistic pursuits (Brownstein, 1993). Ancient literature, art, and archaeology reveal glimpses of what has been interpreted as the consumption of drugs for both analgesic and euphoriogenic purposes (Berridge & Mars, 2004). The earliest reference is perhaps Helen, daughter of Zeus who is widely believed to have administered opium to the men in Homer's ninth century BC epic, *The Odyssey* (Brownstein, 1993). Ancient writings throughout Arabia reveal that opium was consumed and administered in the promotion of religious euphoria, relief of suffering, and euthanasia (Brownstein, 1993). By the eighth century AD opium had journeyed from Arabia along the Silk Road to India and China, then on to Asia Minor and Europe by the tenth and thirteenth centuries respectively (Brownstein, 1993). As opium made its journey across the continents it was welcomed and enthusiastically utilised for its numerous soothing properties. As Thomas Sydenham in 1680 mused "among the remedies which it has pleased Almighty God to relieve his sufferings, none is so universal and so efficacious as opium" (Ghodse, 2002, p.95).

The evolution of attitudes toward opium is described in the work of Felix who wrote in the late 1800's opium was favoured for its promotion of "agreeable thoughts" (as cited in Kornetsky, 2004, p.778). By the turn of the century however, those requiring opium were considered emotionally unstable and within a decade the addicted person was commonly known as a "fiend" (as cited in Kornetsky, 2004, p.778). The search for a cure for the growing number of opioid addicted persons led ironically, to the synthesis of heroin in 1898 in Germany

(Brownstein, 1993). Interestingly, during the first half of the twentieth century another paradigm shift led to the medically condoned use of opium to help individuals make “a satisfactory adjustment to life” and social use with the pardoning belief that “both normal and abnormal people derived pleasure from opiates but only in rare instances if at all does anyone except the emotionally unstable, the psychopathic or the neurotic receive the pleasure that was above the normal emotional plane” (as cited in Kornetsky, 2004, p.778). On this foundation the diagnostic term of the era was “psychopathic diathesis” (Kornetsky, 2004, p.778). Over the course of the twentieth century evolving narcotics regulation promoted criminalisation of activities around drug procurement, abuse, and addiction, and the association of drug addiction with anti-social behaviour (Kornetsky, 2004). By the mid twentieth century addiction was considered a disorder of character, and this would become an opinion with considerable endurance, even though by the later twentieth century addiction as a cerebral disease was convincingly demonstrated (Roche, 2007).

Contemporary history records several milestones in the story of opioids and addiction (Kornetsky, 2004). Morphine, named after the god of dreams Morpheus, was isolated from opium in 1806 by Sertürner, and throughout the nineteenth and twentieth century’s it was widely used in numerous preparations to treat a multitude of ailments. Preparations included many so called children’s opioid remedies such as, Godfrey cordial, Mrs Winslow’s Soothing Syrup, Atkinson’s Infant Preservative and Street’s Infants Quietness (Berridge & Mars, 2004). Similarly, adult morphine based preparations were also widely taken following either

prescription or purchase, Laudanum and Chlorodyne being the most renowned; there were however many others such as: paregoric tincture of opium, Battley's Sedative Solution and Dovers Powder (Berridge & Mars, 2004; Brownstein, 1993). A proliferation of medical and non-medical use followed the invention of the hypodermic syringe and the hollow needle in the 1850's (Musto, 1985).

New Zealand history reflects the global story. During the 1800's significant use of opium based remedies and the eventual recognition of opium as a dangerous drug led to the regulation of opium based products under the Sales of Poisons Act, 1866. The turn of the century saw Chinese migrants singled out for restrictions in The Opium Prohibition Act, 1910. Medical and illicit drug use proliferation followed international trends and drove legislation, including the Dangerous Drugs Act 1927, and Poison Act 1934 (Maling & Burgess, 2006; New Zealand Law Commission, 2010).

The history of medicine throughout the nineteenth and twentieth century's reveals abundant experimental use of and addiction to therapeutic agents, particularly in the field of anaesthesia. This was famously exemplified by Dr Crawford Long's redirection of ether from recreational to clinical use, an inspired act that in 1842 marked the birth of modern inhalation anaesthesia (Gold et al., 2006). Dr Riggs and Dr Wells were known to experiment with self inhalation of the narcosis inducing gas nitrous oxide during the mid 1800's (Gay, Inaba, Sheppard, & Newmeyer, 1975). Also William Halsted, famous for introducing cocaine as a local anaesthetic agent in 1884, was known to be addicted to

the substance (Musto, 1985). Indeed, Dr. T. Crothers vast study entitled, *Morphinism among physicians*, published in 1899, identified regular opium or morphine consumption in at least 6% of physicians (as cited in Musto, 1985).

Further historical accounts of occupational substance abuse and addiction were described by Talbott and Wright in 1987, who found, recorded under the Dangerous Drugs Control Act, 1920, approximately 25% of registered addicts in England were doctors, nurses, dentists, or veterinary surgeons (as cited in Roche, 2007). Attention to these concerning findings apparently faded until the 1980's when drug abuse and addiction in anaesthesia again rose in the professional consciousness. The consumption of drugs diverted from clinical anaesthesia was acknowledged as an endemic threat to life and lifestyle: professional and personal, departmental and individual (Lecky et al., 1986). At this time the National Nurses Society on Addictions in North America, responded to the long known correlation between nurses and addictive disease by establishing a task force to examine the usefulness of professional assistance programmes and alternative to discipline programmes (Monroe et al., 2008). Also, within the medical profession it was acknowledged that drug diversion and consumption may be best managed by preventative and therapeutic interventions aimed at reducing incidence, morbidity, and mortality (Lecky et al., 1986). These interventions included strategies to enable early identification and intervention of impaired individuals, comprehensive education, and referral for appropriate treatment (Lecky et al., 1986).

## 2.2 DEFINITION AND CLASSIFICATION OF ADDICTION

The term addiction, derived from the Latin '*addictus*' in reference to the master slave relationship, was adopted in the early 20<sup>th</sup> century, superseding such terms as morphinomania (Berridge & Mars, 2004). Addiction has been defined as a chronic relapsing illness. A disease driven by drug induced neuroadaptive changes that influence brain structure and function in key cerebral circuits that are involved with reward, motivation, memory, and decision making, a "hijacking of the natural motivational control circuits" (Leshner, 2006, p.75). Leshner (2006) described addiction as the "quintessential biobehavioral [*sic*] disorder" due to the inseparable involvement of biological and behavioural components (p.75).

Disease definition and classification taxonomies are largely dominated by the *International Classifications of Diseases (ICD-10)* of the World Health Organization (World Health Organisation [WHO], 1992) and the *Diagnostic and Statistical Manual (DSM-IV)* of the American Psychiatric Association (American Psychiatric Association [APA], 1994). Drug abuse, more recently termed drug misuse by the WHO, has been defined as a "pattern of psychoactive drug use that causes damage to health, either mental or physical" (as cited in Ghodse, 2002, p.3). In some individuals, this volitional drug taking evolves through drug-induced neurobiological changes to addiction or drug dependence with the following the WHO Expert Committee definition:

A cluster of physiological, behavioural, and cognitive phenomena of variable intensity in which the use of a

psychoactive drug (or drugs) takes high priority. The necessary descriptive characteristics being a preoccupation with a desire to obtain and take the drug and persistent drug-taking behaviour despite harm. Determinants and the problematic consequences of drug dependence may be biological, psychological, or social, and usually interact (as cited in Ghodse, 2002, p.4).

Addiction has been defined in the concurrently utilised classification system the DSM-IV, revised under the term drug dependence which is “a maladaptive pattern of drug use, leading to clinically significant impairment or distress” (Zimmerman, 1994, p.18). Addiction criteria are met when the individual has three or more of the following presentations occurring at any time in the same twelve month period: tolerance, withdrawal, the taking of the drug in larger amounts or over a longer period than the person intended, the persistent desire or unsuccessful efforts to cut down or control drug use, a great deal of time spent in activities necessary to get drugs, recreational activities given up or reduced because of drug use, the continued use of drug despite knowledge of having had a persistent or recurrent physical or psychological problem that was likely to have been caused or exacerbated by the drugs (Zimmerman, 1994).

### 2.2.1 TERMINOLOGY

Despite the DSM-IV and the ICD-10 classification systems preference for the diagnostic term drug dependence, academic, and grey literature reveal that current addiction terminology is neither standardised nor free from debate. In addiction science various terminologies are employed in academic, organisational, and

classification publications. Representative policy and guideline documents from North America, Australasia, Great Britain and Ireland have demonstrated a preference for the term substance abuse (ASA, n.d.; Coalition for the prevention of substance abuse in anesthesia [sic] [All Anesthesia [sic]], 2007; Roche, 2007; The Association of Anaesthetists of Great Britain and Ireland [AAGBI], 2011; Welfare of Anaesthetists Special Interest Group, ACECC, 2011). However, in academic publications the terms addiction and chemical or substance dependence are used with comparative frequency (Koob, 2009). Moreover, the New Zealand hub of specialty knowledge is named the National Addiction Centre (Department of Psychological Medicine at the University of Otago, Christchurch) and a leading academic journal on the subject, published since 1884 is titled simply *Addiction*.

With revisions pending for both the DSM-IV and the ICD-10, academics and clinicians are currently engaged in a debate aimed at ensuring that the classification of this disease is scientifically accurate and clinically useful. O'Brien (2011) promotes the reinstatement of the term addiction, arguing that the term dependence is compromised as prior to its recruitment in the renaming of addiction the term already had an established and alternate meaning in medicine. Dependence is a phenomenon involving predictable adaptive changes in response to the repeated exposure to particular chemicals. This is evidenced by withdrawal syndrome when the drug use is suspended, and which may or may not be associated with addiction (Chao & Nestler, 2004). Chao and Nestler (2004) endorse this setting aside of the term dependence stating "addiction is by far the preferable term" (p.113). Indeed, Sellman

(2007) states the term addiction has undergone a substantial “revival” (p.77). The ICD-10 and the DSM-IV adopted the term dependence over thirty years ago, in part to alleviate the established negative associations with the term addiction, the achievement of which has not been convincingly demonstrated. Ling (2011) asserts the superimposing of a concurrent but significantly different medical meaning can negatively influence clinician consideration and patient care. Finally, it is not insignificant that addiction and addict are terms commonly used by persons affected with the disease, as Sellman (2007) reports “it sounds like what they are suffering from” (p.80).

Therefore, this study has utilised the following terms and definitions: the action of unauthorised procurement of anaesthetic drugs by staff has been referred to as drug diversion, the behaviours involving the consumption of these drugs has been referred to as drug abuse and the establishment of overwhelming, compulsive drug consumption despite harm has been referred to as addiction.

### 2.3 AETIOLOGY OF ADDICTIVE DISEASE

The aetiology of addiction is complex. Numerous pre-morbid factors are opportunistically built upon by particular human behaviours resulting in exposure experiences with addictive substances (Angres & Bettinardi-Angres, 2008; Clay, Allen, & Parran, 2008). The cascade of neurological consequences that follow are profound, with essential systems experiencing devastating and persistent changes that have an

intimate relationship with significant morbidity and mortality (Angres & Bettinardi-Angres, 2008; Clay, Allen, & Parran, 2008; Goodman, 2007).

The aetiology of addictive disease is understood to be associated with individual biogenetic predisposition to chemicals and/or addictive behaviours/traits, traumatic events experienced during formative years, and exposure to addictive substances (Angres & Bettinardi-Angres, 2008). The cause of addiction therefore, precedes the first drug exposure with identified elements that act as precursors to the first abuse experience. Cloninger (2008) and Clay et al. (2008) are amongst those presenting robust evidence that individual risk for the initial drug abuse experience is not equal. Furthermore, Kendler, Karkowski, Neale, and Prescott (2000) argue that the genetic influences that are brought to bear on the risk of initial drug abuse are not only distinct from those influencing the transition from abuse to addiction, but are also more significant. Cloninger (2008) also acknowledges this contrast between the strong genetic influence on initial drug use and the significantly weaker influence heritable factors have on the subsequent transition from abuse to addiction. Genetic sway in the establishment of addictive disease largely centres on the genes that influence the chemicals involved in reward centre neurotransmission, these genetic factors are however, thoroughly overshadowed by “non genetic factors unique to each individual” (Cloninger, 2008, p.75). Numerous genes have been identified as participants in the development of addiction, both in heritable vulnerability to dependence development, and in the severity of addictive disease (Bryson & Silverstein, 2008; Clay et al., 2008). Saxon and colleagues (as cited in Clay et al., 2008) reported in 2005, a heritable

variability in opioid dependence driven by the polymorphism in gene coding in the dopamine, serotonin, and opioid receptors, endogenous opioid peptides, and cannabinoid receptors. Imbedded in Bechara's (2005) work on impulsive and reflective system imbalance is the hypothesis that addicts have a degree of pre-existing neurobiological abnormality that acts to facilitate the progression from use to addiction.

Key genetic and psychological influences act as predisposing factors, underpinning an individual's pre-morbid risk as well as the response to drug exposure. These factors can be explored in terms of the susceptible individual and the favourable environment.

### 2.3.1 THE SUSCEPTIBLE INDIVIDUAL

In the examination of predisposing factors, of particular interest are the qualities that contribute to what is referred to as a susceptible individual (Bryson & Silverstein, 2008). Kalivas (as cited in Angres & Bettinardi-Angres, 2008) states "there is little doubt that the development of addiction to drugs of abuse is in part a function of predisposing factors in an individual's genome as well as factors associated with childhood and adolescent development" (p.699). Indeed, Leshner (2007) estimates "between 50-70% of the variability observed in susceptibility to addiction can be accounted for by genetic factors" (p.78). Although predisposing and risk factors are well described in literature it is acknowledged by Goodman (2008) that "no single factor is either necessary or sufficient and an addictive process can result from any of a variety of multifactor combinations" (p.271).

Genetic, personality, and psychiatric factors are of key importance. Personality traits underpinned by genetics and associated with increased vulnerability to substance misuse are essentially marked by those individuals who are: euphoria driven with high novelty seeking traits or those whose actions are motivated by the avoidance of dysphoria, escaping distress (Baker, Piper, McCarthy, & Majeskie, 2004; Clay et al., 2008; Cloninger, 2004; Goodman, 2008). Furthermore, an increased incidence of personality disorders, in particular antisocial personality traits, impulsive-aggressive traits (high novelty seeking), and low harm avoidance has a demonstrated association with drug abuse. Comings and Blum (as cited in Clay et al., 2008) present the hypothesis that reward deficiency disorders undermine the voluntary experience of drug taking behaviours due to genetic defects in reward pathway neurotransmitters. The result of which is a euphoria hunger which may manifest as an increased risk for drug abuse due to the unnaturally amplified reward experienced following exposure to addictive substances.

In contrast to those experimentally inspired individuals, there are those who are motivated by the need for relief from dysphoria, low mood, or stress, with drug taking being an attempt to self-medicate (Shaw et al., 2004). Psychiatric factors associated with addictive disease include primarily depression and anxiety, with chronic pain also potentially increasing an individual's vulnerability to addiction (Bryson & Silverstein, 2008; Goodman, 2008).

Early traumatic experiences make a substantial contribution to susceptibility. The influence of maltreatment and traumatic experiences in pre-adult development are associated with the dysregulation of stress-response systems; these aberrant hormonal levels influence frontal and pre-frontal cortex areas predisposing an individual to future drug use (Clay, 2008).

The pharmacodynamic qualities of a drug itself and the pharmacokinetic interplay within the host also provide key influences in the transition from drug abuse to addiction (Baird, 2000; Bryson & Silverstein, 2008; Oreskovich & Caldeiro, 2009). Influences pertain to the rapidity of blood brain barrier crossover, drug potency, and affinity with target receptor sites. Following drug consumption the degree of neurological reinforcement experienced is significantly influenced by individual variability. Individuals who have a strongly positive drug experience have an increased likelihood of seeking subsequent doses (Roche, 2007). And behind this on-going substance abuse, the addictive disease is insidiously evolving. This is highly evident by the rapidity with which particular drugs promote tolerance and secure addiction (Oreskovich & Caldeiro, 2009; Roche, 2007).

In summary, a susceptible individual may be considered to be an individual who has a combination of heredity, personality and/or psychiatric factors that potentiate a lowering of the threshold to consume addictive substances and experience this activity as unduly rewarding. Novelist Jo Nesbo (2011) writes “there was Sigismund the priest who

excuses a drunk with the words ‘we all drink according to how thirsty we are’” (p.76).

### 2.3.2 NEUROPLASTIC CHANGES

The effect of drug exposure on individual neurophysiology and biochemistry significantly influences subsequent drug exposure. Ongoing exposure to drugs of addiction leads to alterations in the morphology, gene expression, and function of neurons in the reward circuitry of the brain (Eisch & Mandyam, 2004; Jones & Bonci, 2005). The overwhelming dominance experienced toward activities pertaining to the consumption of an addicting substances is rooted in these actions being interpreted as those needed for survival (Contet et al., 2004). This promotion of drug consumption to a need state is key to drug related activities becoming prioritised over virtually all other goals (White, 2004).

This overwhelming primacy of drug consumption follows exposure related alteration to two key neurological pathways. The mesolimbic dopamine pathway or the ‘go’ pathway which promotes survival behaviour and the mesocortical pathway the ‘stop’ pathway which balances the ‘go’ with decision making based on experience (Clay et al., 2008). Bechara (2005) describes these neural systems as the reflective system and the impulsive system. Changes within the hedonic set point are significant (Koob & Le Moal, 1997, as cited in White, 2004). The affected individual experiences significant reduction in their capacity to experience pleasure and a parallel strengthening intolerance for affective disturbance. The excessive stimulation of the reward pathway

leads to hedonic homeostatic dysregulation, in which not only is the incentive value of the drug enhanced but the incentive value of other stimuli is suppressed. The state of anhedonia is thus established. Moreover, critical decision making is hijacked disabling any argument against drug procurement and consumption (Bechara, 2005; Chao & Nestler, 2004; Clay et al., 2008; Goodman, 2007; White, 2004).

The neurological structures that control reward response are usurped by drugs of abuse. These drugs alter literally hundreds of proteins in various reward related regions of the brain (Chao & Nestler, 2004). The key structures in this neural circuitry are: the ventral tegmental area (VTA) which functions to support conditioned learning of sensations; the nucleus accumbens (NA) which is central to incentive value attachment; the amygdala which is allied with associative learning mechanisms; the hippocampus, the memory circuit which is involved in context-dependent learning of drug-associated behaviours, and the prefrontal cortex, the executive control centre (Bechara, 2005; Chao & Nestler, 2004; Jones & Bonci, 2005). Jaffe and Jaffe (2004) suggest the euphorogenic effects of addictive substances are distinct from the phenomena of reinforcement (reward) with the difference being as between “liking and wanting (craving)” (p.20).

Addictive disease symptomology is grounded in the relationship between three impaired functional systems: motivation-reward, affect regulation, and behavioural inhibition (Goodman, 2008). Motivation and reward are influenced by the increased intra-synaptic levels of dopamine in the NA which signals the degree of influence, motivated behaviour,

experienced reward, and expression of sensitisation (Clay et al., 2008). With affect regulation impairment the neurobiological processes that manage emotional state intensity and stability are diminished, leading to overwhelming distress and reduced function. The impairment of behavioural inhibitory control, reduced tolerance to reward delays, and premature decision-making allow urges to over-ride cognitive controls resulting in actions that stimulate the rewards systems (Koob, 2009).

The reward pathway involves the mesolimbic dopamine pathway (MDP), an impulsive system that underlies the reward or wanting of natural stimuli and the mesocortical pathway (MCP), a reflective system that functions to suppress inappropriate reward responses and regulate decision-making (Bechara, 2005; Clay et al., 2008). The MDP involves the VTA, amygdala, and the NA. VTA triggers body and brain responses from memories, knowledge, and cognition supporting conditioned learning and development of sensitisation. The amygdala responds to triggers in the environment, with rapid conditioning toward reward associated cues. The NA is central to the assignment of incentive value to conditioned behaviour, articulation of sensitisation, and memory consolidation of prominent events. The MCP involves the prefrontal cortex which is cognitively resourced to choose or suppress actions based on reward value considerations (Bechara, 2005; Clay et al., 2008).

The changes in the MDP of an addicted person are insidious, profoundly influential, and long lasting, “once addicted, the individual has moved into a different state of being” (Leshner, 2006, p.76). The transition to addiction is marked by anhedonia, cravings, and relapse.

Tice, Bratslavsky, and Baumeister (as cited in Baker et al., 2004) in their 2001 study which focused on emotional distress regulation, modestly refer to the ongoing experience of an addicts craving, “when people feel acutely bad, they generally wish to feel better, and this wish is often urgent”(p.45). Clay et al. (2008) explain that once an individual’s brain “is convinced [that the drug is] necessary for survival everything else becomes secondary” (p.3). Craving evolves into a need state which is present even directly following a dose and may be triggered long after somatic withdrawal symptoms have abated (White, 2004). The phenomenon of relapse relates to the appetitive effects of the drug and may be induced by sensitivity to drug associated cues, the influence of stress and anxiety, or in response to a priming dose of the drug (Clay, 2008).

The final blow is demonstrated in the extraordinary work of Libet and colleagues (as cited in Sellman, 2007) who in exploring what they described as the ancient workings of the modern brain, found decision making in response to external occurrences to be far from conscious control. Indeed, Libet et al. (as cited in Sellman, 2007) assert that by the time a human being is conscious of a decision it is already half a second old, and has already occurred in an unconscious and automated manner. Therefore, what is experienced consciously is an optional continuation of or change to the course of action. Sellman (2007) explains that changing the course of drug related behaviour is extremely difficult as it is opposed by a force of unconscious decision-making “utilising the most powerful machinery of the brain for ensuring survival, taken over for that purpose” (p.79).

## 2.4 AETIOLOGY OF ADDICTIVE DISEASE IN THOSE WHO WORK WITH ANAESTHESIA

There are discrete features of disease aetiology in health care workers addicted to drugs diverted from the clinical practice of anaesthesia that influence susceptibility, the course of the disease, morbidity, mortality, and treatment response (Angres & Bettinardi-Angres, 2008). The aetiology of addictive disease amongst those who work with anaesthesia is a complex pathway, involving both unique and typical risk and causative factors (Ismail, 2010). The disease aetiology in these individuals and in this context focuses on factors particular to the host, the staff member, and the environment, the anaesthesia department. Significant personality, genetic, and psychiatric host factors influence an individual's risk of initial drug diversion, drug abuse, and addictive disease. Environmental factors of importance include the extraordinary relationship between drugs used predominantly in anaesthesia and the speed of addictive disease evolution, and the influence of the unique combination of stressors and opportunities present in the anaesthetic environment (Kintz, Villain, Dumestre, & Cirimele, 2005). The relationship between rapid disease progression and the pharmacological properties of the drugs diverted from clinical practice in anaesthesia is significant (Oreskovich & Caldeiro, 2009). Cloninger (2008) acknowledges that it is availability that dictates which drugs are abused. In the anaesthesia department there are several key drugs which are accessible, potent, and associated with rapid development of tolerance, addiction, and significant risk of death.

Addictive disease aetiology in peri-anaesthesia staff presents several unique elements in addition to the hallmark features. Those who divert and abuse drugs in the clinical environment are largely identified as either sensation/novelty seekers who exploit the euphorogenic drug effect or individuals who seek relief or management of dysphoric moods (Roche, 2007). Although no meaningful screening tools have been developed for use in anaesthesia which may accurately predict individuals prior to the development of drug addiction, factors that increase susceptibility have been identified (Cloninger, 2008). Susceptible persons within the anaesthetic team are those with a reduced threshold for initial drug experimentation and whose initial experience of drug abuse is extremely pleasant (Sellman, 2007). Exposure related neurobiological changes secure the disease of addiction. As Roche (2007) asserts, it is now impossible for the individual to stop without intervention and treatment, and they will almost never initiate these themselves.

With addiction defined “as a psychosocial biogenetic disease which results from the dynamic interplay between a susceptible host and favourable environment” (Ismail, 2010, p.857), it must be acknowledged that this collision is a most powerful one in the anaesthesia department, due to the typical number of susceptible individuals and the consummate access to potent drugs of abuse and addiction. As Tetzlaff et al. (2010) states, “giving anaesthesia is recognized [*sic*] to be an independent variable that increases risk” [of addictive disease] (p.144). In summary, anaesthetic workers experience typical and unique risk factors that, particularly in retrospect, can be provocatively summarised

as a clinical environment that favours drug abuse more extravagantly than any other.

#### 2.4.1 THE SUSCEPTIBLE INDIVIDUAL IN ANAESTHESIA

In peri-anaesthesia staff additional factors have been associated with increased risk of substance abuse which include: intelligence with advanced academic performance, in-depth drug knowledge, ready access to drugs, belief that specialised knowledge will be defensive against addiction, sleep disturbance, the need for sustained vigilance, and the high degree of clinical demand and responsibility (Alexander et al., 2000; Lillibridge et al., 2002). Furthermore, entrenched within anaesthesia practice is the acceptance of chemical solutions, this has the effect of normalising drug use and reducing the threshold for self-medication (Talbert, 2009). Moreover, Watts (2005) recognise that doctors demonstrate a reluctance to seek routine medical consultation with a colleague that they may know, contributing to late intervention, self diagnosis, and self prescription of drugs. Indeed, Kavanagh (2006) describes significant barriers to therapeutic doctor to doctor consultation including collusion by the treating physician to minimise the presenting complaint. Additionally, studies describe complex erroneous thinking in addicted staff as a combination of massive denial and a sense of powerful uniqueness, co-existing with profound guilt, shame, and fear (Bryson & Silverstein, 2008; Domino et al., 2005; Roche, 2007). Bryson and Silverstein (2008), acknowledge that denial is not lessened by education and suggest that “high functioning addicts may have very well developed denial mechanisms in place” supported by somewhat grandiose thinking (p.907). It is also understood that drug diversion and

consumption may be motivated by efforts to self medicate psychiatric disease symptoms (Talbert, 2009). Alternatively, there are those in which diversion and the consumption of anaesthetic drugs is driven by hedonistic desires, an experiment underpinned by persuasive pharmacological knowledge and intense curiosity (Bryson & Silverstein, 2008; Tetzlaff et al., 2010).

#### 2.4.2 A FAVOURABLE ENVIRONMENT

Environmentally, there are numerous factors that create what could be described as the perfect storm for abuse and addiction to occur within the anaesthesia department. When a susceptible individual is approximated with an environment potent with opportunity, drug experimentation may be predicted to follow (Cloninger, 2004). Research findings have concluded that clinical stressors and extensive drug access are the key environmental risk factors (Kintz et al., 2005). There is also however, an emerging argument that hypothesises occupational exposure via incidental contamination of theatre room air, which is thought to promote cerebral sensitisation to substances of abuse and addiction. Gold et al. (2006) present the hypothesis of addiction aetiology resulting from “workplace environmental poisoning rather than access” (p.20) thereby suggesting that second-hand drug exposure in the operating theatre can sensitise and alter the brain and lower the threshold for substance use behaviours and addiction. Although the primary hypothesis remains unproven Gold et al. (2006) were able to demonstrate airborne samples contaminated with fentanyl and propofol following intravenous administration from operating theatres. McAuliffe et al. (2006) supports this hypothesis identifying of those

clinicians who abused fentanyl as their primary drug, 94.4% were anaesthetists or surgeons and that this may be a result of undetected intra-operative exposure. Alexander et al. (2000) explored cause-specific mortality risks of anesthesiologists, and considered chronic exposure to trace concentrations of anaesthetic gases to be a unique occupation stressor along with low doses radiation, and psychological stress.

Ready access to potent drugs used exclusively in anaesthesia with significant abuse potential, acts as an influential environmental factor in the aetiology of addictive disease (Oreskovick & Caldeiro, 2009). Additionally, the situation unique to anaesthesia, in which an individual clinician prescribes, dispenses, and administers controlled substances on a case by case basis, contributes to the evolution of curiosity and ease of successful diversion and deception (Baird, 2000).

Colluding with the favourable environment and the susceptible individual is the phenomenon of denial. Denial is an inevitable feature of addictive disease, undermining an affected individual's thinking which thereby facilitates drug procurement and consumption that would otherwise be known to be personally and professionally disadvantageous (Angres & Bettinardi-Angres, 2008; Baker et al., 2004; Bryson & Silverstein, 2008). Interestingly, within the collegial environment, denial can also appear in the form of cognitive dissonance, resulting in an unwillingness to witness impairment in a colleague, which allows the disease to continue seemingly unnoticed (Bryson & Silverstein, 2008; Collins et al., 2005; Dunn, 2005; Talbert, 2009). Roche

(2007) claims disease denial is common amongst anaesthetic colleagues even when signs of addiction have become florid.

## 2.5 PROGRESSION OF ADDICTIVE DISEASE IN AFFECTED INDIVIDUALS WHO WORK WITH ANAESTHESIA

Disease evolution involves the exposure related adaptations of tolerance and withdrawal, heightening pre-occupation with drug procurement and use, escalating craving, loss of control, and rationalisation, denial, conflict, and depression (Bryson & Silverstein, 2008; Goodman, 2008; Jones & Bonci, 2005; Koob, 2009; Leshner, 2001). The progression of addictive disease is influenced by the enhanced reward experienced from the addictive substance combined with the decreased value experienced from natural rewards (Baker et al., 2004; Bechara, 2005). Physiological changes alter the process of decision making allowing self directed behaviour to be usurped by automated sensory driven behaviour (Kalivas as cited in Angres & Bettinardi-Angres, 2008). This phenomenon is emboldened by denial and deficits in the mechanisms that govern learning, motivation, memory, and decision making, and importantly does “not respond to intellect” (Angres & Bettinardi-Angres, 2008, p.700). The initial drug diversion event is preceded by several significant individual and environmental factors that weigh in on the side of engaging in drug diversion and consumption. Although these factors may vary between individuals, they are identified in a consistent enough manner to be compiled as risk factors. The motivational potency of a drug exposure experience relates not only to the euphoria experienced, but also to the establishment of craving and

the negative affect promoted by falling drug levels (Baker et al., 2004). The rapidity of addiction disease fruition is clearly influenced by drug potency, with mortality threatening timelines associated with relatively early detection due to aberrant behaviour or death. This is clearly exemplified in the case of fentanyl, with addiction potentially occurring in only days (Baird, 2000) and an estimated timeline from initial exposure to discovery being six to twelve months (Lundgren, 2007). The discovery of which is not infrequently as a result of death (Chisholm & Harrison, 2009; Saunders, 2006). The pharmacological potency influences this timeline through the promotion of galloping tolerance and overwhelming craving, which in turn drives the consumption of massive doses that are associated with significant impairment and accidental overdose (Oreskovich & Caldeiro, 2009; Thomas & Anthony, 2006).

#### 2.5.1 DESCRIPTION OF ABUSED AGENTS

Within the anaesthesia department there are numerous pharmacological agents associated with diversion, abuse, and addiction. Opioids continue to be the most commonly diverted substance, in particular fentanyl which demonstrates a remarkable level of habituation (Booth et al., 2002; Bryson & Silverstein, 2008; Fry, 2005; Oreskovich & Caldeiro, 2009). Additional anaesthetic agents diverted for experimentation and abuse include volatile gases, ketamine, midazolam, lidocaine, thiopental sodium, nitrous oxide, and propofol (Bryson & Levine, 2008; Dexter, 2007; Luck & Hedrick, 2004; Wilson et al., 2008; Wischmeyer et al., 2007).

Of considerable importance is the enhanced predilection for parenteral use of opioids demonstrated by those who work with anaesthesia when compared with other clinical specialties, as parenteral use is associated with an accelerated course of disease (Alexander et al., 2000; Domino, et al., 2005). Skipper, Campbell, and DuPont (2009) report a preference amongst anaesthetist for the intravenous route in drug abuse of 41% compared to 10% in other physicians.

### 2.5.2 DRUG DIVERSION METHODS

Healthcare facilities employ various methods of medication control to keep account of medications and comply with legislation. However, despite these methods procurement of controlled drugs is achieved with surprisingly creative and risky means (Lillibridge et al., 2002; Wearing Masks, 1994, 2004, 2005, 2006). There are also drugs diverted for abuse that are not subject to access restrictions (Hartle, 2009). Methods of drug diversion identified include: the taking of a portion of a drug prescribed for a patient, substituting the target drug of abuse for an alternative medicine for patient administration, the taking of a drug recorded as wasted, taking drugs from stock container and substituting desired drug with an alternative such as sterile water, retrieving drugs from sharps containers, reporting waste or breakages falsely in order to secure an additional dose, and the obscuring of drug taking by falsifying records (Cegedim, 2010; Roche, 2007). As the addictive disease becomes fully manifest, the affected individual's investment in various strategies designed to ensure drug procurement becomes consuming, and the hospital's drug management systems are no match (Lillibridge et al., 2002; Sharer, 2008). Indeed, drug control strategies may have a more

significant role in supporting detection rather than prevention (Sharer, 2008).

### 2.5.3 SIGNS AND SYMPTOMS OF ADDICTIVE DISEASE

The behaviour of an individual experiencing worsening addiction is subject to persistent and progressive deterioration; despite this an individual may successfully conceal drug abuse for some time (Thomas & Anthony, 2006). Signs and symptoms of addiction are relatively consistent regardless of which substance an individual may be addicted to; furthermore, not infrequently that individual may be consuming more than one substance (Wilson et al., 2008). Roche (2007) recommends the *four A's* as a useful model of identifying a colleague impaired by drug abuse or addiction. Addiction pattern recognition may be possible when aberrant individual behaviour is scrutinised in the specific domains of attitude, affect, attendance and appearance. Kintz et al. (2005) identify the following behaviours associated with addiction within the department of anaesthesia: unusual changes in behaviour, desire to work alone, a preference for night, afternoon or weekend duties, refusal of breaks, volunteering for extra or long cases, mood swings, patients with immediate post operative pain disproportionate to recorded analgesia, and being in the theatre suite at times that do not correlate with shift schedule. The ability to function at work is preserved at the eventual and inevitable expense of everything else, largely to maintain drug supply (Bryson & Silverstein, 2008; Fry 2005; Kintz et al., 2005).

The behavioural evolution of addiction continues rapidly toward what is “seemingly incredulous behaviour...by intelligent people” as

they devolve from proficient self directed professionals to actions such as rummaging through sharps containers (Bryson & Silverstein, 2008, p.907). Gold and Millar stated as early as 1992 “it is as though drug users feel as if they have acted to preserve the species, when in reality they have simply bypassed the normal behaviour reinforcement system” (as cited in Sellman, 2007, p.79).

Fry (2005) acknowledges that the accurate recognition of substance abuse is extremely difficult. Bryson and Frost (2011) add that vigilance for disease signs and symptoms may be an inadequate strategy for identifying many impaired colleagues. For these and other reasons premature death from suicide or accidental overdose is on many occasions the first sign of addiction or relapse in an impaired colleague (Chisholm & Harrison, 2009; Fry, 2005; Skipper et al., 2009). Rose and Brown (2010) identified suicide rates amongst anaesthetists to be two to three times greater than that of other physicians and the general population. Indeed, Domino et al. (2005) reported a threefold increase in the risk of drug related death among anaesthetists compared with physicians.

#### 2.5.4 CONSEQUENCES OF ADDICTION

The threats to health and wellbeing are profound and can be experienced with an alarmingly rapid evolution (Oreskovich & Caldeiro, 2009). Inherent in the diagnostic details of addictive disease is the gradual subversion of all aspects of life that do not directly relate to the procurement and consumption of the substance of addiction (Bryson & Silverstein, 2008). Because the workplace allows for the continued supply of drugs, the impaired individual’s profession is “highly

cherished and protected” (Roche, 2007, p.44). Therefore, as the workplace is integral to the disease it is preserved as long as possible, and this often occurs at the expense of aspects of life experienced beyond work (Kintz et al., 2005).

Interestingly, there is little evidence of patient harm related to physician or nurse impairment caused by addiction to drugs diverted from practice (Berge et al., 2008; Skipper et al., 2009).

## 2.6 EPIDEMIOLOGY OF ADDICTIVE DISEASE IN DEPARTMENTS OF ANAESTHESIA

The incidence of addiction among those who work with anaesthesia to drugs diverted from practice has not been established with certainty, although Saunders (2006) hypothesises it is 2%, which has been supported by incidence research data collected over the last thirty years (Collins et al., 2005; Weeks, Buckland, Morgan, & Myles, 1993).

The prevalence of addictive disease, including alcohol and tobacco, within physician and nurse population groups is approximately 10% which is comparable to that of the general population, (Bechara, 2005; Collins et al., 2005; Domino et al., 2005; Fry, 2005; Shaw et al., 2004). Notably, the 2% of individuals addicted to drugs diverted from clinical practice experience significant morbidity and mortality, in particular within clinical anaesthesia (Alexander et al., 2000; Booth et al., 2002; Bryon & Silverstein, 2008). In short, addictive disease within the context

of departments of anaesthesia presents an alarmingly accelerated course, and a significantly escalated risk of death (Roche, 2007).

The accelerated disease progression influences the impaired individual's ability to effectively conceal addictive disease and this is reinforced by the measured period of time from initial dose to detection. This is relatively drug specific as it relates largely to the pharmacochemical properties of the drug (Fry, 2005). Importantly, detection is not infrequently announced by the death of the affected individual, either by suicide or accidental overdose. As dose demand rapidly escalates through the mechanisms of dependence and tolerance, the individual's effort to manage withdrawal symptoms drives drug consumption upwards, causing dose titration to become increasingly fraught (Collins et al., 2005; Fitzsimons et al., 2008; Saunders, 2006). Underpinned by massive denial, absurdly obvious pathological conduct is adequately justified and expertly concealed (Baker et al., 2004). Once addiction is established the individual will almost never ask for help and when this is combined with the colliding dose demands of advanced disease the situation becomes imminently life threatening. With mortality so closely on the heels of morbidity, a very tight timeline for detection and intervention is present.

The morbidity and mortality of anaesthesia workers addicted to drugs diverted from clinical practice has received international research attention. Research findings confirm a significant and persistent problem exists which appears largely resistant to thirty years of increased awareness, education, and monitoring (Collins et al., 2005; Berge et al.,

2008; Epstein, Gratch, & Grunwald, 2007; Fitzsimons, Baker, Lowenstein, & Zapol, 2008; Fry, 2005; Tetzlaff et al., 2010; Wilson et al., 2008; Wischmeyer et al., 2007). Roche in 2007 identified “substance abuse and chemical dependence as the most common occupational hazards associated with the practice of anesthesia” (p.11). Furthermore, Fry in a letter to the editor of *Anesthesia [sic] & Analgesia* in 2006 stated “substance abuse in anaesthesiologists remains a significant and poorly managed problem in Australasia” (p.1588).

Epidemiological data is largely based on mortality rates, admissions to drug treatment programmes, professional disciplinary records, and retrospective surveys. The key limitations acknowledged by researchers include the early research study inclusion of alcohol and street drugs, and reliance on individual recall (Booth et al., 2002; Bryson & Levine, 2008; Shaw et al., 2004). Research literature presents similar findings regarding peak incidence related to career stage, morbidity rates, and mortality figures, both at diagnosis and as a result of relapse (Bryson & Levine, 2008; Bryson & Silverstein, 2008; Collins et al., 2005; Oreskovich & Caldeiro, 2009). Matters of contention include the relative over-representation of anaesthetists compared to other medical specialities and findings around re-entry into clinical practice in the anaesthesia department following treatment (Bryson & Levine, 2008; Bryson & Silverstein, 2008; Collins et al., 2005; Oreskovich & Caldeiro, 2009). Published epidemiological studies make a valuable contribution to unmasking addictive disease in the context of anaesthesia, and with limitations acknowledged, create a backdrop against which the impact of disease incidence and harm reduction strategies can be measured.

Whilst difficulties exist when comparing incidence, due to the various methodological limitations, these figures are relatively consistent over an extended period of time. It is noteworthy, that within this broadly accepted incidence range, several researchers are reporting epidemiological changes involving the increasing prevalence of abuse, changes in the trends of drugs diverted for abuse and changes in drugs associated with mortality (Collins et al., 2005; Wischmeyer et al., 2007). Abuse and addiction trends amongst those who work with anaesthesia present increased use of sedative-hypnotics (Wilson et al., 2008). Furthermore, anaesthetic gases and the induction agent propofol are increasingly associated with abuse related sudden apnoea and accidental death (Wilson et al., 2008).

An outstanding feature of addiction to drugs diverted from clinical anaesthesia is the significance the unique context bears on disease morbidity and mortality (Shaw et al., 2004). The risks of rapid disease evolution following initial and repeated anaesthetic drug exposure are dramatically influenced by the properties of these drugs. These properties possess profound reinforcement qualities and quickly influence a neurobiological adaptation sequence that secures the ongoing prioritisation of drug procurement, abuse, and the establishment of addiction. Bryson and Silverstein (2008) and Shaw et al. (2004) promote that it is this rapid disease evolution and associated mortality in anaesthesia practitioners that distinguish the specialty compared with other medical disciplines rather than the comparative higher incidence of addiction per se as presented by other key researchers (Booth et al., 2002;

Skipper, 2009). Findings of comparative elevated incidence are presented by other researchers, in particular those examining treatment centre enrolment figures (Collins et al., 2005; Domino, 2005; Gold et al., 2006; Kintz et al., 2005). Interestingly, these findings contrast with other studies which conclude that those who work with anaesthesia do not demonstrate an elevated incidence of addiction when compared with physicians (Alexander et al., 2000; Bryson & Levine, 2008; Lundgren, 2007).

Indeed, while Oreskovich and Caldeiro (2009) acknowledge that anaesthetic drug potency results in aggressive disease manifestation, they hypothesise that it is this consequence that in part accounts for the relative over-representation in treatment programmes. Bryson and Frost (2011) raise the concern that addiction in anaesthesia may be vastly underestimated with significant undetected incidence. Perhaps Fitzsimons et al. (2008) statement is the most apt “the incidence of substance abuse ... among physicians is unknown. The incidence of substance abuse by anaesthesiologists ... is also uncertain” (p.630).

Surveys of substance abuse incidence within anaesthesia departments demonstrate that most departments are affected by drug diversion and substance abuse in some way. Collins et al. (2005) found 80% of anaesthesia residency programmes identified a case(s) of an anaesthetic resident impaired by addictive disease. Furthermore, 19% of anaesthesia departments reported the occurrence of a pre-treatment death. Berge (2009) reported when lecturing to various groups of anaesthesia workers, where he frequently presented the question “who

here has lost a friend or colleague to narcotic addiction? Nearly every hand in the audience goes up” (p.762).

Mortality rates provide the most dramatic feature of addiction in anaesthesia staff. Mortality rates in affected anaesthetic staff are approximately 25%, with the causes of death including suicide and accidental overdose before treatment and at relapse (Booth et al., 2002). Significantly, it is not infrequent that accidental overdose or suicide is the first signal of addiction in this demographic (Booth et al., 2002). Fry’s (2005) Australasian survey reported death as the initial presentation of addiction in 15% of affected staff.

A paucity of robust epidemiological data exists on diverted substance abuse and addiction in nurses (Munroe et al., 2008). Despite the occasional acknowledgement of substance abuse in academic nursing journals, findings from methodologically sound studies are lacking. Furthermore, the management of the diversion of drugs for abuse amongst nurses continues to be overshadowed by disciplinary actions in contrast to the alternative approach to discipline that has been well established by physicians (Monroe et al., 2008). Tange (2011) reports on the certified registered nurse anaesthetists in North America who have published useful recommendations advocating for change away from a disciplinary or criminal approach and a move towards a therapeutic treatment response. Tange (2011) calls on nurse leaders to promote a non-punitive environment in which rehabilitation is encouraged. Shaw et al. (2004) reports as a consequence of drug abuse, nurses receive more severe sanctions and more often, compared to physicians.

Individual responses to substance abuse rehabilitation vary (Berge, 2009; Berge et al., 2008; Bryson & Silverstein, 2008; Collins et al., 2005; Domino et al., 2005; Oreskovich & Caldeiro, 2009). This variance is in part confounded by the limited length of follow-up and the disease itself which is by nature a chronic relapsing condition. Whilst, numerous studies have reported encouraging treatment outcomes of those who have completed specialised treatment programmes for professionals (Anges & Bettinardi-Angres, 2008; Cohan, 2009; Gastfriend, 2005; Saunders, 2006; Skipper et al., 2009), these are overshadowed by the difficulties experienced within the anaesthesia population on re-entry to practice post treatment with devastating relapse associated death rates reported (Bryson & Levine, 2008; Bryson & Silverstein, 2008; Collins et al., 2005; Oreskovich & Caldeiro, 2009). The conundrum surrounding the safe re-entry of clinicians into anaesthesia practice is intensely debated. A relapse incidence of 25% is reported in recovering staff, following return to clinical anaesthesia (Domino et al., 2005). The high mortality and morbidity associated with re-entry to practice has led to the recommendation that recovering staff be redirected to an alternate specialty (Berge et al., 2008; Bryson & Levine, 2008; Collins et al., 2005).

What has been demonstrated epidemiologically is that drug abuse and addiction cause substantial morbidity and mortality within departments of anaesthesia internationally (Alexander et al., 2000; Berry et al., 2000; Booth et al., 2002; Bryson & Silverstein, 2008; Collins et al., 2005; Fry, 2005; Rose & Brown, 2010; Shaw et al., 2004; Skipper et al., 2009). This occupational risk has received professional

acknowledgement and resulted in the sustained comprehensive response from key professional organisations, of particular note is the work of ALL Anesthesia, represented by the Wearing Masks series (1994, 2004, 2005, 2006). Evidence of effective professional intervention strategies may be measured with favourable incidence and recovery data, sustained drug free individuals and work environments free of drug abuse. This evidence is not forthcoming, in fact there is little encouragement that the last three decades of prevention and management strategies have had any positive impact at all (Berge et al., 2008; Booth et al., 2002; Bryson & Silverstein, 2008; Collins et al., 2005; Epstein, Gratch, & Grunwald, 2007; Fitzsimons et al., 2008; Kintz et al., 2005; Kirby, Colaw, & Douglas, 2009). Furthermore, there is a paucity of robust evidence demonstrating that these prevention and management strategies have been successfully embedded within anaesthesia departments.

Fry (2005) has signalled the need for a new proactive approach, focused on mandatory education, detailed policies, and registrar mentoring. Collins et al. (2005) and Wilson et al. (2008) recommend aggressive action with an emphasis on preventative methods focused early in the anaesthetists career, in particular drug screening. Tetzlaff et al. (2010) describe active prevention, utilising mandatory regular education, controlled drug diversion prevention, and detection systems, enhanced detection skills amongst staff, and multifaceted drug testing. It has also been suggested that consultation with colleagues in recovery may yield novel approaches in prevention and detection (Bryson & Frost, 2011; Chisholm & Harrison, 2009).

Of key importance is the knowledge that although all things are not equal, the initial drug abuse event is a voluntary and therefore preventable behaviour (Leshner, 2007). Indeed, in-depth research into the contributing, facilitating, and motivating factors regarding an individual's first ever consumption of a drug diverted from practice may provide essential information in formulating a way forward. Lillibridge et al. (2002) study examined the experiences of five nurses with addictive disease. Causative factors identified included: stress, work demands, access to drugs, an acceptance of chemical solutions, shift and sleep disturbance, focusing on the needs of other at the exclusion of self, and the experience of work as traumatic. Investigation into the lived experience of substance abuse amongst nurses identified several pertinent themes: the fear of discovery inhibited seeking help, the use of substances as either a strategy for managing expectations or supporting an experience of being esteemed, disappointment due to the experience of collegial denial and cognitive dissonance, concern over potential confidentiality breaches, and the justification of substance abuse behaviours. The authors concluded that it is imperative that the experiences of affected individuals influence guideline and policy development (Lillibridge et al., 2002).

Cognitive dissonance and collegial denial are significant and complex factors reportedly contributing to the morbidity and mortality identified in staff. Concerns around cognitive dissonance have been reinforced by the retrospective case descriptions by both the affected individual and surrounding staff. In these narratives, behaviour that was with hindsight

clearly pathological avoided confrontation due to excessive collegial rationalisation (Wearing Masks, 1994, 2004, 2005, 2006).

## 2.7 SELECTED INTERNATIONAL SUBSTANCE ABUSE POLICIES

The aetiological and epidemiological evidence has established an intimate relationship between addictive disease and the anaesthesia environment. International policies were selected for examination based on accessibility and comparability toward establishing a relevant benchmark. Specifically, countries identified for policy examination operated within a similar training and healthcare delivery structure, including training exchange positions, and anaesthesia organisation and society documents were written in English. Noteworthy policies, procedures, and guidelines have been developed by anaesthesia groups in North America, Australasia, Great Britain and Ireland (AAGBI, 2011; ACECC, 2011; All Anesthesia, 2007; ASA, n.d.; Roche, 2007). The examination of these documents resulted in the identification of key themes which provided the landscape of current professional thought and conduct pertaining to drug abuse and addiction amongst those who work with anaesthesia. The descriptive analysis of these leading international substance abuse policies and recommendations served as a standard against which New Zealand data was benchmarked. The key themes extracted and pooled for content analysis were: philosophy of care, educational curriculum, drug testing, controlled drug accountability, intervention, treatment, monitored re-entry to practice, dismissal/termination, reporting to regulatory bodies, and police.

Documents from the following organisations were examined and are discussed as follows: The Coalition for the Prevention of Substance Abuse in Anesthesia [*sic*] (ALL Anesthesia [*sic*]) of North America, the American Association of Nurse Anesthetists [*sic*], the Welfare of Anaesthetists Special Interest Group of Australia and New Zealand, the Association of Anaesthetists Study of Substance Abuse Amongst Anaesthetists of the United Kingdom, and the Association of Anaesthetists of Great Britain and Ireland. The selection of model policy and guideline documents was based on consideration for language and professional and cultural similarities that may allow for comparison within the New Zealand context.

Following the revival of professional concern regarding diverted substance abuse in the early 1980's, various professional collaborations developed and promoted programmes aimed at protecting patients from harm and reducing staff morbidity and mortality. Physician health and welfare leaders, in North America in particular, began developing substance abuse strategies that not only represented patient harm minimisation but also prioritised the professional and personal wellbeing of the clinician (ALL Anesthesia, 2006; ASA, n.d; Roche, 2007; Wearing Masks, 1994, 2004, 2005, 2006).

Internationally, nursing organisations have made notably slow progress in the formulation of a response to the long recognised occupational hazard of diversion and abuse of drugs by nurses. As previously mentioned, neither the New Zealand Nurses Organisation nor the Nursing Council of New Zealand has substance abuse policy

documents. The American Nurses Association, the International Nurses Society on Addictions and the National Student Nurses Association advocate a focused alternative to discipline approach which includes recommendations of early detection, timely intervention, treatment, and monitored re-entry into practice (Monroe et al., 2008). An alternative to discipline approach acknowledges addiction and related conduct as primarily being a health and welfare issue, and allows the organisational response to be therapeutic rather than disciplinary. The philosophical foundations of these initiatives are grounded in overt concern for nurse welfare, both as a professional and a human being (Monroe et al., 2008). Professional nursing groups of New Zealand and Australia have yet to develop a robust, evidence based, therapeutic approach that is supported by a comprehensive policy document.

#### 2.7.1 PHILOSOPHY OF CARE

On examination the philosophical underpinnings of international documents pertaining to staff diversion, abuse, and addiction reveals an evolving theme of humane concern, leading to the compassionate and confidential care of impaired colleagues. Of paramount importance was the establishment of a safe work environment and commitment to assisting affected staff.

Drug and Alcohol Abuse amongst Anaesthetists: Guidance on Identification and Management (AAGBI, 2011) in Great Britain and Ireland emphasised patient safety and efficiency of patient care, stating that drug abuse constitutes a reportable breach in conduct and those whom observed altered behaviour were bound by duty to initiate a

review of collegial fitness for practice in order to protect patients from harm.

North American guidelines contain statements of concern for the affected clinician's wellbeing, both professional and personal, with staff and patient safety represented in equal esteem. Furthermore, key foundational statements were made acknowledging drug diversion and abuse as an occupational hazard and addiction as a chronic disease. Leading North American resources published by the organisation All Anesthesia *[sic]*, may be professionally influential and include the widely distributed peer education publication titled 'Wearing Masks' (All Anesthesia *[sic]*, 1994, 2004, 2005, 2006). The All Anesthesia *[sic]* policy development document states the need for an overarching statement declaring the departmental philosophy toward drug abuse, addiction, and impaired individuals (Roche, 2007). The All Anesthesia *[sic]* group asserted that a departmental specific document was warranted for clinical anaesthesia as the "risk of developing substance abuse or chemical dependence is inherent to anesthesia *[sic]* practice" (Roche, 2007, p.92). Furthermore, one of the objectives state that engagement with an affected individual needs to embrace a non-punitive approach which demonstrates professional compassion, moreover; this must occur in an atmosphere of strict confidence (Roche, 2007).

An entirely consistent approach has been prepared by the American Society of Anesthesiologists *[sic]* (ASA) whose Committee on Occupational Health have published a comprehensive model curriculum on drug abuse and addiction for anaesthesiology residents (ASA, n.d.)

and have also presented a model departmental policy for drug and alcohol testing as part of a comprehensive intervention for suspected abuse in anaesthesia professionals (Katz & Arnold, 2005). North American nursing groups were found to be well aligned with their physician counterparts. The American Association of Nurse Anesthetists [*sic*] (AANA) (2010) provided a model policy for management of substance abuse and addiction. This document was philosophically in step with the All Anesthesia [*sic*] group and was distinguished as a comprehensive rarity in nursing organisations and associations internationally.

The Welfare of Anaesthetist Special Interest Group represents the Australian and New Zealand College of Anaesthetists, the Australian Society of Anaesthetists and the New Zealand Society of Anaesthetists. Documents produced by this group identified risks associated with drug diversion and abuse for patients, impaired staff, and colleagues (Anaesthesia Continuing Education Coordinating Committee (ACECC), 2011). Within this document a therapeutic response was described as an alternative to an employment, discipline, or criminal approach. Confidentiality was strongly endorsed in all model policies examined.

### 2.7.2 EDUCATIONAL CURRICULUM

The inclusion of a comprehensive educational curriculum within a substance abuse policy was considered essential by Australasia and North America policy developers. In contrast, the policy documents from Great Britain and Ireland did not contain any education curriculum recommendations (AANA, 2010; ACECC, 2011; All Anesthesia [*sic*] 2007;

ASA, n.d.; AAGBI, 2011; Roche, 2007). Few detailed examples of educational curriculum content have been published, with the exception being the curriculum made available by All Anesthesia [*sic*] of North America. The American Society of Anesthesiologists [*sic*] (ASA) and the Coalition for the Prevention of Substance Abuse in Anesthesia (All Anesthesia) [*sic*] have published detailed model curricula and resources. Not only were these educational resources evidenced based and comprehensive, they were also made freely available to anaesthetic colleagues internationally.

Although the All Anesthesia [*sic*] education model is arguably the leading work of its type, consideration of some key statements in the context of recent research findings promoted some discourse. The author asserted that in the absence of an educational component even the most comprehensive substance abuse policy would be a failure (Roche, 2007). Although this statement may have intuitive validity there is a paucity of research based evidence that suggests substance abuse policies or programmes, including those with education well integrated, are actually effective (Booth & Frost, 2011; Fry, 2005; Tetzlaff et al., 2007). Research findings reveal increasing engagement with substance abuse policy and education over the last three decades have failed to significantly influence morbidity and mortality rates (Alexander et al., 2000; Berge et al., 2008; Berry et al., 2000; Bryson & Silverstein, 2008; Fry, 2005). The All Anesthesia [*sic*] model policy also stated an affected individual may seek help following the empowerment experienced through education curriculum exposure (Roche, 2007). This would however, very rarely be the case, as staff with addictive disease almost

never initiate intervention due to the overwhelming influence of factors including: changes to the memory and analysis of actions around drug procurement and consumption, deeply embedded denial, and the inevitable consequence of immediate termination of access to current drug supply (Bryson & Silverstein, 2008; Kintz et al., 2005). Indeed, within the same published document the following statement was made “denial is the hallmark of addiction and the impaired practitioner will never seek help themselves” (Roche, 2007, p.49). That said, this education programme has offered both policy writers and the profession as a whole significant leadership.

In contrast to documents from North America (AANA, 2010; All Anesthesia, 2007; ASA, n.d.; Roche, 2007), documents generated by anaesthesia groups from the Great Britain, Ireland, and Australasia all had similarly brief education curricula recommendations (AAGBI, 2011; ACECC, 2011). Continuing education for all staff members was recommended although the content of which was only vaguely alluded to (AAGBI, 2011; ACECC, 2011).

Policy recommendation documents from North America also advise strategies for disseminating the substance abuse policy to employees and advise regular mandatory lectures. Australasian policy documents promote the integration of education on drug diversion and abuse into core syllabus, with additional tutorials and journal club activities (ACECC, 2011). The Welfare of Anaesthetists Special Interests Group of Australasia made the unique recommendation to occasionally include partners in learning around substance abuse as part of a

preventative education policy (ACECC, 2011). Documents examined from the United Kingdom acknowledged international trends toward substance abuse education within anaesthesia departments but did not articulate any recommendations or guidelines for this to occur.

### 2.7.3 DRUG TESTING

Examination of international guidelines revealed comprehensive recommendations regarding drug testing practice. Drug testing was promoted in pre-employment screening, on a random basis, as part of an investigation and/or intervention, and for re-entry to practice monitoring (AANA, 2010; AAGBI, 2011; Roche, 2007). Australasian resource documents (ACECC, 2011) made no recommendations regarding drug testing as a means of verifying substance abuse amongst those undergoing an intervention following reasonable suspicion of drug abuse; indeed the only recommendations made for drug screening was as an integrated element of a monitoring re-entry strategy. The AAGBI (2011) recommend that in situations where clear evidence of substance abuse is present, but confounded by sustained denial, that drug testing should be pursued under the supervision of an occupational health practitioner. Recommendations for drug testing in the circumstance of monitored re-entry to work were strongly stated but only moderately specified, with mandatory biochemical monitoring advised, in particular in the first two years following treatment (AAGBI, 2011).

Recommendations from North America however, provided detailed guidelines for drug testing for those who work with anaesthesia. The ASA (n.d.) advised that drug testing protocols were developed prior

to an event in order to secure the credibility of the drug testing process and the professional safety of the individual. Additionally, pertinent recommendations were made toward the obtaining, securing, processing, and reporting of body fluid samples in such a way as to ensure a genuine specimen, in order to ensure the specimen was collected from that particular individual and without subsequent alteration. Guidelines articulated consideration toward the credibility of specimen collection through competent management of the chain of evidence, and to the privacy, confidentiality, and dignity of the affected individual (ASA, n.d.).

North American guidelines are distinguished by the detailed provision of instructions around the purpose and procedure of drug testing. The AANA (2010) clearly stated that submission to drug testing was a condition of employment, therefore, refusal to participate in testing constituted a professional conduct breach that may be associated with disciplinary action, reporting to professional and/or civil authorities, and dismissal (AANA, 2010). In addition to circumstances of reasonable suspicion, drug testing may also be conducted as a pre-employment screen, on a random basis, as part of investigating a work injury or accident, during physical examination, and at return to work following leave of absence.

The AANA (2010) recommend that the drug testing process include: a written consent, written chain of custody documents, and the disclosure of medications or other substances that may alter screening results. It was also recommended that the laboratory be credentialed

both scientifically and technically for drug testing, that a second test be conducted in all cases of a positive result, and that in the event of a positive result the individual should undergo a medical review to ensure that no alternate medical explanation has been overlooked as a differential diagnosis to substance abuse. The final recommendation was to ensure confidentiality throughout this process (AANA, 2010).

Similarly, the All Anesthesia [*sic*] group provided clear recommendations for the undertaking of drug testing. Pre-employment drug screening was an expectation of anesthesiologists and certified registered nurse anaesthetists, with testing under circumstances of reasonable suspicion mirroring those stipulated by the AANA. Additionally, the observation of poor judgement or careless acts, or behaviour eliciting suspicion of drug diversion may lead to the requirement to undergo drug testing (Roche, 2007). Recommendations clearly stated that failure to consent to drug testing may result in dismissal.

#### 2.7.4 CONTROLLED DRUG ACCOUNTABILITY

The management of controlled drugs is influenced by legislation, regulation, hospital policy, and practice. This process facilitates an organisations ability to monitor, detect, and report diversion of named drugs within the hospital. Required activities included, record keeping, auditing, and explicit professional behaviours, namely drug counts at change of shift (Chisholm & Harrison, 2009; Dexter, 2007; Epstein et al., 2007; Sharer, 2008).

Strategies to discourage drug diversion included drug detection systems which typically utilised a software programme as a method of identifying aberrations and anomalies in records by using retrospective drug transaction analysis (Epstein et al., 2011). Anaesthetists who were identified as having an elevated atypical drug transaction rate prompted further exploration of records and increased screening in order to identify possible drug diversion (Epstein et al., 2001). However, the Cegedim Compliance Group (Cegedim, 2011) warned that technology could not replace a comprehensive compliance programme focused on detection and monitoring of drug diversion and abuse.

Specific recommendations aimed at reducing the ease of drug diversion and at the promotion of early detection were made by AANA, ASA, All Anesthesia [*sic*], and ACECC. These actions were in addition to those required by the national regulatory bodies, who by in large, require scheduled or controlled drugs to be under lock with dual authorised signatories required for drug withdrawal (New Zealand Law Commission, 2010). Recommendations from North America promoted firm protocols regarding the management of unused portions of drug. The majority of protocols recommend either documented double witness wastage or the return of unused drug portions to a controlled location managed by the pharmacy. Furthermore, it was recommended that drug returns were analysed during periodic audits or in order to detect a substituted substance (AANA, 2010). The AANA (2010) also recommended individuals were to be randomly audited utilising the confidential review of anaesthesia, post anaesthesia care records, and

controlled drug records with attention to curious trends, or deviations from the expected course of clinical events.

Roche (2007) found little evidence that a decade of increased attention to the methods deployed to account for controlled drugs had influenced diversion incidence rates. Accurate controlled drug management has however contributed to early detection of diversion (Roche, 2007). In addition to recommendations to improve the overall quality of anaesthetic record keeping, the All Anesthesia [*sic*] (2007) group recommended various drug control strategies including: a satellite pharmacist responsible for managing dispensing and returns, automated medicine management systems, and randomised chemical analysis of opened ampoules. Also suggested was the extra ordinary method of video recording the vital signs monitor of anaesthetised patients and matching recorded drug administration to anticipated patient vital signs in order to detect aberrant occurrences that may be associated with drug diversion.

The Australasian resource, Document 20: Suspected or proven substance abuse, (ACECC, 2011) co-ordinated by local substance abuse committees, identified strategies which decreased the availability of substances with abuse potential and increased the accountability for acquired controlled drugs. The former involved the securing and recording of non-opioid drugs with abuse potential. The latter involved randomised audits with clinical and drug record reviews to identify discrepancies and/or inconsistencies and reported breakage or damage (ACECC, 2011). The document developed by the Association of

Anaesthetists of Great Britain and Ireland named, The Drug and Alcohol Abuse amongst Anaesthetist Guidance on Identification and Management, contained no recommendations regarding drug control (AAGBI, 2011).

#### 2.7.5 INTERVENTION

“Intervention is not an isolated event, it is a process that begins with identification of an impaired colleague and ends with their re-entry to practice” (Roche, 2007, p.149). Conducting an intervention signals not only an opportunity for the affected staff member but also a crisis that may involve intense denial and conflict. In this context an intervention must represent the process of collegial confrontation in a safe, confidential, and respectful manner (Roche, 2007). It is therefore, recommended within the ALL Anesthesia [*sic*] (2007) documents that this process be conducted with a clear plan, robust evidence, a treatment goal, appropriate staff support, adequate knowledge, and skill (Roche, 2007; Saunders, 2006).

ALL Anesthesia [*sic*] (2006) guidelines identified immediate assessment for diagnosis and treatment by an addiction specialist or a multidisciplinary medical evaluation as being the most desirable outcome following intervention (ASA, n.d.; Roche, 2007). An alternative acceptable outcome of staff impairment found to be due to an alternate cause was also stated. In the case of an individual with impenetrable denial but reasonable evidence-based suspicion, restrictions on practice and drug screening were recommended. Individual refusal of treatment and/or drug screening may result in reporting to the individual’s

professional body and suspension or termination from place of employment (Roche, 2007; ASA, n.d.)

The task force on Chemical Dependence in association with the ASA committee on Occupational Health reported that authentic information gathering was the foundation to a successful intervention (ASA, n.d.). The model curriculum on drug abuse and addiction recommended that collegial concerns be directly reported to a designated person, usually an anaesthetist who also acts as a health and welfare officer, or in the absence of this appointment, the clinical director (Roche, 2007). The acceptable format for collegial practice concerns was a written, detailed, and objective witnessed account plus the provision of any physical evidence including ampoules or syringes. Following the reporting of an incident it was recommended that an investigation of all relevant records occurs, in particular controlled drug registers and patient documentation. The preparation for an intervention must be conducted with an emphasis on timeliness and confidentiality.

Recommendations for the intervention itself are consistent across all of the documents reviewed (All Anesthesia [*sic*], 2007; AAGBI, 2011; AANA, 2010; ACECC, 2011; ASA, n.d; Roche, 2007). Namely, that there is clear direction about who is involved, resources to be made available, and recommended care of the impaired individual. Conducting an intervention alone was wholly discouraged in favour of a team approach. The essential intervention team members recommended included the department chair/clinical director, or designated representative, commonly the health and welfare officer, and a human resources or

employee assistance programme representative. Additional team members may include a professional colleague, general practitioner, recovering colleague, family member, or friend (Roche, 2007)

The Welfare of Anaesthetist Special Interest Group of Australia and New Zealand acknowledge the identification and accurate intervention of affected individuals as urgent and advised in circumstances where signs of advanced disease were present, that intervention may need to be accelerated (ACECC, 2011).

All of the international guidelines examined emphasised that once an intervention was undertaken the affected individual experiences an amplified risk of self harm and suicide. Consequently, it is firmly recommended that once an intervention begins the individual is not left unattended until a resolution has been achieved. The preferred resolution identified was the expedient transfer of the affected individual to the care of an addiction specialist for assessment, diagnosis, and detoxification and treatment as appropriate (ACECC, 2011; All Anesthesia [*sic*], 2007; AAGBI, 2011).

Roche (2007) recommends that all records of the investigation and outcomes are treated as confidential and are held by the department chair in a non discoverable file separate from the individual's employment file, unless disciplinary action is necessary or law or regulations require otherwise.

### 2.7.6 TREATMENT

Due to the increased risk of suicide it is strongly recommended that affected individuals are assessed for diagnosis and treatment without delay (All Anesthesia [*sic*], 2007; AAGBI, 2011; ACECC, 2011; Roche, 2007). International recommendations examined in this study reported varied access to detoxification, treatment, and rehabilitation for addicted staff. Expectations regarding treatment related costs varied, and while it was universally promoted that affected staff bear the financial costs associated with the required leave of absence (AAGBI, 2011; AANA, 2010; ACECC, 2011; Roche, 2007), some guidelines recommend the government play a key role in the provision of treatment and rehabilitation (AAGBI, 2011). The Sick Doctors Trust of the United Kingdom unequivocally recommended the government work in collaboration with the profession to provide for the medical and psychiatric healthcare needs of affected doctors (Sick Doctors UK, 2006). While North American guidelines recommended that all financial costs associated with addiction be met by the affected individual (AANA, 2010; Roche, 2007), Australasian guidelines make no reference to medical care costs (ACECC, 2011).

In cases of confirmed substance abuse or addiction, the stated expectation was for immediate entry into a treatment programme made possible with a leave of absence granted by the employer. Roche (2007) recommended the treatment leave agreement not exceed 12 months. Furthermore, Roche (2007) asserts that failure to immediately engage in treatment should result in employment termination and reporting to the appropriate registering organisation. ACECC (2011) of Australasia

identified in the absence of voluntary treatment, involuntary treatment may be sought via committal under the Mental Health Act. It was also acknowledged that treatment may be required for an extended period of time (AAGBI, 2011; ACECC, 2011; Roche, 2007).

Programmes that provide an alternative to a disciplinary approach for nurses are inconsistently accessible across North American states despite thirty years of investigation and implementation efforts by the National Nurses Society on Addiction and the American Nurse Association. Monroe et al. (2008) identified six States with a continued commitment to a disciplinary approach as recently as 2008; this approach has a stated goal of protecting the public from harm and preventing the affected nurse from practicing. The Nursing Council of New Zealand and the New Zealand Nurses Organisation do not have any guideline or policy documents that support a therapeutic response for nurses involved in diversion, abuse, or addiction. The Nursing Council of New Zealand does however utilise a Health Committee in response to the management of nurses whose circumstances involve drug abuse (T. Halswell, personal communication, September 13, 2012; H. de Montalk, personal communication, September 17, 2012).

#### 2.7.7 MONITORED RE-ENTRY INTO PRACTICE

Re-entry into professional practice, in particular for those who work with anaesthesia, is the focus of ongoing departmental and academic debate. It has been universally asserted that prior to monitored re-entry into practice the successful completion of a treatment programme must be demonstrated (AAGBI, 2011; ACECC, 2011; Bryson

& Levine, 2007; Bryson & Silverstein, 2008; Domino et al., 2010; Roche, 2007). Re-entry criteria may also include on-going treatment programme engagement and evidence of family and social integration and support. In addition to re-entry agreements, a small number of guidelines included the recommendation that consideration be given to the length of time practice was monitored (ACECC, 2011; ASA, n.d.). Recommendations regarding the appropriate clinical environment for the returning clinician were divided between the return to the anaesthetic department and redirection into an alternative specialty. The discussion around the appropriateness of clinicians returning to the anaesthetic environment was largely underpinned by concerns around high rate of relapse and significant incidence of associated deaths (Berge et al., 2008; Bryson & Silverstein, 2008; Saunders, 2006).

Conditional employment was recommended for recovering staff including: unannounced random drug testing, continued participation in recovery activities, workplace supervision, prohibition on self-prescribing, and psychiatric monitoring (AAGBI, 2011; ACECC, 2011; Roche, 2007).

#### 2.7.8 DISMISSAL / TERMINATION

International policy documents reported discontinuation of employment may occur at one of several junctures in the process of impaired staff performance. The first occasion being at the time an intervention is conducted. If drug testing has been refused in circumstances of reasonable suspicion, suspension may result. Termination of employment may also result when an affected staff

member has been unable to successfully complete treatment or is unwilling to work under monitored conditions (ACECC, 2011; Roche, 2007).

#### 2.7.9 POLICE

Only one of the reviewed guidelines referred to police involvement. The guidelines published by ACECC (2011) concede that a report to the police may be made toward matters such as theft, professional negligence, or breach of employment contract. This statement is however, made with the acknowledgment that substance abuse is “more illness than crime” (p.7) and a caution that police involvement may be not only inappropriate but may amplify risk of associated negative outcomes such as self harm and suicide. Whilst, the AAGBI (2011) guidelines acknowledge criminal behaviour is invariably required to maintain addiction, they reiterate the preference for a medical rather than criminal response.

#### 2.7.10 REPORTING TO REGULATORY BODIES

Mandatory reporting to regulatory bodies was endorsed by all policy and guideline documents reviewed (AAGBI, 2011; ACECC, 2011; ASA, n.d.; Roche, 2007).

**Table One:** Summary of content themes within grey literature

	ALL	AANA	ASA	AAGBI	ACECC
<b>Anesthesia</b>					
Acknowledgement of inherent risk of substance abuse	√	√	√	√	√
Education curriculum	√	√	√	-	-
Drug testing at intervention	√	√	√	-	-
Drug testing as re-entry monitoring	√	√	√	√	√
Control drug accountability	√				
Intervention	√	√	√	√	√
Treatment	√				
Monitored re-entry to practice	√	√	√	√	√
Dismissal / termination	√	-	-	-	√
Police	-	-	-	-	√
Reporting to regulatory bodies	√	√	√	√	√

## 2.8 SUMMARY

Humankind experience virtually inevitable collisions with drug abuse and addiction. Within clinical anaesthesia it has been convincingly demonstrated that these collisions are associated with devastating morbidity and mortality. Drugs diverted from clinical practice for the purpose of abuse have been somewhat influenced by developments within the specialty itself. However, the consequences of these actions converge toward a similar terrible endpoint.

Advancing knowledge in neurobiology and addiction science, and influential epidemiological findings has underpinned the establishment of a blueprint for therapeutic collegial care. Examples of these documents were sourced and examined from North America, Great Britain and Ireland and Australasia. Themes were identified and described in order to support the benchmarking process undertaken. The examination of New Zealand practice and policy around staff drug diversion and abuse must consider drug control and accountability, drug testing, reporting to regulatory bodies and police. Furthermore, consideration to intervention, treatment, re-entry to practice and dismissal are required. And finally, comprehensive education curricula must be considered.

# CHAPTER THREE

## METHODOLOGY AND METHODS

This chapter presents the chosen methodology and methods utilised in this study. A description of the sample will be provided and the inclusion criteria will be stated. The research design and the development of the research instruments will be outlined and a description of the two instruments utilised in this study will be presented, including an outline of the pilot study. The recruitment and data analysis approaches will be described and finally, the ethical and cultural considerations will be outlined.

### 3.1 OVERVIEW OF QUANTITATIVE RESEARCH

Three research paradigms were considered which would allow the study aims to be successfully achieved. A qualitative methodology strategy develops evidence using what Polit and Beck (2008) refer to as an “emergent design” (p.219). In this approach the gathered data informs the process in an ongoing manner, allowing the integration of research adaptations. This process has theoretical foundations known as research traditions, such as, grounded theory and ecologic psychology (Polit & Beck, 2008). Intense researcher participation in fieldwork can be anticipated, which may yield rich, holistic data. Quantitative studies utilise methodologies designed to yield the strongest possible evidence, in one of several categories: experimental, quasi-experimental, descriptive, and correlation (Carr, 1994; Polit & Beck, 2008). The strength

of the quantitative approach is measured for scientific adequacy, exploring concepts such as: credibility, validity, transferability, generalisability, dependability, confirmability, objectivity, and reliability (Miyata & Kai, 2009). As Carr (1994) states “quantitative methods facilitate the development of quantifiable information” (p.721). Mixed method research involves the triangulation of qualitative and quantitative data in an approach that may extend data strengths and minimise data weaknesses (Williams, 2007).

A quantitative methodology was identified as an appropriate approach to address the stated research aims. The strength of this approach was the numerical data collected which allowed for the benchmarking processes to be undertaken. Limitations of this methodology included the need for the development and use of novel instruments.

### 3.2 RESEARCH AIMS

The aim of this study was to benchmark substance abuse policy documents within New Zealand’s twenty District Health Board departments of anaesthesia against international policy recommendations. Model policy documents from Australasia, North America, Great Britain and Ireland were identified; the policy features were examined and pooled allowing for content syntheses. Sub-aims included the surveying for demographic profile of departments of anaesthesia in New Zealand District Health Board hospitals and the practice of senior anaesthetic consultants around staff substance abuse.

The provision of substance abuse education for staff in anaesthesia departments was explored, as was the philosophy of care toward those who work with anaesthesia. Staff preparedness to conduct an intervention was also explored. New Zealand substance abuse policies were examined to allow comparison against international guidelines.

### 3.3 RESEARCH DESIGN AND INSTRUMENT DEVELOPMENT

A quantitative methodology was identified as an appropriate research approach and a cross sectional descriptive survey was selected as the preferred data collection method. Following consideration of existing survey tools versus the development of tools specific to this study, it was identified that the development of two instruments was justified. The rationale for developing novel tools in preference to utilising existing items was largely in order to facilitate policy analysis and benchmarking, with the literature review process informing the survey tool details to support this aim. Furthermore, this tool development allowed for question construction which conscientiously worked to minimise participant discomfort around the subject matter which is understood to be somewhat sensitive.

The development of instruments for the purpose of this study allowed for data collection to be influenced by academic and grey literature pertinent to substance abuse policy and practice within anaesthesia departments. In order to benchmark authentically the questions in the data extraction tool were largely derived from the key themes identified in selected international policy documents. The format

of the survey instruments supported the benchmarking aims of the study as tools were designed to reflect the synthesis of leading international substance abuse policy content.

### 3.3.1 DEVELOPMENT OF INSTRUMENTS

A self administered questionnaire design was selected for part I, due to the national scale of this study, and to allow for greater participant autonomy and in order to minimise the impact of interviewer bias. A researcher administered data extraction tool was selected for part II. The development of survey questionnaire IA & IB and data extraction tool II (Appendix a and b) was undertaken by the researcher. For survey IA & IB, a self administered questionnaire, a paper and pencil instrument was designed and a secondary analysis instrument was designed for data extraction tool II (Appendix b). Survey questionnaire IA & IB were designed to collect departmental demographic data and to elicit responses from senior anaesthetic consultants pertaining to the departmental practice regarding prevention, identification and management of substance abuse and addiction amongst staff. Data extraction tool II was designed to extract key data from substance abuse policy documents requested from each of New Zealand's twenty District Health Boards. Questionnaire items were developed to elicit data suitable for comparison with the key themes identified in the reviewed current leading international policy guideline documents, as presented in the literature review.

The academic and grey literature reviewed informed the development of the survey instruments considerably. The body of recent

knowledge pertaining to epidemiology, substance abuse policy access, and departmental skill and confidence around matters of staff diversion of drugs from within Australasia influenced the basic approach and demographic survey. Questionnaire IB and data extraction tool II content was derived from the synthesis of key themes from wider international substance abuse policy documents and conclusions and recommendations from researchers active in the field. Consideration of Australasian research results allowed for some comparison of findings and the thematic analysis of selected international work allowed for the benchmarking process against what may be considered leading recommendations.

### 3.2.2 DESCRIPTION OF THE INSTRUMENTS

Survey IA and IB were comprised of a total of twenty-four questions; the opening eight questions explored the demographic composition of the anaesthesia department. Three questions pertained to health and welfare staff in order to identify the presence and role of health and welfare officers. Following the demographic enquiry there were thirteen questions on substance abuse practice. Three closed questions focused on the philosophy of care underpinning substance abuse management, the inherent risk of substance abuse in anaesthesia, and the facility of an employee assistance programme. Four closed questions focused on the substance abuse educational curriculum content which specifically identified occupational groups receiving substance abuse education, the number of hours of substance abuse education provided and the mandatory status of substance abuse education. Two open ended questions were asked pertaining to the collection and

collation of evidence in preparation for an impaired staff intervention. Seven closed questions explored factors that could potentially undermine intervention on behalf of an impaired colleague. The participant was asked two open ended questions, one identifying who was responsible for managing an intervention, the other asking for possible acceptable outcomes from an intervention. The final question identified which of the seven stipulated persons may be included in an intervention team (Appendix a).

The data extraction tool II (Appendix b) included fourteen closed questions designed to examine the specific content of the District Health Board substance abuse policy documents. Questions one and two asked if the organisation had a substance abuse policy, and if a copy could be provided for examination in this current study. The remainder of the questions examined policy content, namely authorship, and scope, and if the policy was written specifically for the anaesthetic department. Policy recognition of addiction as being an inherent risk associated with the practice of anaesthesia was questioned. Policy content and recommendations in the following key areas was questioned: drug testing, consequences of policy violation, ethical and legal responsibilities toward impaired persons, and the provision of resources to assist staff with an affected individual's diagnosis, treatment, and recovery. The strategy for policy dissemination was identified with a closed seven item question. Substance abuse education curriculum was explored, specifically asking for curriculum recommendations in seven key areas. A closed question format was utilised to identify policy recommendations on matters of assurance around employment,

confidentiality, and recommendations for involvement of the individual's professional organisation and the police. Finally, the provision of procedural guidelines for the identification of an impaired individual, conducting an intervention, and ways re-entry to practice was managed was also questioned.

### 3.2.3 PILOT STUDY

The pilot study was conducted within the anaesthetic department of a large New Zealand District Health Board. The clinical director and the health and welfare officer were invited to critique questionnaire IA and IB. Feedback was provided to the researcher with no changes recommended. The data extraction tool II was also piloted within a large District Health Board with the examination of a substance abuse policy document and based on the findings it remained unaltered. Following the pilot feedback and review process, the collected data was included for analysis within the study proper. These tools were piloted with two questionnaire respondents and one policy document.

### 3.3 RECRUITMENT AND DATA COLLECTION

The recruitment process began in the October of 2011. Initial contact was made with the Clinical Directors of all twenty District Health Board anaesthesia departments, who were invited to participate. Over the course of the 2011 summer the planned sequence of the presentation of the research instruments, retrieval of policy documents, and participant reminders was deployed. Data collection was completed by February 2012.

An unsolicited letter of introduction was offered by the clinical director involved in the pilot study which supported initial engagement with the remaining nineteen District Health Boards (Appendix c). Recruitment for survey IA and IB was commenced with the identification of the clinical directors of the nineteen remaining New Zealand District Health Boards of anaesthesia. The District health Board involved in the pilot study was not approached as these questionnaires were forwarded to the study. With permission these individuals were then mailed a participant information package. The package included: a letter of introduction supplied voluntarily by the clinical director involved in the pilot study (Appendix c), a letter of invitation to participate (Appendix d), a participant information sheet (Appendix e), the questionnaire survey IA and IB, and a stamped self addressed envelope. This initial invitation resulted in thirteen of the nineteen potential participants returning completed surveys. To maximise the response rate, a reminder letter was sent to those who had not yet responded or returned survey IA and IB, this resulted in the return of a further two completed surveys. A final reminder letter with a second participant research package was sent to the remaining four potential participants with the result of a further two completed returns. In total the recruitment process for survey IA and IB resulted in the return of completed surveys from eighteen of the twenty New Zealand District Health Boards.

Staff substance abuse policy documents were retrieved from District Health Boards for examination using the data extraction tool II. Policies were sourced via telephone and email contact with anaesthesia

department staff, commonly the department secretary in consultation with the clinical director, and human resources staff in each of the District Health Boards. Initially policies were sourced via telephone contact, this was supported with written researcher introduction and participant information. Substance abuse policy retrieval was completed with telephone and email contact with human resources staff in each District Health Board. In some instances follow-up telephone contact was required and in other instances numerous conversations were had with various staff within the same organisation to establish whether a staff substance abuse policy existed in that organisation.

#### 3.4 SAMPLE

All twenty District Health Boards in New Zealand were invited to participate in this research, a total sample size on twenty. Specifically, these organisations were represented by individuals identified as clinical directors of Anaesthesia and consultant anaesthetists with the additional designation of health and welfare officer within their department. Individuals were included in the sample group after accepting an invitation to participate in the study. The inclusion criterion was: consultant anaesthetist responsible for leadership or health and welfare within all New Zealand District Health Board departments of anaesthesia.

### 3.5 DATA ANALYSIS

The statistical software package Statistical Package for the Social Sciences [SPSS] was used to analyse the data. Responses that were not nominal were converted into nominal measurement: the open question responses were grouped and coded. Content analysis included frequency and percentages. Survey participants and organisations were protected from identification by using key coding. All data-identifier pairs were then split, held securely and separately, and re-identification used to facilitate written follow up to non-responders. No re-identification occurred during data analysis and reporting.

### 3.6 ETHICAL AND CULTURAL CONSIDERATIONS

The Belmont Report (1978) presents three key ethical research principles: those of beneficence, respect for human dignity, and justice (Polit & Beck, 2008). The assurance that the principles of beneficence and nonmaleficence have been adhered to throughout this study are evidenced by the various strategies successfully implemented aimed at minimising harm to study participants. Knowledge of the professional resources within the participant group, and consideration of anticipated discomfort pertaining to researching a sensitive topic was explored. Participant access to psychological support was evident in many organisations for use in the event of participation in this current study leading to concerns or distress. Respect for human dignity involved the facilitation of participant self-determination and researcher full disclosure. These obligations were met within the consent process which

included telephone and email dialogue, and written study information. Key principles pertaining to informed consent were specifically articulated, including the participants' right to withdraw from the study at any stage without repercussion or explanation. The steps taken to provide for the anonymity of the participant and organisation were also clearly articulated. Survey data and participants were protected from identification by the anonymising of data by coding, and the management of data in a manner that prioritised confidentiality and security. All data was secured in a locked file cabinet in a locked office with researcher access only and computer records were password protected. Data will not be used for any purpose other than those stated in the participant information, and will be held for seven years according to University of Otago policy, and then destroyed. Participants were offered a summary of findings at the conclusion of the study.

Throughout the study course the principle of justice influenced the process. Polit and Beck (2008) highlight the participants' right to fair treatment and privacy as priority concerns. Fair treatment in this study was associated with selection of potential participants and participant burden. Fairness was advanced with the participant invitations being presented to senior team members in all New Zealand District Health Board hospital departments of anaesthesia and the survey content being contained to minimise participant distress.

The risk to study participants was deemed minimal, with any inherent risk assessed as outweighing the benefits of benchmarking substance abuse policy content, education curricula, and practice in New

Zealand anaesthesia departments. It was acknowledged that the collection of data around the sensitive topic of drug diversion and abuse may cause some stress for respondents. This was mitigated by informed voluntary participation, coupled with the avoidance of attitudinal questions, and specific case data collection. Furthermore, the information gained from the examination of national data in an international context is expected to assist local substance abuse programme audit and/or development. The key informants in this research were senior consultant anaesthetists, appointed as clinical directors or health and welfare officers. It is understood that these individuals were adequately resourced to participate in the consent and survey process, without undue distress as indicated by their voluntary participation in this research.

Ethical approval was gained from the Health and Disability Ethics Committees: Upper South B Regional Ethics Committee following the expedited review of observational studies process (Appendix f). Important key ethical considerations were those pertaining to: participant risk and benefit, identifiability of participants, informed consent, organisational confidentiality and management of ethical and cultural considerations. Maori consultation was undertaken with the Maori Research Manager at the University of Otago. Consultation consisted of discussing the advice received from the District Health Board Maori Health Educator, and appropriate strategies for the dissemination of findings at the completion of the study. Consideration was given to Maori in recognition of the unique relationship between the ethics advisory committee and tangata whenua. Appropriate

consultation resulted in the provision of a statement of support for this study by the Maori research office (Appendix g). The contact details and credentials of the researcher and academic supervisor were provided, and dialogue was invited.

# CHAPTER FOUR

## FINDINGS

Chapter four contains the findings of the survey questionnaire I and data extraction tool II utilised in this research. The results of survey questionnaire I will be reported on the departmental demographics and the senior consultant practice regarding substance abuse within anaesthesia staff. The findings from data extraction II will follow and describe the content of the substance abuse policy documents.

### 4.1 SURVEY QUESTIONNAIRE I: DEPARTMENTAL DEMOGRAPHICS AND SUBSTANCE ABUSE PRACTICE

Data was collected from eighteen of the twenty District Health Boards in New Zealand. Two district health boards did not participate in survey questionnaire I. Both non-participant District Health Boards were in the North Island; one of which was a large metropolitan organisation, the other a smaller organisation with numerous rural services. The significance of these District Health Boards not returning survey questionnaire I, has been identified as a limitation although it was in part mitigated by the information gained from their participation the in policy data extraction phase of the study. Demographic survey findings revealed that the constitution of the clinical team was highly variable between District Health Boards in New Zealand. The largest department held 121 consultants, 33 registrars, 92 technicians and 80 post anaesthetic care nurses. Five departments had 45 or more consultant anaesthetists.

Five departments had nine or less consultants, four of which had no registrars, and one department, the smallest, also had no anaesthetic technicians or dedicated post anaesthetic care nurses. The range of departmental staff by occupational group across District Health Board departments of anaesthesia within New Zealand is reported in Table one.

*Table Two:* Demographic range of staff numbers by occupational title across District Health Boards.

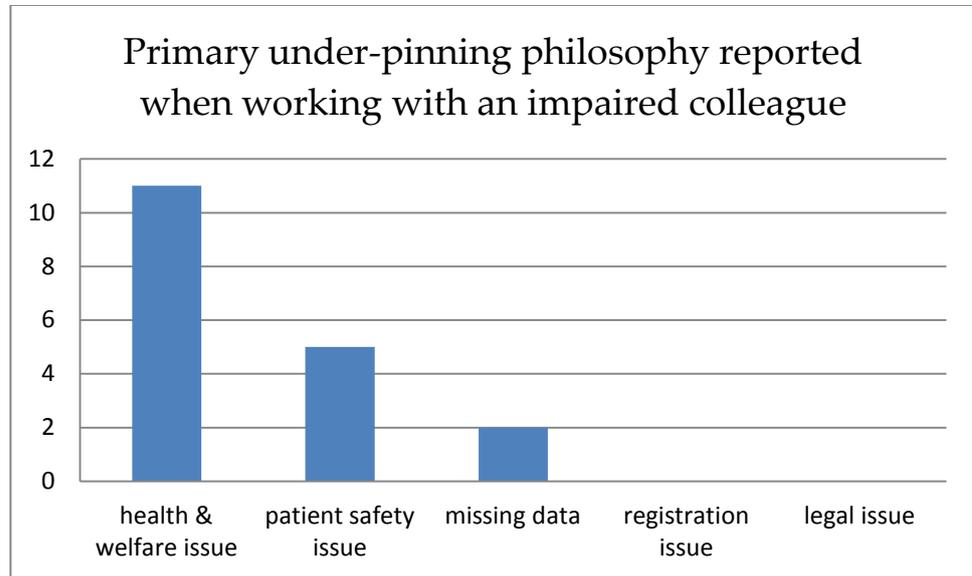
<b>Occupational Group</b>	<b>Range</b>	<b>Mean</b>
Consultant anaesthetists	2 - 121	28.50
Anaesthetic registrars	0 - 33	10.11
Anaesthetic technicians	0 - 92	21.06
Post anaesthetic care nurses	0 - 80	21.71

Six participants reported the presence of a substance abuse policy document in their organisation. Seven participants reported appointed health and welfare officers within their department, four of whom had two such appointments and the remaining three, a single appointment. The method of staff identification of health and welfare staff within the department was reported to be one of common knowledge by three departments, two departments stated the names were published in a departmental portfolio document, one participant stated this information was presented at orientation, and the one reported there was no specific strategy.

Six departments of anaesthesia that held registrar positions had a staff substance abuse policy document, and there were eight departments of anaesthesia with registrars on staff that did not have access to such a policy document.

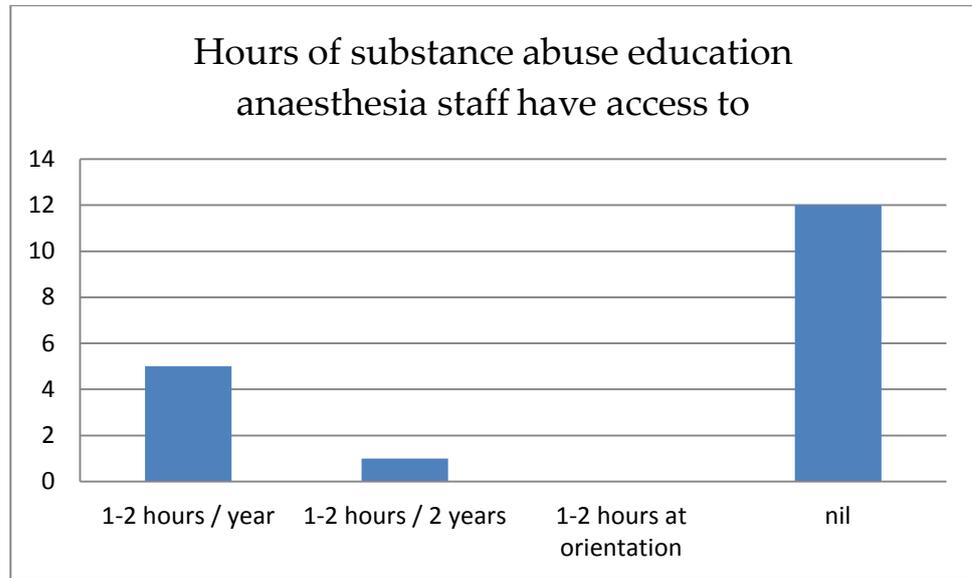
Senior anaesthetic consultants were the key informants in the provision of data on practice around staff substance abuse. When questioned about the key attitudes deemed pertinent when working with impaired staff, eleven participants reported the primary philosophy underpinning the approach to working with an impaired colleague was concern for their health and safety (Figure one). Five participants reported patient safety concerns as being the primary concern. No participants selected either registration issues or legal issues as being the primary philosophical concern underpinning the management of staff substance abuse. Most participants named staff substance abuse as a health and welfare issue.

*Figure One:* Primary philosophy underpinning the approach to working with an impaired colleague.



Substance abuse and addiction were acknowledged by all eighteen participants as an inherent risk associated with the practice of anaesthesia. Data on substance abuse education was varied with many organisations reporting having had no education curriculum on this topic (Figure two). Twelve participants reported that no substance abuse education was provided for staff. Five participants reported one to two hours of substance abuse education per year and a single participant reported substance abuse education was mandatory. Of the eighteen departments surveyed, staff substance abuse education was either unavailable or optional in seventeen of the departments.

*Figure Two:* Provision of substance abuse education



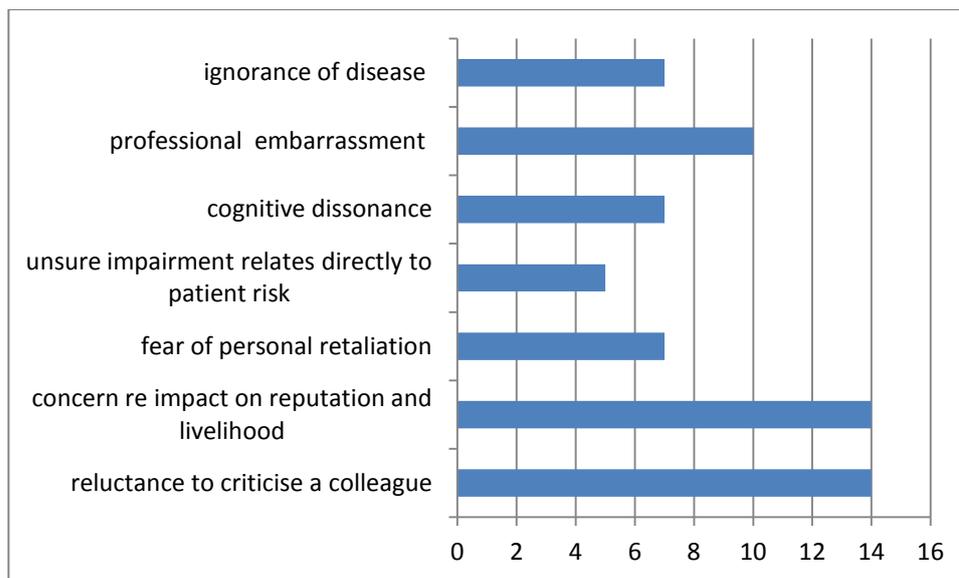
Of the education provided, the majority was directed towards anaesthetic registrars. Post anaesthetic care nurses and anaesthetic technicians were not known to receive any education on staff substance abuse. Consultant anaesthetists received substance abuse education in four of the eighteen participating District Health Boards and eight organisations reported provision of specific teaching for anaesthetic registrars.

Senior anaesthetic consultants provided data on the potential sources of evidence collated in preparation and support of an intervention. These were: auditing of controlled drug records, review of anaesthesia care records, documented witness accounts, collegial interviews, incident forms, and shift pattern analysis. The utilisation of drug screening was not reported by any organisation. The most frequently reported source was the audit of controlled drug records

(35%), secondly, the auditing of patient anaesthetic records (26%), thirdly, by witness accounts (17%). Three other sources of evidence were utilised, incident form review, collegial interviews (both 9%), and shift pattern analysis (4%).

Potential factors which could serve to undermine collegial intervention in cases of substance abuse were explored. The seven barriers to collegial intervention reported in the research literature were presented to participants with the response options of: yes, no or unknown. The leading concerns identified by participants were the reluctance to criticise colleagues, and concerns about the impact to their reputation and livelihood, fourteen of the eighteen participants named these factors. Additional factors were professional embarrassment (ten participants), cognitive dissonance (eight), and fear of retaliation (seven). Ignorance of the disease was sighted by seven participants, and uncertainty whether impairment related directly to patient risk was identified by five participants. Ambiguity on the part of the participant, exemplified by the selection of the response option 'unknown', was most frequently reported in response to: the influence of cognitive dissonance, the ignorance of the disease, and the uncertainty that impairment related directly to patient risk. These unknowns were represented with eight, seven, and five responses respectively. These are summarised in Figure three.

*Figure Three:* Factors that undermine collegial intervention.



#### 4.2 DATA EXTRACTION TOOL II: SUBSTANCE ABUSE POLICY

All twenty New Zealand District Health Boards responded to the researchers request for data regarding the presence of substance abuse policy documents in their organisation. Eight District Health Boards had a current substance abuse policy and each organisation provided a copy of the policy document for content analysis.

Total staff wellness and support mechanisms were identified as follows: fifteen District Health Boards reported staff access to an employee assistance programme; seven departments of anaesthesia had appointed health and welfare officers and eight organisations had a staff substance abuse policy, two of which were written specifically for the department of anaesthesia (Figure four).

*Figure Four:* Organisational staff support mechanisms.

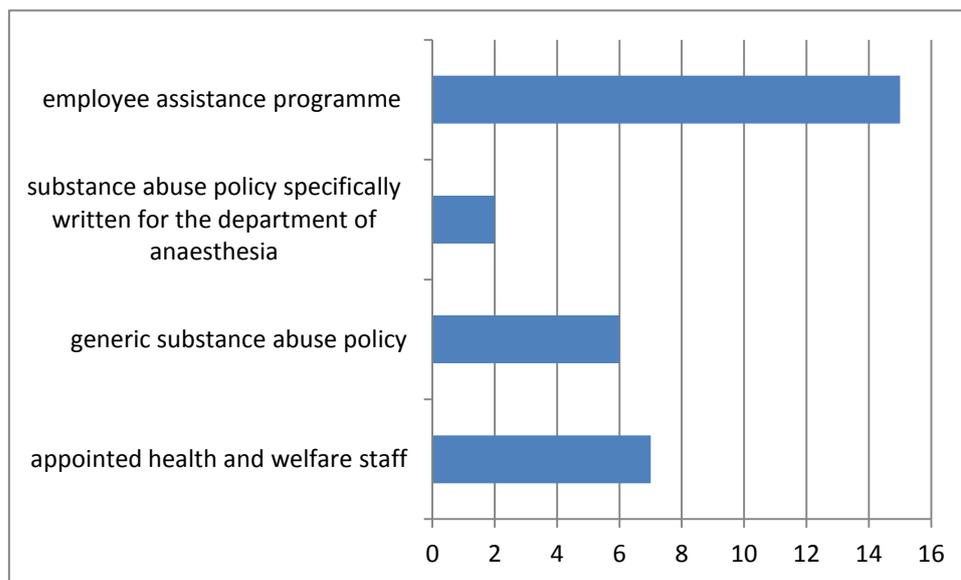
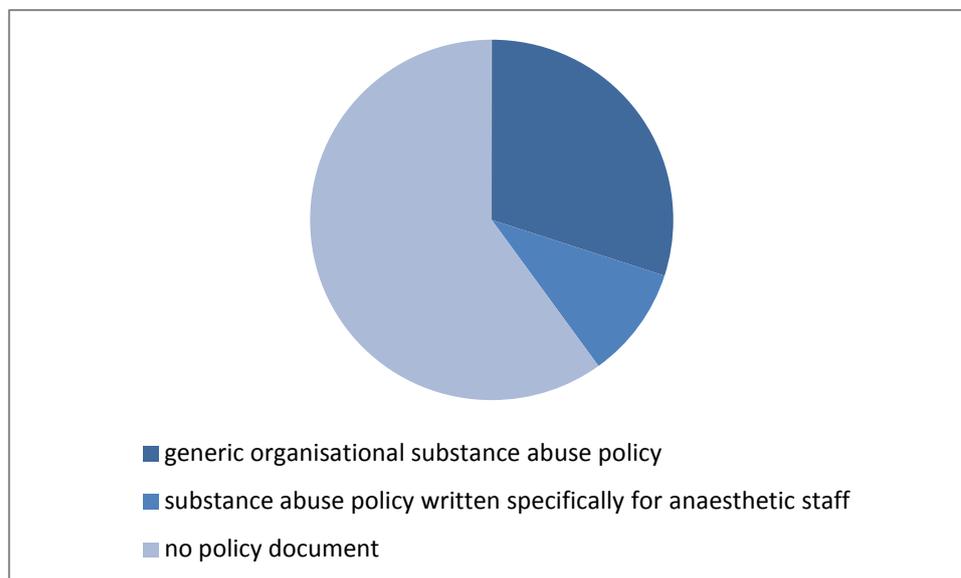


Figure five presents the status of substance abuse policy within the District Health Boards. Within New Zealand's twenty District Health Board departments of anaesthesia, two departments had access to a substance abuse policy written specifically for that clinical environment. Six departments had access to a generic, organisation wide substance abuse policy, and twelve departments of anaesthesia, including wider organisations had no access to a substance abuse policy.

*Figure Five:* New Zealand District Health Boards substance abuse policy status.

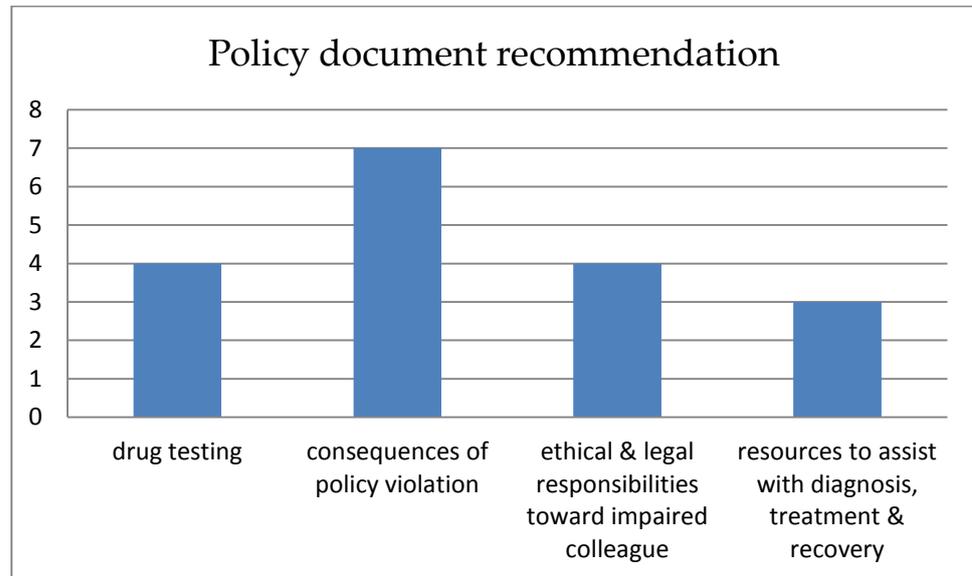


Two of the eight substance abuse policies included an acknowledgment that substance abuse and addiction had been identified as an inherent occupational hazard associated with the practice of anaesthesia. These policies were written specifically for the department of anaesthesia.

Examination of the policy documents for content providing recommendations on drug testing, consequences for policy violation, ethical and legal responsibilities toward impaired colleagues, resources to assist with individual diagnosis, treatment and recovery yielded the following findings. Seven of the eight policy documents articulated the consequence of policy violation, and four policies contained recommendations on drug testing, plus the ethical and legal responsibilities toward an impaired colleague. Three policy documents

identified resources to assist with the diagnosis, treatment and recovery of staff impaired by drug addiction (Figure six).

*Figure Six:* Key policy recommendations.



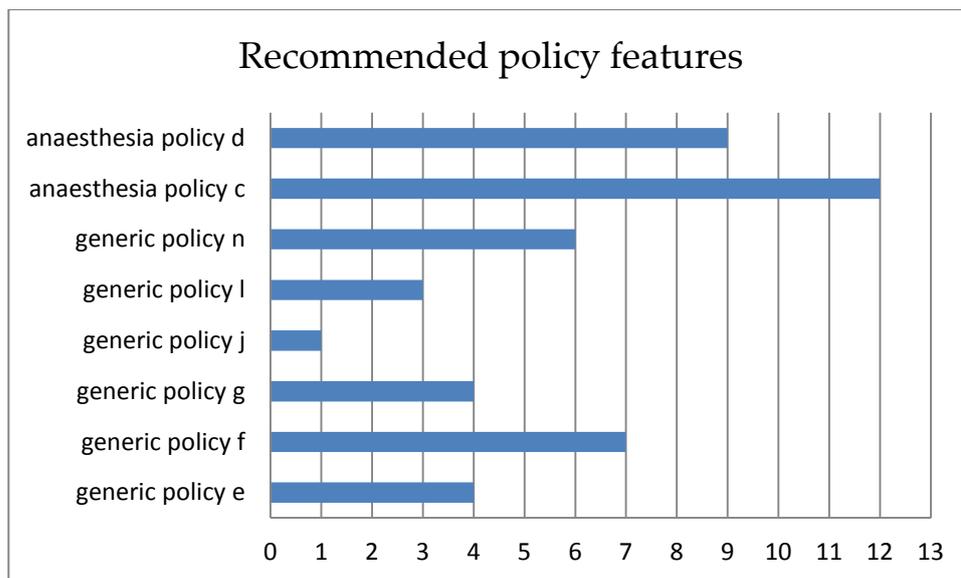
Policy dissemination strategies were sparsely referenced in the policy documents themselves. Policy direction on substance abuse education curriculum was, with the exception of a single policy, absent. The aforementioned policy contained an educational curriculum that included three of the seven identified desirable subjects, that is, the biological basis of addictive disease, epidemiology, and signs and symptoms of addictive disease in anaesthesia staff.

Of the eight policies examined two policies included a statement of assurance that an employee would not be terminated as a consequence of substance abuse or addiction provided they participated in a

monitored treatment programme and met all reasonable performance requirements. Six of the eight policy documents clearly articulated the organisations commitment to maintaining the confidentiality of the affected staff member. Three policy documents recommended the involvement of the impaired individual's professional organisation and two made recommendations around police involvement.

The District Health Board policy documents were examined against a list of desirable policy features, identified from the descriptive content analysis of international model substance abuse policies and recommendations from leading international anaesthesia welfare groups. Survey policies which were examined against these thirteen key features found the two policy documents written specifically for the anaesthesia department contained nine and twelve of the identified desirable policy features. Generic policies were identified to contain between one and seven desirable content features. The two substance abuse policy documents analysed that were written specifically for the anaesthetic department were found to contain a high number of internationally recommended policy features. Both of these policies included a high degree of content consistency, both with each other and with leading international policy recommendations, and are represented in Figure seven as policy *c* and *d*.

*Figure Seven: Recommended policy features.*



*Note: Anaesthesia and generic policy documents were alphabetically coded and represent New Zealand DHB's*

The generic policy documents did not include any of the following identified desirable content details: the association between substance abuse and anaesthesia staff, substance abuse education curriculum, involvement of police, assurance against termination during assessment and treatment, and identification of substance abuse or addiction in colleagues. Recommendations on the management of an intervention were present in only one generic organisational policy and recommendations on a monitored re-entry to practice were present in two generic policy documents. The provision of appropriate resources was associated with one generic policy.

### 4.3 CONCLUSIONS

In conclusion, eighteen of the twenty District Health Boards invited to participate responded with the return of survey questionnaire IA and IB, a return rate of ninety percent. One hundred percent of District Health Boards participated by providing information and policy documents for examination with the data extraction tool II. Twelve District Health Boards acknowledged the absence of a substance abuse policy, and the remaining eight provided their organisations substance abuse policy document for review.

Departmental demographic profiles within New Zealand District Health Board departments of anaesthesia varied widely. Sixty one percent of participants acknowledged staff substance abuse as primarily a health and safety issue, and all participants acknowledging substance abuse as being an inherent risk associated with the practice of anaesthesia. Substance abuse education was provided within five departments, and was mandatory in a single department. Most participants reported that the responsibility of managing staff substance abuse fell to the clinical director, with the collation of evidence toward intervention supported by the auditing of records and colleagues reports. Drug screening was not identified by any of the participants as a strategy. Factors identified as undermining staff intervention included: a reluctance to criticise colleagues, concerns over the impact on reputation and livelihood, and professional embarrassment.

The examination of District Health Board substance abuse policy documents identified two policy documents written specifically for the department of anaesthesia, with content provision for identification, intervention, and management of staff consumption of drugs diverted from clinical practice. Twelve District Health Boards do not provide any staff substance abuse policy at all and the remaining six policy documents have considerable variance from international recommendations, and the anaesthesia specific policies from within New Zealand.

# CHAPTER FIVE

## DISCUSSION

Chapter five discusses the key themes of the study within the context of the international literature. Key findings pertaining to the number of substance abuse policy documents identified in New Zealand District Health Boards will be discussed, including the implications of benchmarked content findings. Revealed practice and policy philosophy will be discussed within the international context. Variances between substance abuse practice and substance abuse policy recommendations will be discussed including international findings. The influence of demographic data in this study will be considered. The study limitations and strengths will be presented, followed by a summary and conclusions then finally, suggested recommendations will be articulated.

### 5.1 DISCUSSION

One hundred years of evidence has soundly established that those who work with anaesthesia are at increased risk of drug abuse and addiction (Brownstein, 1993; Tetzlaff et al., 2010). This risk is particularly influenced by exposure to drugs used exclusively in anaesthetic care, drugs which are distinguished by their rapid promotion of habituation and devastating addictive disease (Alexander et al., 2000). Evidence linking those who work with anaesthesia to addictive disease and premature drug-related death pre-dates current knowledge of addictive disease neurobiology considerably (Alexander et al., 2000; Berge et al., 2008; Berry et al., 2000; Booth et al., 2002; Bryson & Silverstein 2008; Fry,

2005; Gastfriend, 2005; Ismail, 2010; Luck & Hedrick, 2004; Skipper et al., 2009; Saunders, 2006; Shaw et al., 2004; Tetzlaff et al., 2010). Indeed, early efforts to positively influence clinician morbidity and mortality were also undertaken in the absence of significant addiction science advances which are now available for incorporation into care planning and delivery (Lecky et al., 1986). Decades of articulated professional concern have been influential enough to redirect engagement with addicted staff from a punitive cascade of consequences to a sustained therapeutic approach. Despite this however, anaesthesia departments internationally, continue, more often than not, to report the experience of collegial addiction and drug related death, governed by individual susceptibility, environmental hazard and drug potency (Collins et al., 2005; Fry, 2005).

In recent years the impotence of prevention and intervention strategies has raised considerable dialogue, particularly about whether the strategies hold outcome integrity, that is, do they save lives (Berge et al., 2008; Booth et al., 2002; Bryson & Silverstein, 2008; Collins et al., 2005; Epstein et al., 2007; Fitzsimons et al., 2008; Kirby et al., 2009; Kintz et al., 2005). This study sought to benchmark the New Zealand District Health Board anaesthesia department landscape in terms of staff substance abuse policy, against international recommendations.

Key findings in this study were that New Zealand District Health Boards have very few relevant substance abuse policy documents. Within these organisations there is considerable misinformation regarding whether substance abuse policies exist, and evidence of low

substance abuse policy literacy within clinical leadership. The low reflected document literacy may well reflect the lack of relevance and usefulness of these documents. Furthermore, it was revealed that participant responses demonstrated findings which were closely aligned with international recommendations, in contrast with most policies which failed to achieve this. Substance abuse policies written specifically for the department of anaesthesia were comprehensive and paralleled international policy sufficiently. A significant key finding was the lack of due consideration to the phenomenon of diversion and abuse of drugs evident in policy documentation nationally. This lack of an evidence based response within District Health Boards to a serious and long established risk persists, even though a comprehensive, recent, and accessible document has been written following collaboration between the Australian and New Zealand College of Anaesthetists, Australian Society of Anaesthetists and the New Zealand Society of Anaesthetists (ACECC, 2011).

The most significant finding in this current study was the finding that only two of New Zealand's twenty District Health Board departments of anaesthesia were supported by a relevant staff substance abuse policy. This finding is incongruous with epidemiological research findings that have identified an individual incidence of diverted drug abuse of approximately 2% and a departmental incidence of at least 66% (Fry, 2005). Indeed, there has been negligible advances made from Fry's findings in 2005 in which 84% of Australasian participating departments of anaesthesia were found to have no substance abuse policy. This finding makes a pertinent contribution to the discussion around efficacy

of prevention and intervention strategies as the recommended practice is simply not in place. These ongoing findings are also considered to have influence not only on confidence around the management of staff drug abuse but also competence (Fry, 2005).

As noted in the literature review, immense progress has occurred in the understanding of addiction and the interplay between the anaesthetic environment, drug diversion, and addictive disease (Angres & Bettinardi-Angres, 2008; Baker et al., 2004; Clay et al., 2008; Chao & Nestler, 2004; Contet et al., 2004; Ghodse, 2002; Jaffe & Jaffe, 2008; Koob, 2009; Kornetsky, 2004; Leshner, 2001). Examination of international recommendations and policies provide evidence that much of this understanding has influenced the content of these documents (AAGBI, 2011; AANA, 2010; ACECC, 2011; ASA, n.d.; Roche, 2007).

The philosophical landscape of knowledge and attitude regarding drug diversion and abuse has changed, conferring a positive evolution within these documents; it is this crucial change that underpins the therapeutic paradigm shift that provides appropriate support to affected individuals. All participants in this study acknowledged that substance abuse and addiction constituted an inherent risk associated with the practice of anaesthesia. Despite this widely stated perspective there is a concerning lack of meaningful substance abuse policy content within the policies provided by New Zealand District Health Boards. Roche (2007) asserts that for sound policy development to occur the risk of substance abuse in association with anaesthesia must be articulated.

The philosophy of care was explored in this current study with participant questioned on the nature of their primary driving philosophy when working with an impaired colleague. Eleven of the eighteen participants reported that staff substance abuse was, more than any other concern, primarily a matter of staff safety and health. These findings are largely consistent with international staff substance abuse policy recommendations (AANA, 2010; AANA, 2010; ACECC, 2011; Roche, 2007). Interestingly, five participants reported substance abuse was primarily a patient safety issue. It is noteworthy, that patient concerns continue to be highly prioritised even though there is an absence of evidence of serious patient harm secondary to abuse of diverted drugs (Oreskovich & Caldeiro, 2009; Skipper et al., 2009). Five participants in this current study gave this concern priority. Furthermore, the persistence of this as a sole concern within a document as influential as that provided by the AAGBI (2011) and the ongoing concern mirrored by surveyed clinical leaders in this current study may act as an unwelcomed decoy from the actual primary risk, which is experienced by those who are affected by addictive disease. Within the six generic substance abuse policy documents examined in this study, the health and welfare of the impaired staff members were rarely articulated; these documents also, cited patient safety concerns as the priority. Notably, both policy documents written specifically for the department of anaesthesia, examined in this study made clear assertions toward concern for the clinicians' health, career and welfare.

Worthy of note is that participant responses reflect international recommendations more closely than the examined generic policy

documents. Indeed, the six generic policy documents provided by District Health Boards in New Zealand contained few of the recommended international policy features overall.

An identified theme of discordance between informant responses and policy content occurred on numerous occasions within this current study, and in virtually all instances the clinician response was more in line with the published work of international anaesthesia organisation on the matter than the generic policy document. This discord began with the knowledge pertaining to the very existence of a substance abuse policy within the participant's organisation. On seven occasions there was a mismatch in the data between participant reports of the presence or absence of a substance abuse policy and actual substance abuse policies provided for examination. Three participants reported the presence of a substance abuse policy, which on further cooperative investigation, were found not to exist within those organisations. Moreover, four participants reported the absence of a substance abuse policy that on request was later made available; in each case the policy was a generic policy rather than a departmental specific one. This significant misinformation regarding the very presence of staff substance abuse policy infers a lack of literacy with the document. This may have implications regarding the preparedness in the matter of staff substance abuse management, or alternatively, the relevance of the policy to this process. It is not insignificant that these participants were also self-identified as having leadership responsibilities in the management of cases of staff impairment due to drug diversion and abuse.

The relationship between demographics and substance abuse policy and practice were not directly evident. Consideration of research evidence which identifies a correlation between the registrar years and peak incidence of diversion and abuse of drugs may have led to the expectation that substance abuse policy documents would be available in departments with substantial registrar numbers (Bryson & Silverstein, 2008); this was not the case. Departmental size, the number of registrars and other key staff and substance abuse policy availability data was mixed. It was found that while some smaller departments did have access to a substance abuse or staff impairment policy, several larger departments did not. Indeed, just over half of departments with anaesthetic registrar positions did not have access to a substance abuse policy. Furthermore, with the exception of one department, the appointment of health and welfare officer(s) was found only within larger departments, and of these most participants reported an expectation that staff were aware of these individuals via the means of common knowledge. The presence of a wellness committee or an employee assistance programme yielded a high positive result with all but three participating organisations reporting an established facility for staff support, this is reflected internationally (All Anesthesia, 2006; AAGBI, 2011; Sick Doctors UK; 2006). Although the aforementioned staff support mechanisms are relatively well integrated in the New Zealand professional environment, it is important to discern that these strategies are largely passive, that is, engagement must be initiated by the affected party. This expectation is in direct conflict with the nature of addictive disease, which is, at its very heart, a disease of subverted self-preservation and denial (Bryson & Silverstein, 2008; Clay et al., 2008).

It is both unnecessary and unrealistic to consider that individual departments will remain unaffected by substance abuse indefinitely, particularly with current epidemiological findings (Fry, 2005). What is known is that in cases of drug addiction, time is of the essence and it is now understood that identification, intervention and management of an affected staff member is not an intuitive process. Therefore, in response, substance abuse prevention and management strategies must be comprehensively prepared, in advance, and key individuals must demonstrate document literacy (Roche, 2007). Study participants provided numerous responses about staff substance abuse practices which were well aligned with international recommendations in response to questionnaire IB; however, inherent vulnerabilities exist when the key departmental resource is one individual who is not supported by a comprehensive policy document. In the absence of a policy document there is a risk of a gap or error in the process, a process in which there is a great deal at stake and a situation that is relatively intolerant of missteps (Roche, 2007; Wearing Masks, 1994, 2004, 2005, 2006).

What is evident in the findings of this study is that due consideration to the unique risks associated with diversion and abuse of anaesthetic drugs is not reflected in any of the generic policy documents at all. Furthermore, within the six generic policies there were no statements that indicated special consideration toward abuse of drugs diverted from clinical practice as being distinct from illicit community acquired drugs and alcohol. The implications of this are profound, as

evidence demonstrates a unique journey of disease evolution, morbidity and mortality associated with diverted drug abuse compared with drugs procured in the community (Angres & Bettinardi-Angres, 2008; Ismail, 2010).

In conducting this research it is evident there is a lack of standardised substance abuse policy within New Zealand. Working with anaesthesia constitutes a risk factor for addictive disease; a matter that has been established through incidence figures, and associated morbidity and mortality data, and is paralleled by widely accepted understanding, both the in academic literature and by all participants in this current study (Berge et al., 2008; McAuliffe et al., 2005; Saunders, 2006; Tetzlaff et al., 2010; Thomas & Anthony, 2006). What is extraordinary is that this has not been considered substantial enough to endorse a comprehensive national response strategy within District Health Boards. An examination of the barriers to this approach may advance the current situation considerably.

The lack of acknowledgement within the policy documents and related preparedness for the unique management issues associated with abuse and addiction to diverted drugs may be considered a failing by the employer to provided reasonable protection against this identified hazard. International policy recommendations promote the writing of specific policies for anaesthesia departments due to established, unique aetiological, morbidity and mortality factors (AAGBI, 2011; AANA, 2010; ACECC, 2011; ASA, n.d; Roche, 2007). The findings from this current study support this assertion as generic policy documents presented an

overall paucity of content applicable to this scenario. Again however, staff substance abuse identification, intervention and management were well described in the two substance abuse policies written specifically for the anaesthesia department. Although international anaesthesia organisations report that anaesthesia specific policies are essential, it could be deemed reasonable to recommend the promotion the wider hospital policy documents on staff drug abuse also incorporate the particular disease features and risks associated with abuse and addiction to drugs diverted from clinical practice, which is known to occur outside the department of anaesthesia.

Comprehensive substance abuse education has been an important strategy employed by anaesthesia organisations internationally in order to decrease morbidity and mortality related to addiction to diverted drugs (AANA, 2010; ACECC, 2011; Roche, 2077). Although there is little robust evidence that this goal has been achieved, continued investment in this strategy is promoted (Berge et al., 2008; Booth et al., 2002; Fry, 2005; Roberts, 2005; Rose & Brow, 2009). The quantity and quality of substance abuse education in New Zealand District Health Board departments of anaesthesia varied considerably. Internationally, mandatory, comprehensive education is highly recommended; what was reported in this current study was that within the New Zealand environment, education falls well short of this. As a consequence, when considering the lack of evident impact substance abuse education has brought to bear on incidence figures, one could argue that comprehensive mandatory education has yet to be adequately implemented which would therefore not allow for the effectiveness of

this to be meaningfully measured. Indeed, only one policy contained education curriculum recommendations and in this document only three of the seven internationally recommended curriculum features were identified (Roche, 2007). With some researchers reporting little change in substance abuse incidence findings and others calling for a new approach, the question needs to be asked, is there adequate evidence that current recommendations have been authentically integrated into the anaesthesia environment to measure their efficacy? (Berge et al., 2008; Booth et al., 2002; Fry, 2005; Roberts, 2005; Rose & Brow, 2009).

A strong theme identified throughout this study were the findings pertaining to drug testing, which were conspicuous by their absence, with little practice and policy direction able to be identified regarding this. In this study drug testing was not reported by a single participant as a strategy for supporting an investigation of a staff member under reasonable suspicion of substance abuse or addiction, this is in contrast to international recommendations (AANA, 2010; AAGBI, 2011; Roche, 2007). Furthermore, there were few policies that contained recommendations for drug testing, and interestingly, despite drug testing being an integrated element of recommended policy documents, did not include either of the policies written specifically for anaesthesia departments. The three policies that contained detailed recommendations were strongly aligned in terms of key content including: designation of the individual responsible for undertaking the process, management of the chain of evidence and consequences for the employee following the results of drug screening. All three policies named the impaired individuals manager as being responsible for

identifying reasonable grounds for testing based on suspicion of drug related impairment, including aberrant behaviour or appearance. Drug testing could also be imposed following an accident, incident or near miss. All three policies stated that written informed consent was required prior to obtaining a sample, and drug test instructions demonstrated detailed consideration toward the integrity of the chain of evidential custody. Study participants appeared to be disinclined to engage in drug testing colleagues, even in cases of reasonable suspicion of drug abuse. It is noteworthy, that integrated drug testing as a prevention, reduction and management strategy has not been explored within the New Zealand context. The promotion of random drug testing as a preventative and identification measure has been promoted by some researchers who have also articulated the limitations of undertaking this intervention, which includes costs both financially and the impact upon individual freedoms (Fitzsimons et al., 2008). Furthermore, confounding factors such as false-positive results, breeches in the chain of evidence and reliability of assays are reported. Consideration toward managing the discomfort associated with drug testing and the impact of cultural factors may add valuable insight to this situation further.

Of the policy documents reviewed in this current study that do provide instruction for drug testing, there was inadequate consideration given to the balance of risk for the staff member; risks include intense somatic and physiological stress, self-harm and suicide which are consistent with research literature (Roche, 2007; Saunders, 2006). Each of these policies recommended immediate removal of the staff member from the workplace, with only a single policy including the

recommendation of a referral for diagnosis and rehabilitation. Additionally, this document not only stated that rehabilitation was compulsory but also included a statement of reassurance around employment. Policy recommendations that advised the immediate removal of an impaired staff member from the workplace, without any direction to secure psychological and physical safety failed to acknowledge the evidence that a substance abuse intervention represents a crisis (Roche, 2007; Saunders, 2006). This crisis is associated with amplified risks as impending withdrawal, severing of drug supply and other catastrophic consequences of discovery carry on in a support vacuum. An intervention of this nature would be expected to be associated with acute withdrawal, immense physiological and psychological stress, and an escalated risk of self harm and suicide (AAGBI, 2011; AANA, 2010; ACECC, 2011; ASA, n.d; Roche, 2007; Saunders 2006).

Factors that disable objective collegial observation and intervention, in cases of drug related impairment, acknowledged by participants in this current study were also reported in the research literature (Bryson & Silverstein, 2008; Collins et al., 2005; Dunn, 2005; Talbert, 2009). Deconstructing these barriers has not been effectively prioritised in a measurable manner, with long standing, significant barriers to the provision of therapeutic acts of collegial concern around suspicion of drug abuse still readily identified in this current study. The ability to accurately interoperate aberrant behaviours in cases of drug abuse and addiction in a colleague was reported as being fraught with difficulty in this current study; this is also reported by researchers

(Fry, 2005). The most significant barriers identified by the participants in this study were the reluctance to criticise a colleague and concern over the impact on a colleague's reputation and livelihood. Professional embarrassment was also identified as a significant concern impairing collegial involvement. Nearly forty percent of participants identified the fear of personal retaliation and ignorance of disease as being barriers to collegial intervention. Cognitive dissonance was also acknowledged as a considerable barrier with nearly forty-five percent of informants recognising this phenomenon potentially being a factor. Denial is an experience reported within the affected individual and the wider team, furthermore, it has been identified that denial is difficult to modify and may be supported by sophisticated intellectual defensive strategies (Angres & Bettinardi-Angres, 2008; Baker et al., 2004; Bechara, 2005; Booth & Silverstein, 2008). Uncertainty over the bearing of staff impairment on patient risk was not reported as a significant barrier although it was acknowledged by five participants. These findings were in step with wider research findings and contribute to the understanding that addictive disease in this context can be experienced as a collision of significant individual and departmental denial; allowing an accelerated, aggressive disease to evolve un-witnessed due to complex individual and interpersonal dynamics (Angres & Bettinardi-Angres, 2008; Baker et al., 2004; Bryson & Silverstein, 2008).

There is wide acknowledgement of the complexity of drug abuse within the professional environment, with articulated awareness of the colluding influences experienced by colleagues of denial, cognitive dissonance and embarrassment (Bryson & Silverstein, 2008; Collins et al.,

2005; Dunn, 2005; Talbert, 2009). What is largely absent is the integration of strategies to mitigate these factors.

In this study conducting an intervention was unanimously agreed to be the responsibility of the clinical director of anaesthesia. This is in keeping with international recommendations (All Anesthesia [*sic*], 2007; AAGBI, 2011; AANA, 2010; ACECC, 2011; ASA, n.d; Roche, 2007). The manner with which this was to be conducted was also reported with adequate consistency amongst participants in this current study. This understanding was however, very poorly represented in policy documents, which are an essential mechanism of staff support.

Policy direction in the identification of impaired individuals was comprehensively managed only in the policy documents written specifically for the anaesthesia department, all other policy documents failed to address this issue adequately, if at all. Instruction within the anaesthesia department policy documents was comprehensive, with numerous compulsory steps. These steps were focused on thoroughly prepared evidence, psychological support and safety, and optimised positive individual outcomes, in particular voluntary assessment, treatment and rehabilitation. Advice on matters of employment records, medical council and police were also provided within these two policies.

Specific policy recommendations pertaining to the managed re-entry to practice were identified in three of the eight policies examined. The generic policy document with re-entry content provided substantial detail, including responsibilities of the affected individual, their

colleagues and manager, and professional organisation obligations. There was an overt acknowledgement of the risks associated with relapse and the prioritisation of staff and patient safety. The second policy document regarding making a statement about re-entry to practice, identified the individuals post treatment options as either returning to work in the same discipline or an alternate one. There were no guidelines or further information on the complex matter of re-entry in this policy. Finally, the third policy identified with re-entry content, stated a professional organisation assessment was required, plus a detailed monitoring programme and a re-entry contract. The stated expectations included; limitations to practice, professional supervision, restricted access to drugs and random drug testing. It was also acknowledged that this format of professional support may continue for an extended period of time and that in some cases alternate work may be required. This split response pertaining to the post rehabilitation return to anaesthesia or an alternate specialty is consistent with academic discourse on the matter (Bryson & Levine, 2008; Bryson & Silverstein, 2008; Collins et al., 2005; Oreskovich & Caldeiro, 2009; Saunders, 2006; Skipper et al., 2009).

The academic dialogue in relation to the key question pertinent to re-entry is focused on the risk of relapses and the associated negative outcomes for those who return to anaesthesia as opposed to an alternate speciality. Of the eight policies examined three articulated an assurance of continued support during treatment including, either re-training or re-entry into the workforce. Three policies also included specific instruction around the management of professional re-entry following rehabilitation. Reference to dismissal within the policies examined was associated with

a code of conduct disciplinary process, although dismissal was also stated.

Aberrant activities associated with addictive disease include various behaviours which could be considered breaches of the professional or organisational code of conduct, and may include, but are not limited to the following; being under the influence of non-prescribed drugs, falsifying documentation or records, failing to maintain an acceptable level of performance, inappropriate or disruptive behaviour, theft, and reporting for duty unfit for work. There is little doubt that advanced addiction to drugs diverted from clinical anaesthesia necessitates unprofessional and unlawful conduct (Cegedim, 2010; Hartle, 2009; Lillibridge et al., 2002; Roache, 2007). However, organisations that acknowledged a therapeutic rather than disciplinary approach endorsed the avoidance of police engagement, providing the impaired individual was able to cooperate with recommended assessment, treatment and rehabilitation. Involvement of police was not enthusiastically endorsed within international policies (AAGBI, 2011; AANA, 2010; ACECC, 2011) and this was adequately reflected within findings from this study. Police referral was included as an immediate intervention option in a situation where robust evidence of substance abuse was confronted with sustained denial and refusal to submit for assessment and treatment by the impaired individual.

## 5.2 LIMITATIONS AND STRENGTHS OF THE STUDY

There are several study limitations. The first limitation pertained to the data collected via survey Ib which relied on the perception, experiences, and recall of the individual completing the questionnaire. Individual knowledge of substance abuse practice in the department and in particular, the management of substance abuse cases may be further influenced by the number of years in the appointed position of clinical director or health and welfare officer. Furthermore, the survey did not distinguish between participants who have or have not had actual experience with staff impairment due to drug abuse. For those participants who had not experienced a case of staff substance abuse during their tenure in leadership responses were mixed between hypothetical and non applicable responses. The use of non-validated tools was a study limitation. Although modestly ameliorated by the pilot process, due to the selection of only two individuals, one of whom had been involved in the concept discussions there may have been some literacy with the tools that was not experience by subsequent participants. This was demonstrated in responses. Furthermore, on wider use of the Data extraction tool II the question of policy authorship added little to the study findings. It was acknowledged that the questionnaire survey IA and IB and the data extraction tool II had not been robustly validated.

The final limitation relates to the inclusion of departments of anaesthesia associated with District Health Boards only, therefore excluding all private organisations.

A leading strength of this study was the high response rate of both the survey questionnaires and policy documents for data extraction. Of the twenty District Health Boards in New Zealand eighteen respondents returned completed questionnaires and all twenty organisations responded to the request for policy documents, with the provision of a copy of all current staff substance abuse policy documents being utilised in New Zealand District Health Boards put forward for analysis.

### 5.3 SUMMARY

What is known about drug diversion, abuse, and addiction amongst those who work with anaesthesia is staggering. It is clearly recognised that working with anaesthesia, in itself, constitutes a risk factor, and that there are numerous factors intensified by this clinical environment that potentiate drug diversion and consumption. There is abundant evidence that diversion and abuse of drugs used predominantly in anaesthetic practice confers rapid addiction and alarming mortality. It is also accepted that it must be within the collegial environment first, that recognition, intervention, and the hope for safety are provided.

A template for collegial and organisational response has been developed by influential international anaesthesia organisations that have doggedly advanced an answer to this challenge, with model educational curricula and policy documents. Decades of courageous dialogue and research have led to the establishment of a therapeutic

approach to what is now understood to be a complex neurobiological disease. Over recent years however, new disturbing discourse has been documented in professional anaesthesia journals debating the lack of existing evidence that preventative and management strategies are actually working, as incidence figures continue unabated. The strategies soundly promoted by leading anaesthesia groups, are in part at least questioned, however, no obvious direction with which to pursue policy evolution in order to redress incidence has been forthcoming.

Model policies on the whole, reflect the integration of scientific, professional, and humanitarian perspectives. In this study the overall state of substance abuse policy documents within New Zealand District Health Boards was found wanting. The profound paucity of policy documents was out of step with both international recommendations and the depth of comprehension demonstrated by most of the participants in this current study. It is not unreasonable to suggest that most of these existing policy documents contribute little to the prevention of drug diversion and abuse and to the effectiveness of intervention. Departmental wellbeing is dependent on proactive behaviours that minimise harm and maximise positive outcomes. This current study does not explore perpetuating factors; however, there is a persistent absence of due consideration and integration of available professional body recommendations (ACECC, 2011).

In summary, in spite of overt collegial concern and the consistent acknowledgement of substance abuse as an inherent risk associated with the practice of anaesthesia, eighteen of the twenty District Health Boards

in New Zealand failed to demonstrate formal organisational preparedness by way of a robust substance abuse policy. Of the eight policies examined only two were written specifically for the department of anaesthesia. Overall, the content of these two policies fared positively following detailed comparison with leading international policy recommendations. The remaining six contained very few internationally recommended policy features. There was a substantial lack of policy content that would reassure staff that diversion and abuse of drugs diverted in the workplace had been adequately considered, in particular, the specific circumstances around exposure, risks, morbidity, and mortality. This finding resists more than thirty years of professional discourse and research evidence, and co-exists in an environment where reported substance abuse practice is infrequently supported or mirrored by policy.

A key feature quite absent in these New Zealand policies was that of drug testing. Indeed, drug testing was represented in only one policy, in spite of active academic research discourse around the contribution drug testing may make toward prevention, early detection, and management of staff substance abuse and addiction.

The data indicates substance abuse education within anaesthesia departments in New Zealand does not match international recommendations. Although international organisations strongly endorse staff education aimed at the development of knowledge and confidence regarding all aspects of drug diversion, abuse, and addiction, there has been an absence of evidence that this measure has influenced

morbidity and mortality figures. Indeed, there is inadequate evidence that this measure has been authentically integrated into anaesthesia departments in the first place.

On the whole, the policy content data retrieved from generic policy documents did not compare favourably with international recommendations. The key areas of content failure within these policy documents pertained to substance abuse education, identification, intervention and treatment. This paucity of policy detail was evidenced within the content of 100% of participant's identifying that substance abuse intervention would be managed primarily by the clinical director and senior team within the anaesthesia department.

Policy documents written specifically for the department of anaesthesia contained more recommended features than policies written for the broader organisation. One substance abuse policy written specifically for the anaesthetic department contained all recommended features, with the exception of policy advice on drug testing. Indeed, in 1986 Lecky and colleagues asserted that anaesthesia departments must have a clear position on the matter of staff diversion and abuse of drugs, furthermore, they advised the preparation of a detailed policy to maximise positive outcomes in the intervening year's very little progress is evident (Lecky et al., 1986).

#### 5.4 CONCLUSIONS

The synthesis of international substance abuse policy recommendations and the exploration of substance abuse practice and policy in New Zealand District Health Board departments of anaesthesia demonstrated vast differences. Certainly, recognition amongst clinical leaders in anaesthesia acknowledged substance abuse as an inherent risk within anaesthesia and one worthy of a comprehensive therapeutic response. However, there were very few policy findings that compared favourably with international documents. International recommendations direct that substance abuse policy documents be prepared in advance and in detail, in order to underpin the difficult task of impaired staff investigation and intervention with practice that promotes the best possible outcomes. Furthermore, there were strongly developed substance abuse education curricula within international policy recommendations which were not reflected in New Zealand policy documents. Evidence demonstrating the influence of policy and education on morbidity and mortality was not particularly reassuring. Indeed, there has been active academic discourse around the paucity of evidence demonstrating substance abuse strategies actually work. Therefore, despite the intuitively rational assertion that extensive education around substance abuse and addiction would reduce morbidity and mortality research findings fail to confirm this. What is apparent is that staff substance abuse education in New Zealand District Health Board departments of anaesthesia neither mandatory nor comprehensive.

Issues identified in this study relate to the broader nursing organisational climate. There is an outstanding paucity of New Zealand based research conducted by nurses and about nurses, on the matter of drug diversion and substance abuse. Furthermore, there is little evidence of preparedness within the profession for the competent implementation of a therapeutic individual approach or organisational leadership. Although an interdisciplinary approach may indeed have significant intuitive validity there is little evidence in international documents and research supporting this stance, including very little representation or engagement of New Zealand post anaesthetic care nurses in substance abuse prevention, education, intervention, and treatment.

#### 5.5 RECOMMENDATIONS

Data presented in this study indentified the absence of consideration and preparedness on a departmental and organisational level in terms of staff drug diversion and abuse as represented by supporting documents. Comprehensive substance abuse policy documents were largely absent, albeit in a professional environment where anaesthetic departmental leaders were ethically and intellectually orientated toward therapeutic care of colleagues impaired by drug abuse. However, examination of the organisational barriers to adopting substance abuse policies and departmental barriers to policy integration and literacy is warranted. Table three contains a summary of recommendations, associated goals and proposed leadership.

**Table Three:** Recommendations, related goals and suggested leadership

<b>Recommendation</b>	<b>Goal</b>	<b>Leadership</b>
Examination into the organisation barriers than inhibit substance abuse adoption and literacy	Adoption of robust staff substance abuse policy and substance abuse education curriculum throughout New Zealand District Health Boards	Future researcher
Coordinated national integration of the ACECC recommendations of staff substance abuse policy	Consistent national approach based on current best evidence	Health and Welfare officers with sponsorship from the clinical director of the department of anaesthesia
Develop an interdisciplinary approach	Those who work with anaesthesia, including technicians and nurses will work with the support of a substance abuse policy	Identified health and welfare staff and professional group leaders
Coordinated approach with training institutions and regulatory bodies	Increase the visibility, knowledge and confidence amongst staff around substance abuse	Organisation leaders
Document the unique knowledge and experiences of recovering addicts	Advance knowledge of the lived experience of staff abuse and addiction to drugs diverted from clinical practice Advance prevention strategies	Future researcher
Explore the individual and environmental factors surrounding a staff members first diversion and abuse of a drug	Deepen knowledge around the initial diversion experience Advance prevention strategies	Future researcher

While epidemiological studies demonstrate the incidence of impairment amongst those who work with anaesthesia continues unabated, this study reports that the best of what is recommended internationally has yet to be meaningfully applied. Indeed, this study identified only two of New Zealand's twenty District Health Board anaesthesia departments were supported by a comprehensive substance abuse policy document. A key recommendation therefore, is the proactive engagement with policy strategies that already exist. Australasian recommendations are recent, comprehensive, and represent co-operative engagement from key stake holders (ACECC, 2011). Therefore, a coordinated national strategy to embed all elements of the ACECC document into every District Health Board department of anaesthesia is the necessary precursor to measuring its usefulness. Moreover, an interdisciplinary approach which focuses on robust pro-active strategies, with downstream co-operation and participation at all levels departmentally and upstream engagement with regulatory bodies is recommended.

Furthermore, the authentic integration of international guidelines for substance abuse policy within nursing educational, professional, and regulatory organisations is recommended. Their influence on the nursing workforce is considerable and far-reaching and can be utilised to maximise health and wellbeing of New Zealand nurses.

Finally, future research strategies could focus on utilising professionals in recovery from addiction to drugs diverted from anaesthesia, to push forward collective understanding utilising the

unique knowledge gained from the lived experience of affected individuals. It is acknowledged in international policy that a recovering anaesthetist may be utilised as a member of an intervention team, the author proposes a wider examination optimising the unique contribution to departmental wellbeing these individuals may offer. Furthermore, the author considers an essential element for future research is the detailed exploration of the human and environmental factors that surround an individual's initial act of drug diversion and consumption. Understanding this profound crossing the line may contribute significant insight toward the development of more effective prevention strategies.

## REFERENCE LIST

- Alexander, B. H., Checkoway, H., Nagahama, B. A., & Domino, K. B. (2000). Cause-specific mortality risks of Anesthesiologists. *Anesthesiology*, 93(4), 922-930.
- All Anesthesia. (2007). *Guidebook for developing substance abuse policies and procedures and educational programs*. Aspect Medical Systems.
- American Association of Nurse Anesthetists (AANA). (2010). *A model policy/procedure for departments of anesthesia on chemical dependency*. Park Ridge IL: Author.
- American Psychiatric Association (4<sup>th</sup> ed.). (2000). *Diagnostic and statistical manual of mental disorders*. Chicago IL: American Psychiatric Association
- American Society of Anesthesiologists (ASA). (n.d). *Model curriculum on drug and addiction for residents in anesthesiology*. Retrieved from [www.asahq.org/clinical/curriculum.pdf](http://www.asahq.org/clinical/curriculum.pdf)
- Anaesthesia Continuing Education Coordinating Committee (ACECC). (2011). *Suspected or proven substance abuse (misuse): Resource Document 20, Prevention, Recognition, Intervention*. Melbourne, Vic: Author.
- Angres, D. H., & Bettinardi-Angres, K. (2008). The disease of addiction: Origins, treatment, and recovery. *Disease Monthly*, October, 696-721.
- Association of Anaesthetists of Great Britain and Ireland (AAGBI). (2011). *Drug and alcohol abuse amongst anaesthetists. Guidance on identification and management*. London: Author.
- Baird, W. L. (2000). Substance misuse amongst anaesthetists. *Anaesthesia*, 55, 943-945.

- Baker, T. B., Piper, M. E. McCarthy, D. E., & Majeskie, M. R. (2004). Addiction motivation reformulated: A affective processing model of negative reinforcement. *Psychology Review*, 111(1), 33-51.
- Bechara, A. (2005). Decision making, impulse control and loss of willpower to resist drugs: a neurocognitive perspective. *Nature Neuroscience*, 8(11), 1458-1463.
- Berge, K. H. (2009). Letters to the editor. *Mayo Clinic Proceedings*, November, 84(11), 1040-1043.
- Berge, K. H., Seppala, M. D., & Lanier, W. L. (2008). The anesthesiology community's approach to opioid- and anesthetic-abusing personnel. *Anesthesiology*, 109, 762-764.
- Berridge, V., & Mars, S. (2004). History of addictions. *Journal of Epidemiology Community Health*, 58, 747-750.
- Berry, C. B., Crome, I. B., Plant, M. & Plant, M. (2000). Substance misuse amongst anaesthetists in the United Kingdom and Ireland. *Anaesthesia*, 55, 946-952.
- Booth, J. V., Grossman, D., Moore, J., Lineberger, C., Reynolds, J. D., Reves, J. G., & Sheffield, D. (2002). Substance abuse among physicians: A survey of academic anesthesiology programs. *Anesthesiology & Analgesia*, 95, 1024-1030.
- Brownstein, M. J. (1993). A brief history of opiates, opioid peptides, and opioid receptors. *Proceedings of the National Academy of Sciences*, 90, 5391-5393.
- Bryson, E. O., & Levine, A. (2008). one approach to the return to residency for anesthesia residents recovering from opioid addiction. *Journal of Clinical Anesthesia*, 20, 397-400.
- Bryson, E. O., & Silverstein, J. H. (2008). Addiction and substance abuse in anesthesiology. *Anesthesiology*, 109(5), 905-917.
- Carr, L. T. (1994). The strengths and weaknesses of quantitative and qualitative research: what method for nursing? *Journal of Advanced Nursing*, 20, 716-721.

- Cegedim, Relationship management. (2010). *Diversion and abuse of controlled substances in hospitals*. Bedminster, NJ: Author.
- Chao, J. & Nestler, E. J. (2004). Molecular neurobiology of drug addiction. *Annual Review of Medicine*, 55, 113-123.
- Chisholm, A. B. & Harrison, M. J. (2009). Opioid abuse amongst anaesthetists: a system to detect personal usage. *Anaesthesia and Intensive Care*, 37(2), 267-271.
- Clay, S. W., Allen, J., & Parran, T. (2008). A review of addiction. *Postgraduate Medicine*, 120(2), 1941-1948.
- Cloninger, C. R. (2008). Genetics of Substance Abuse. In M. Galanter & H. D. Kleber (Eds.), *The American Psychiatric Publishing textbook of substance abuse treatment* (4<sup>th</sup> ed.) (pp.73-80). Arlington, VA.: American Psychiatric Publishing Inc.
- Cohen, P. J. (2009). Vigilance and the drug-dependent anesthesiologist. *Anesthesiology*, 110, 1442.
- Collins, E. D. & Kleber, H. D. (2008). Opioids: Detoxification. In M. Galanter & H. D. Kleber (Eds.), *The American Psychiatric Publishing textbook of substance abuse treatment* (4<sup>th</sup> ed.) (pp.265-287). Arlington, VA.: American Psychiatric Publishing Inc.
- Collins, G. B., McAllister, M. S., Jensen, M., & Gooden, T. A. (2005). Chemical dependency treatment outcomes of residence in anesthesiology: Results of a survey. *Anesthesiology & Analgesia*, 101, 1457-1462.
- Contet, C., Kieffer, B. L., & Befort, K. (2004). Mu opioid receptor: a gateway to drug addiction. *Current Opinion in Neurobiology*, 14, 370-378.
- Dexter, F. (2007). Detecting diversion of anesthetic drugs by providers. *Anesthesia & Analgesia*, 105(4), 897-898.
- Doidge, N. (2010). *The brain that changes itself* (revised ed.). Melbourne: Scribe.

- Domino, K. B., Hornbein, T. F., Polissar, N. L., Renner, G., Johnson, J., Alberti, S., & Hankes, L. (2005). Risk factors for relapse in health care professionals with substance use disorders. *JAMA*, 293(12), 1453-1460.
- Dunn, D. (2005). Substance abuse among nurses – Defining the issue. *AORN Journal*, 82(4), 573-596.
- Eisch, A. J. & Mandyam, C. D. (2004). Drug dependence and addiction, II. *The American Journal of Psychiatry*, 161(3), 426.
- Epstein, R. H., Gratch, D. M., & Grunwald, Z. (2007). Development of a scheduled drug diversion surveillance system based on an analysis of atypical drug transactions. *Economics, Education, and Policy*, 105(4), 1053-1060.
- Epstein, R. H., Gratch, D. M., McNulty, S., & Grunwald, Z. (2011). Validation of a system to detect scheduled drug diversion by anesthesia care providers. *Anesthesia & Analgesia*, 113(1), 160-164.
- Farley, W. J. (1992). Addiction and the anaesthesia resident. *Canadian Journal of Anaesthesia*, 39, 7.
- Fitzsimons, M. G., Baker, K. H., Lowenstein, E., & Zapol, W. M. (2008). Random drug testing to reduce the incidence of addiction in anesthesia residents: Preliminary results from one program. *Economics, Education, and Policy*, 107(2), 630-635.
- Fry, R. A. (2005). Substance abuse by anaesthetists in Australia and New Zealand. *Anaesthesia and Intensive Care*, 33(2), 248-255.
- Fry, R. A. (2006). Chemical dependency treatment outcomes of residents. *Anesthesia & Analgesia*, 103(6), 1588-1589.
- Gastfriend, G. R. (2005). Physician substance abuse and recovery: What does it mean for physicians – and everyone else? *JAMA*, 293(12), 1513-1515.

- Gay, G. R., Inaba, D. S., Sheppard, C. W., & Newmeyer, J. A. (1975). Cocaine: History, epidemiology, human pharmacology, & treatment. A perspective on a new debut for an old girl\* *Clinical Toxicology*, 8(2), 149-178.
- Ghodse, H. (2002). *Drugs and addictive behaviour: A guide to treatment* (3<sup>rd</sup> ed.). Cambridge: University Press.
- Gold, M. S., Melker, R. J., Dennis, D. M., Morey, T. E., Bajpai, L. K., Pomm, R., & Frost-Pineda, K. (2006). Fentanyl abuse and dependence: Further evidence for second hand exposure hypothesis. *Journal of Addictive Diseases*, 25(1), 15-21.
- Goodman, A. (2008). Neurobiology of addiction: An integrative review. *Biochemical Pharmacology*, 75, 266-322.
- Griffith, L. E., Cook, D. J., Guyatt, G. H., & Charles, C. A. (1999). Comparison of open and closed questionnaire formats in obtaining demographic information from Canadian general internists. *Journal of Clinical Epidemiology*, 52(10), 997-1005.
- Hartle, A. (2009). The safety of propofol. *British Medical Journal*, 339, 928-929.
- Ismail, S. (2010). Chemical dependency: an occupational hazard in the field of anaesthesia. *The Journal of the Pakistan Medical Association*, 60(10), 857-860.
- Jaffe, J. H. & Jaffe, A. B. (2008). Neurobiology of opioids. In M. Galanter & H. D. Kleber (Eds.), *The American Psychiatric Publishing textbook of substance abuse treatment* (4<sup>th</sup> ed.) (pp.17-30). Arlington, VA.: American Psychiatric Publishing Inc.
- Jones, S. & Bonci, A. (2005). Synaptic plasticity and drug addiction. *Current Opinion in Pharmacology*, 5, 20-25.
- Katz, J. D. & Arnold, W. P. (2005). Model departmental policy for drug and alcohol testing as part of a comprehensive intervention for suspected substance abuse in anaesthesia professionals. *ASA. Committee on Occupational Health*.

- Kavanagh, S. (2006). When the healer is hurting. *Casebook*, 14(3), 10-11.
- Kendler, K. S., Karkowski, L. M., Neale, M. C., & Prescott, C. A. (2000). Illicit psychoactive substance use, heavy use, abuse, and dependence in a US population-based sample of male twins. *Archives of General Psychiatry*, 57(3), 261-269.
- Kintz, P., Villain, M., Dumestre, V., & Cirimele, V. (2005). Evidence of addiction by anesthesiologists as documented by hair analysis. *Forensic Science International*, 153, 81-84.
- Kirby, R. R., Colaw, J. M., & Douglas, M. M. (2009). Death from propofol: Accident, suicide, or murder? *Anesthesia & Analgesia*, 108(4), 1182-1184.
- Koob, G. F. (2009). Brain stress systems in the amygdale and addiction. *Brain Research*, 1293, 61-75.
- Kornetsky, C. (2004). Brain-stimulation reward, morphine-induced oral stereotypy, and sensitization: implications for abuse. *Neuroscience and Biobehavioral Reviews*, 27, 777-786.
- Lecky, J. H., Aukburg, S. J., Conahan, T. J., Geer, R. T., Ominsky, A. J., Gross, J., ... Wollman, H. (1986). A department policy addressing chemical substance abuse. *Anesthesiology*, 65, 414-417.
- Leshner, A. I. (2001). Addiction is a brain disease. *Issues in Science and Technology*, 17(3), 75-81.
- Levine, A. I. & Bryson, E. O. (2010). Intranasal self-administration of remifentanil as the foray into opioid abuse by an anesthesia resident. *International Anesthesia Research Society*, 110(2), 524-525.
- Lillibridge, J., Cox, M., & Cross, W. (2002). Uncovering the secret: giving voice to the experiences of nurses who misuse substances. *Journal of Advanced Nursing*, 39(3), 219-229.
- Ling, W. (2011). DSM-V: Time for change. *Addiction*, 106, 868.

- Luck, S. & Hedrick, J. (2004). The alarming trend of substance abuse in anesthesia providers. *Journal of PeriAnesthesia Nursing*, 19(5), 308-311.
- Lundgren, C. (2007). The impaired anaesthetist – is this a problem in South Africa? *SAJAA*, 13(1), 7-8.
- Maling, T. J. & Burgess, C. D. (11<sup>th</sup> ed.). (2006). *Clinical Pharmacology and Therapeutics*. Wellington: University of Otago.
- McAuliffe, P. F., Gold, M. S., Bajpai, L., Merves, M. L., Frost-Pineda, K., ... Cendan, J. C. (2006). Second-hand exposure to aerosolized intravenous anesthetics propofol and fentanyl may cause sensitization and subsequent opiate addiction among anesthesiologists and surgeons. *Medical Hypotheses*, 66, 874-882.
- Miyata, H. & Kai, I. (2009). Reconsidering evaluation criteria for scientific adequacy in health care research: An integrative framework of quantitative and qualitative criteria. *International Journal of Qualitative Methods*, 8(1), 64-75.
- Monroe, T., Pearson, F., & Kenaga, H. (2008). Procedures for handling cases of substance abuse among nurses: A comparison of disciplinary and alternative programs. *Journal of Addictions Nursing*, 19, 156-161.
- Musto, D. F. (1985). Iatrogenic addiction: The problem, its definition and history. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 61(8), 694-705.
- Nesbo, J. (2008). *Headhunters*. London: Harvill Secker.
- New Zealand Law Commission. (2010). The history and development of drug regulation. In NZLC, *Controlling and regulating drugs: A summary of the law commission's issues paper on the review of the Misuse of Drugs Act 1975* (pp.44-58). Wellington, New Zealand: Author.
- O'Brien, C. P. (2011). Addiction and dependence in DSM-V. *Addiction*, 106, 866-867.

- Oreskovich, M. R., & Caldeiro, R. M. (2009). Anesthesiologists recovering from chemical dependency: Can they safely return to the operating room? *Mayo Clinic Proceedings*, 84(7), 576-580.
- Polit, D. F. & Beck, C. T. (8<sup>th</sup> ed.). (2008). *Nursing Research: Generating and assessing evidence for nursing practice*. Philadelphia: Lippincott Williams & Wilkins.
- Roberts, L. (2005). Substance abuse a decade on: So little and so far. *Anaesthesia and Intensive Care*, 33(2), 165-166.
- Roche, B. H. (2007). *Substance abuse policies for anaesthesia*. Winston-Salam, NC: All Anesthesia.
- Rose, G. L. & Brown, R. E. (2010). The impaired anesthesiologist: not just about drugs and alcohol anymore. *AINS*, 45(10), 648-655.
- Saunders, D. (2006). Substance abuse and dependence in anaesthetics. *Best Practice & Research Clinical Anaesthesiology*, 20(4), 637-643.
- Sellman, D. (2007). What is addiction? *New Zealand Family Physician*, 34(2), 77-81.
- Sharer, K. B. (2008). Controlled-substance returns in the operating suite. *AORN Journal*, 88(2), 249-252.
- Shaw, M. P., McGovern, M. P., Angres, D. H., & Rawal, P. (2004). physicians and nurses with substance use disorders. *Journal of Advanced Nursing*, 47(5), 561-571.
- Sick Doctors UK. (2006). Retrieved March 3, 2010, from <http://www.sick-doctors-trust.co.uk/>
- Skipper, G. E., Campbell, M. D., & Dupont, R. L. (2009). Anesthesiologists with substance use disorders: a 5-year outcome study from 16 state physician health programs. *Anesthesia & Analgesia*, 109(3), 891-896.
- Talbert, J. J. (2009). Substance abuse among nurses. *Clinical Journal of Oncology*, 13(1), 17-19.

- Tanga, H. Y. (2011). Nurse drug diversion and nursing leaders responsibilities: Legal, regulatory, ethical, humanistic, and practical considerations. *JONA'S Healthcare Law, Ethics, and Regulation*, 13(1), 13-16.
- Tetzlaff, J. E., Collins, G. B., Brown, D. L., Pollock, G., & Popa, D. (2010). A strategy to prevent substance abuse in an academic anesthesiology department. *Journal of Clinical Anesthesia*, 22, 143-150.
- Tetzlaff, J. E., Zura, A., Maurer, W., & Collins, G. (2007). Changing a substance abuse policy into a substance abuse prevention protocol. *Anesthesiology*, 107:A1036.
- Thomas, I. & Anthony, J. (2006). Occupational hazards of anaesthesia. *Continuing Education in Anaesthesia, Critical Care & Pain*, 6(5), 182-187.
- Travis, J. (2004). Anesthesia's addiction problem. *Science*, 306(5699), 1126-1127.
- Watts, G. (2005). Doctors, drink, and drugs. *BMJ/Careers*. Retrieved March 3, 2010, from <http://careers.bmj.com/careers/advice/view-article.html?id=1096>
- Wearing Masks (1994, 2004, 2005, 2006). DVD Programs. Winston-Salem, NC: All Anesthesia, a coalition for the prevention of substance abuse in anesthesiology. Retrieved February 2, 2010, from [www.allanesthesia.com](http://www.allanesthesia.com)
- Weeks, A. M., Buckland, M. R., Morgan, E. B., & Myles, P. S. (1993). Chemical dependence in anaesthetic registrars in Australia and New Zealand. *Anaesthesia and Intensive Care*, 21, 151-155.
- White, J. M. (2004). Pleasure and pain: The consequences of long-term opioid use. *Addictive Behaviors*, 29, 1311-1324.
- Williams, C. (2007). Research methods. *Journal of Business & Economic Research*, 5(3), 65-71.

- Wilson, J. E., Kiselanova, N., Stevens, Q., Lutz, R., Mandler, T., Tran. Z. V., & Wischmeyer, P. E. (2008). A survey of inhalational anaesthetic abuse in anaesthesia training programmes. *Anaesthesia*, 63, 616-620.
- Wischmeyer, P. E., Johnson, B. R., Wilson, J. E., Dingmann, C., Bachman, H. M., Roller, E., ... Henthorn, T. K. (2007). A survey of propofol abuse in academic anesthesia programs. *Anesthesia & Analgesia*, 105(4), 1066-1071.
- Zimmerman, M. (1994). *Interview Guide for Evaluating DSM-IV Psychiatric Disorders and the Mental Status Examination*. East Greenwich: Psych Products Press.

# *APPENDIX: A*

---

# *SURVEY QUESTIONNAIRE I A*

---

Consultation: **Clinical Director**, Department of Anaesthesia, District Health Board, New Zealand.

*Anaesthesia department demographic and substance abuse policy survey.*

**Survey Code:** \_\_\_\_\_

1. How many Consultant Anaesthetists work in your department?

\_\_\_\_\_

2. How many Anaesthetic Registrars work in your department?

\_\_\_\_\_

3. How many Anaesthetic Technicians work in your department?

\_\_\_\_\_

4. How many post anaesthetic care Nurses work with your service?

\_\_\_\_\_

5. Does your anaesthesia department have a substance abuse policy?

yes no

6. Are there identified health and welfare officer/s in your department?

yes no

7. How many health and welfare officers are there in your department? \_\_\_\_\_

8. How are health and welfare officer/s identified by staff?

\_\_\_\_\_

*Thank you for your participation in this survey.*

*On completion would you like a summary of findings; yes no*

# SURVEY QUESTIONNAIRE I B

---

Consultation: **Health and Welfare Officer**, or in the absence of a designated person the **Clinical Director**, Department of Anaesthesia, District Health Board, New Zealand.

**Survey Code:** \_\_\_\_\_

Practice survey.

1. What is the primary under-pinning philosophy represented when working with a chemically impaired colleague?
  - a. Substance abuse is a health and welfare issue  
yes
  - b. Substance abuse is a registration issue  
yes
  - c. Substance abuse is a patient safety issue  
yes
  - d. Substance abuse is a legal issue  
yes
  
2. Do you consider substance abuse and chemical dependence to be an inherent risk associated with the practice of anaesthesia?  
yes    no
  
3. Is there a wellness committee or an Employee Assistance Programme in your workplace?  
yes    no
  
4. How many hours of substance abuse education do anaesthesia staff have access to:
  - a. 1-2 hours per year  
yes    no
  - b. 1-2 hours every second year  
yes    no
  - c. 1-2 hours on orientation to the department  
yes    no
  - d. Nil  
yes
  
5. Is substance abuse education mandatory  
yes    no

6. What does the substance abuse curriculum include:
- |   |     |    |
|---|-----|----|
| a. Biological basis of disease                      | yes | no |
| b. Epidemiology                                     | yes | no |
| c. Signs & symptoms of disease in anaesthesia staff |     |    |
|   | yes | no |
| d. Intervention                                     | yes | no |
| e. Treatment  | yes | no |
| f. Re-entry   | yes | no |
| g. Legal issues                                     | yes | no |
7. What professional groups receive formal education on staff substance abuse:
- |                                     |     |    |         |
|-------------------------------------|-----|----|---------|
| a. Consultant Anaesthetist          | yes | no | unknown |
| b. Anaesthetic Registrar            | yes | no | unknown |
| c. Anaesthetic Technician           | yes | no | unknown |
| d. Post Anaesthetic Care Unit Nurse |     |    |         |
|                                     | yes | no | unknown |
8. What data is collected in an investigation when substance abuse or chemical dependence is suspected? \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
9. How is this data collected? \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
10. What undermines collegial intervention in impaired staff:
- |   |     |    |         |
|---|-----|----|---------|
| a. Reluctance to criticise a colleague              |     |    |         |
|   | yes | no | unknown |
| b. Concerned re impact on reputation and livelihood |     |    |         |
|   | yes | no | unknown |

- |   |     |    |         |
|---|-----|----|---------|
| c. Fear of personal retaliation                       | yes | no | unknown |
| d. Unsure impairment relates directly to patient risk |     |    |         |
|   | yes | no | unknown |
| e. Cognitive dissonance                               | yes | no | unknown |
| f. Professional embarrassment                         | yes | no | unknown |
| g. Ignorance of disease                               | yes | no | unknown |

11. Who is responsible for planning and conducting an intervention?

---

12. Who may the intervention team include:

- |   |     |    |
|---|-----|----|
| a. Clinical Director of Anaesthesia             | yes | no |
| b. Health & Welfare officer                     | yes | no |
| c. Employee assistance programme representative |     |    |
|   | yes | no |
| d. Human resources representative               | yes | no |
| e. Recovering anaesthetist                      | yes | no |
| f. Family member or close friend                | yes | no |
| g. Psychiatrist or Addiction Specialist         | yes | no |

13. What are the accepted possible outcomes of an intervention?

---



---

Please make any additional comments:

---



---



---

*On completion would you like to receive a summary of the findings?*

yes no

---

# *APPENDIX: B*

---

# *DATA EXTRACTION TOOL II*

---

Consultation: Policy document, Department of Anaesthesia, District Health Board, New Zealand.

Policy request: Substance Abuse Policy Survey.

**Survey Code:** \_\_\_\_\_

## Substance Abuse Policy Content Survey.

1. Is there a staff substance abuse policy in the organisation coded above?

yes    no

2. Is request for a copy of policy:

- a. Accepted
- b. Declined

3. Who is the main contributor to the authorship of this policy?

a. Institution

\_\_\_\_\_

b. Organisation

\_\_\_\_\_

c. Individual/s

\_\_\_\_\_

d. Unknown

4. Has this policy been written specifically for the Department of Anaesthesia?

unknown    yes    no

5. Is there an acknowledging statement to the inherent risk of drug addiction in anaesthesia?
- yes    no
6. Does the policy contain recommendations for:
- a. Drug testing yes    no
- b. Consequences for policy violation yes    no
- c. Ethical & legal responsibilities toward impaired colleagues yes    no
- d. Resources to assist with individual diagnosis, treatment and recovery yes    no
7. What is the stated strategy for policy disseminated:
- a. Policy discussion at departmental meetings yes    no
- b. Written policy sent to all staff yes    no
- c. Word of mouth yes    no
- d. Policy is presented as part of departmental orientation yes    no
- e. Formal single point education yes    no
- f. Formal regular education yes    no
- g. No strategy for disseminating the substance abuse policy documented
8. Does the substance abuse policy include a curriculum for education? yes    no
9. Does the education curriculum in the substance abuse policy include:
- a. Biological basis of addictive disease yes    no
- b. Epidemiology yes    no
- c. Signs & symptoms of disease in anaesthesia staff yes    no
- d. Intervention yes    no



# *APPENDIX: C*

---

# Canterbury

District Health Board

Te Poari Hauora o Waitaha

2nd December 2011

Dear Colleague

Enclosed is a request for your participation in a survey being conducted by one of my Nursing colleagues who works in the PACU at Christchurch Hospital. Cate is a well respected member of our PACU team and has a long standing interest in both the care of the drug using patient and also the consequences of drug use amongst medical and nursing staff. I hope you will be able to assist her by answering this short questionnaire.



Kind regards and many thanks

Dr Richard French FANZCA

Clinical Director

Department of Anaesthesia

Canterbury District Health Board

# *APPENDIX: D*

---

***TITLE:*** How does surveyed Substance Abuse policy, education programme curriculum and practice in New Zealand District Health Board hospital Departments of Anaesthesia compare with international recommendations?

---

Date

Dear Dr \_\_\_\_\_

You have been selected to receive a questionnaire as part of a survey to explore substance abuse policies and practice in New Zealand hospitals.

Please find enclosed:

- A participant information sheet
- Survey Questionnaire
- A postage paid return envelope

Please complete the enclosed questionnaire and return in the envelope provided. Your participation is expected to take approximately 20 minutes. Your participation is voluntary and you can withdraw from this survey at any time without repercussions. If you agree to participate you can be assured of confidentiality and anonymity as all data will be coded and no individual, hospital or district health board will be named in the presentation of survey findings. Thank you for taking time to consider and or participate in this study.

Yours sincerely

Cate McCall, RN, PGDipHSc  
Investigator  
Masters student  
University of Otago  
Telephone: 03 3378776  
Email: [cate.mccall@cdhb.govt.nz](mailto:cate.mccall@cdhb.govt.nz)

# *APPENDIX: E*

---

# *Participant Information Sheet*

---

**TITLE:** How does surveyed Substance Abuse policy, education programme curriculum and practice in New Zealand District Health Board hospital Departments of Anaesthesia compare with international recommendations?

---

**Researcher:** *Cate McCall RN, PGDipHealSc, Masters Student, University of Otago.*

**Supervisor:** *Lisa Whitehead BSc, MA, PhD, FCNA, RN, University of Otago.*

***Invitation to participate in study:***

You have been selected for invitation to take part in a study exploring contextual elements of staff substance abuse and addiction within anaesthesia departments in New Zealand. Your participation is entirely voluntary; furthermore if you do agree to take part in the study, you are free to withdraw from the study at any time, without having to give a reason.

***About the Study:***

The aim of this study is to benchmark New Zealand department of Anaesthesia policy, education curriculum content and practice data. I am inviting department of Anaesthesia Clinical Directors and Health and Welfare Officers from all 20 District Health Boards to participate by completing the survey questionnaires. The data the questionnaires are designed to collect includes; anaesthesia department demographics, policy content information, educational curricula and practice around staff drug abuse and addiction.

These questionnaire surveys and survey instrument will be considered against a review of recommendations from selected leading anaesthesia wellness organisations of Australasia, the United Kingdom and North America for staff substance abuse policy content and educational curriculum content.

This study will be conducted by Cate McCall under the academic supervision of the University of Otago and will constitute the main body of work for a master degree in health sciences. Data collection for this study will be conducted between October - December 2011. Data analysis and thesis preparation will occur through January – May 2012 with an intended thesis submission date of July 2012.

The questionnaires may be completed by telephone interview or in a written format and reminder notices may be sent to support questionnaire return. The questionnaires will take approximately 15 minutes. You do not have to answer

all the questions, and you may stop the interview at any time. All questionnaires are coded to ensure confidentiality and anonymity. In the presentation of survey findings individuals and organisations will be protected from the use of identifying data.

***Involvement:***

The key informants sought in this study are initially department of anaesthesia clinical directors and secondly health and welfare officers. I acknowledge that not all departments have a substance abuse policy and may not have an identified health and welfare officer. *Survey one a* is to be completed by the clinical director, *survey one b* is to be completed by the health and welfare officer/s, if there is no health and welfare officer the clinical director will be asked to complete *survey one a* and *b*. *Survey instrument two* will be completed using data extracted from substance abuse policy as voluntarily provided following researcher request. The request for a copy of departmental substance abuse policy and the invitation to participate in survey questionnaires will be made to all New Zealand district health board anaesthesia departments.

***Benefits, risks and safety:***

Benchmarking substance abuse policy, education curricula and practice in New Zealand departments of Anaesthesia provides a snapshot that may be meaningfully compared to common recommendations from selected international documents. On completion of this study a summary of the findings will be provided. If you have any queries or concerns regarding your rights as a participant in this study, you may wish to contact your professional organisation.

***Confidentiality:***

No material that could personally identify you will be used in any reports on this study. The questionnaire will be coded for confidentiality, during data analysis questionnaires will be secured in a locked filing cabinet in a locked single user office. All computer records will be password protected and data will not be used for purposes other than those stated. Data will be held for 7 years in concurrence with UOC policy.

***Ethical approval:***

This study has undergone the expedited review process of observational studies with the Multi-regional Ethics Committee, ethics reference number: URB/10/EXP/064; additionally Maori consultation has been conducted according to University of Otago guidelines.

***More information:***

Please feel free to contact the researcher if you have any questions or concerns about this study.

Cate McCall  
Masters student  
University of Otago  
Telephone: 03 3378776  
Email: [cate.mccall@cdhb.govt.nz](mailto:cate.mccall@cdhb.govt.nz)

Dr Lisa Whitehead  
Supervisor  
University of Otago  
Telephone: 03 3643850  
Email: [lisa.whitehead@otago.ac.nz](mailto:lisa.whitehead@otago.ac.nz)

# *APPENDIX: F*

---

10 January 2011

Ms Cate McCall  
221a Waimea Terrace  
Beckenham  
Christchurch 8023

Dear Ms McCall

Ethics ref:                **URB/10/EXP/064** (please quote in all correspondence)  
Study title:             How does surveyed Substance abuse policy, education  
programme curriculum and practice in New Zealand District Health Board Hospital  
Departments of Anaesthesia compare with international recommendations?  
Investigators:            Cate McCall  
Supervisor:             Dr Mary Jo Gagan

The above study has been given ethical approval by the **Chairperson and Deputy  
Chairperson** of the Upper South B Regional Ethics Committee.

#### **Approved Documents**

Protocol  
Information Sheet version 3 dated 31 October 2010  
Consent Form version 1 dated 31 October 2010  
Survey tool one, two and three questionnaires

#### **Progress Reports**

The study is approved until **31 March 2012**. The Chairperson will review the approved application annually and notify the Investigator if they withdraw approval. It is the Investigator's responsibility to forward a progress report prior to ethical review of the project in **January 2012**. The report form is available on <http://www.newhealth.govt.nz/ethicscommittees>. Please note that failure to provide a progress report may result in the withdrawal of ethical approval. A final report is also required at the conclusion of the study.

#### Amendments

It is also a condition of approval that the Committee is advised if the study does not commence, or is altered in any way, including all documentation eg advertisements, letters to prospective participants.

Please quote the above ethics committee reference number in all correspondence.

It should be noted that Ethics Committee approval does not imply any resource commitment or administrative facilitation by any healthcare provider within whose facility the research is to be carried out. The organisation may specify their own processes regarding notification or approval.

On behalf of the committee, I would like to take this opportunity to wish you all the best with your research.

Yours sincerely

*Diana T. Whipp*

**Mrs Diana Whipp**

Administrator Upper South B Regional Ethics Committee

Email: [Diana\\_Whipp@moh.govt.nz](mailto:Diana_Whipp@moh.govt.nz)

21 February 2012

Cate McCall  
221a waimea Terrace  
Beckenham  
Christchurch 8023

Dear Cate

Ethics ref: **URB/10/EXP/064** (please quote in all correspondence)  
Study title: How does surveyed Substance abuse policy, education programme curriculum and practice in New Zealand District Health Board Hospital Departments of Anaesthesia compare with international recommendations?

Thank you for submitting a progress report for the above study. The Chairperson of the Upper South B Regional Ethics Committee, under delegated authority, has confirmed ethical approval for a further 6 months until 31 July 2012.

The Committee looks forward to receiving a further progress report at that time.

Yours sincerely

*Diana J. Whipp*

Mrs Diana Whipp  
**Administrator Upper South B Regional Ethics Committee**  
Email: [uppertsouthb\\_ethicscommittee@moh.govt.nz](mailto:uppertsouthb_ethicscommittee@moh.govt.nz)

# *APPENDIX: G*

---



26<sup>th</sup> August 2010

Dr Mary Jo Gagan  
Centre for Postgraduate Nursing Studies  
University of Otago, Christchurch

*Mā te rangahau hauora e tautoko te whakapiki ake te hauora Māori  
All health research in Aotearoa New Zealand benefits the hauora (health and wellbeing)  
of tangata whenua*

Tena koe, Mary Jo

Thank you to you and Catherine McCall for taking the time to meet with me at the University of Otago, Christchurch on Tuesday 24<sup>th</sup> August 2010, to discuss your research study titled:

*How do surveyed Substance Abuse policy, education programme curriculum and practice in New Zealand District Health Board hospital Departments of Anaesthesia compare with international recommendations?*

I understand its benchmark data will be collected using two written questionnaire tools.

It is challenging for me to make comment in terms of achievement for improving Maori Health status. However we did discuss the potential outcomes expected in terms of workforce development and practice. You mentioned "A summary of current expert guideline recommendations for policy content, educational curricula and practice in the management of substance abuse amongst staff who work in anaesthesia will be identified".

It was heartening to hear that the study had been discussed with the Maori Health Educator for the Christchurch District Health Board, Iranui Stirling. I am sure her advice could add value.

It is a requirement of the ethics approval process that a final report be submitted when the research is complete. A copy of the report should be provided to me at that time as findings from this project may contribute to the development of future research hypotheses or projects. It is therefore important that appropriate Maori organisations, Maori health professionals and Maori researchers are aware of your findings. The Research Office of the University of Otago, Christchurch and in particular myself as the Research Manager of Maori health would be willing to assist in the dissemination of your findings once your project has reached a successful conclusion.

My suggestions do not necessarily relate to ethical issues with the research, including methodology. Other committees may also provide feedback in these areas. I hope this letter will suffice in terms of the application. Please contact me should you need any other information that may not have been included in the letter relevant to our conversation.

I wish you well in your research.

*"Mo tatou a mo ka uri a muri ake nei" Ngai Tahu 2025*

Ka nui tonu nga mihi

Elizabeth Cunningham  
Research Manager - Maori

Research Office, Department of the Dean  
University of Otago, Christchurch