

Delirium in the Intensive Care Unit: influences on
constructions past and present – a genealogical analysis

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Summary

Background

Delirium is an acute failure of normal brain functioning that, in the Intensive Care Unit (ICU), is recognised to be a serious and prevalent condition, being found to occur in 20-80% of ICU patients. ICU delirium has been shown to be a significant, independent predictor of a range of negative clinical outcomes including increases in: mortality, length of stay in ICU, length of stay in hospital, likelihood of discharge to a facility providing skilled care, and risk of long-term 'dementia-like' cognitive decline.

Despite increasing evidence regarding the potential impact of delirium in the literature, and the availability of a validated assessment tool for use with intubated patients (CAM-ICU) since 2001, it is recognised that the implementation of routine testing in ICUs has been slow to develop. Furthermore, there is currently a significant paucity of literature that has examined how ICU staff in the UK think about delirium. There is a lack of any large-scale study that has included nurses' knowledge and perceptions of ICU delirium in England.

The research aimed to provide an insight into the factors that may influence how ICU staff think about delirium in their patients, taking into account the historical context as well as current perspectives.

To address the research aim, five objectives were identified:

1. Critique the current literature on how ICU staff think about delirium, including their knowledge of delirium and their knowledge and attitudes toward delirium assessment.
2. Carry out a survey of ICU nurses and doctors in the UK, investigating their knowledge of and attitudes towards delirium and its assessment.
3. Carry out a Foucauldian genealogical analysis of the evolution of the definition of delirium in the Diagnostic and Statistical Manual (DSM) produced by the American Psychiatric Association (APA) from 1952-2013.
4. Synthesise the study findings with the Foucauldian genealogical lens, to provide a unique insight into potential influencing factors on ICU staff's thinking about delirium.
5. Disseminate the insights that emerge and recommendations from these findings to the Critical Care practice community and Critical Care nursing course students and education policy makers

Methods

A survey design was implemented to address the second objective and was completed by 650 nurses and doctors working in UK ICUs. The third objective was addressed through a Foucauldian genealogical analysis of the evolution of the Diagnostic and Statistical Manual (DSM), published by the American Psychiatric Association (APA) and its definition of delirium from 1952 until the present time. A Foucauldian lens was then applied to the wider evaluation and discussion of findings from both strands of data, in order to afford a new perspective and unveil a unique insight into the topic area.

Findings

Findings demonstrated that there is still some evidence of the 'disconnect' shown in previous literature. Practitioners' recognition of the severity of delirium, and their wider knowledge of it and their assessment practice, is still limited. The genealogical analysis of the DSM revealed a classification manual whose evolution has a history of politically-driven development. It has been challenged and criticised for the lack of an objective underpinning rationale for its structure. Consideration of these data through a Foucauldian lens revealed potential power formations operating in both the current and historical context. A model is proposed setting these power formations within an over-arching context of an 'Epistemic Dissonance of Mind-Body dualism'.

This thesis is dedicated to the memory of
Aimee Sarah Varney

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Contents

CHAPTER ONE: INTRODUCTION AND THESIS OVERVIEW.....	1
1.1 INTRODUCTION.....	1
1.2 MOTIVATION FOR THE STUDY.....	1
1.3 THE STUDY	3
1.3.1 <i>The research aim and objectives</i>	3
1.3.2 <i>Scope of the study</i>	4
1.4 DEFINING THE CONTEXT OF THE STUDY	4
1.5 ORGANISATION OF THE THESIS	5
1.6 CHAPTER SUMMARY.....	6
CHAPTER TWO: DELIRIUM IN THE ICU	7
2.1 INTRODUCTION.....	7
2.2 DEFINING DELIRIUM.....	7
2.3 DELIRIUM IN THE ICU.....	8
2.3.1 <i>Causes and risk factors for delirium in the critically ill population</i>	9
2.3.2 <i>Implications of delirium in the ICU</i>	10
2.3.3 <i>The patient experience of ICU delirium</i>	10
2.3.4 <i>Assessment for delirium in the ICU</i>	12
2.4 CHAPTER SUMMARY.....	12
CHAPTER THREE: A REVIEW OF THE LITERATURE	13
3.1 INTRODUCTION.....	13
3.2 LITERATURE SEARCHING STRATEGY	13
3.3 APPRAISAL OF THE LITERATURE.....	16
3.4 FINDINGS OF THE LITERATURE REVIEW.....	17
3.4.1 <i>The recognition – action disconnect</i>	18
3.4.2 <i>Barriers to delirium assessment</i>	21
3.4.3 <i>Educational interventions</i>	24
3.5 CHAPTER SUMMARY.....	27
CHAPTER FOUR: THEORETICAL CONSIDERATIONS.....	28
4.1 INTRODUCTION.....	28
4.2 FOUCAULDIAN GENEALOGY AS A THEORETICAL LENS.....	28
4.3 KEY FOUCAULDIAN CONCEPTS	29
4.3.1 <i>Knowledge</i>	31
4.3.2 <i>Discursive formations</i>	31
4.3.3 <i>Personal ethics</i>	31
4.3.4 <i>Epistemes</i>	32
4.4 THE ONTOLOGICAL, EPISTEMOLOGICAL AND AXIOLOGICAL ‘FIT’ OF THE STUDY	33
4.4.1 <i>The ontological self – my philosophical alignment</i>	33

4.4.2	<i>The epistemological assumptions and methodological approach</i>	33
4.4.3	<i>The axiological place of the study</i>	35
4.5	REFLEXIVITY AS A RESEARCHER.....	35
4.6	CHAPTER SUMMARY.....	36
CHAPTER FIVE: STUDY DESIGN		37
5.1	INTRODUCTION.....	37
5.2	RESEARCH PROCEDURE - SURVEY.....	37
5.2.1	<i>The survey tool</i>	37
5.2.2	<i>Participants and recruitment</i>	38
5.2.3	<i>Data collection</i>	38
5.2.4	<i>Data analysis</i>	39
5.3	RESEARCH PROCEDURE – GENEALOGICAL ANALYSIS	41
5.3.1	<i>Rationale for focusing on the DSM</i>	41
5.3.2	<i>Key historical sources</i>	41
5.3.3	<i>Description of the process followed</i>	42
5.4	SYNTHESIS OF DATA VIA THE GENEALOGICAL LENS.....	44
5.5	ETHICAL APPROVAL	46
5.6	CHAPTER SUMMARY.....	46
CHAPTER SIX: SURVEY FINDINGS		48
6.1	INTRODUCTION.....	48
6.2	SURVEY PARTICIPANTS.....	48
6.3	KNOWLEDGE OF ICU DELIRIUM.....	50
6.3.1	<i>Defining features</i>	50
6.3.2	<i>Prevalence of delirium types in ICU</i>	52
6.3.3	<i>Risk factors for ICU delirium</i>	56
6.3.4	<i>Complications of ICU delirium</i>	58
6.4	ICU DELIRIUM RELATED ASSESSMENT PRACTICE	59
6.4.1	<i>ICU delirium assessment tools</i>	59
6.4.2	<i>Screening practice</i>	62
6.4.3	<i>Confidence in practice</i>	66
6.5	DELIRIUM EDUCATION AND TRAINING	68
6.6	CHAPTER SUMMARY.....	74
CHAPTER SEVEN - GENEALOGICAL ANALYSIS		76
7.1	INTRODUCTION.....	76
7.2	PRE DSM, DSM-1 (1952) AND DSM-II (1968) – THE EARLY DAYS OF CLASSIFICATION	76
7.3	DSM-III (1980) – A CHANGE OF DIRECTION	92
7.4	DSM-IV (1994) AND DSM-V (2013) – THE MODERN AND CURRENT CLASSIFICATION	100
7.5	CHAPTER SUMMARY.....	108
CHAPTER EIGHT: DISCUSSION		110

8.1	INTRODUCTION.....	110
8.2	THE RECIPROCAL RELATIONSHIP OF POWER AND KNOWLEDGE.....	111
8.3	THE POWER OF DISCURSIVE FORMATIONS	116
8.4	THE POWER OF PERSONAL ETHICS IN PROFESSIONAL DEVELOPMENT.....	120
8.5	THE EPISTEMIC DISSONANCE OF MIND/BODY DUALISM.....	124
8.6	CHAPTER SUMMARY.....	127
CHAPTER NINE: CONCLUSION AND RECOMMENDATIONS.....		129
9.1	INTRODUCTION.....	129
9.2	OVERVIEW OF THE THESIS	129
9.3	CONCLUSIONS FROM THE THESIS	129
9.3.1	<i>Objective One</i>	130
9.3.2	<i>Objective Two</i>	130
9.3.3	<i>Objective Three</i>	131
9.3.4	<i>Objective Four</i>	131
9.3.5	<i>Objective Five</i>	132
9.4	ORIGINAL CONTRIBUTION TO KNOWLEDGE	132
9.5	REFLECTIONS ON THE RESEARCH PROCESS.....	132
9.5.1	<i>Strengths and limitations of the study</i>	132
9.5.2	<i>Reflections on becoming a researcher</i>	133
9.6	RECOMMENDATIONS	135
9.6.1	<i>Future research</i>	135
9.6.2	<i>Clinical and educational practice</i>	135
9.7	CHAPTER SUMMARY.....	136
REFERENCES.....		137
APPENDICES.....		149
	APPENDIX ONE: CAM-ICU FLOWCHART (ELY ET AL 2002).....	149
	APPENDIX TWO: NURSING BANDINGS AND MEDICAL GRADES.....	150
	APPENDIX THREE: SURVEY PARTICIPANT INTRODUCTION PAGE.....	151
	APPENDIX FOUR: SURVEY QUESTIONS AS PRESENTED IN SURVEY MONKEY, FROM ELLIOT (2014)	152

List of tables

TABLE 2: DSM-V DIAGNOSTIC CRITERIA FOR DELIRIUM (APA 2013).....	8
TABLE 3: SEARCH STRATEGY	14
TABLE 3.1: CONTRIBUTION OF INDIVIDUAL DATABASES	16
TABLE 6: CHARACTERISTICS OF SURVEY PARTICIPANTS.....	49
TABLE 6.1 CORRECT ANSWERS TO ICU DELIRIUM STATEMENTS BY TIME SINCE LAST EDUCATION ...	52
TABLE 6.2 CORRECT ANSWERS TO ICU DELIRIUM STATEMENTS BY TYPE OF EDUCATION RECEIVED	52

TABLE 6.3: RANKING OF ICU DELIRIUM SUBTYPES PREVALENCE	54
TABLE 6.4: CORRECT RANKING OF ICU DELIRIUM TYPES WITH TIME AND TYPE OF EDUCATION	56
TABLE 6.5 ITEMS CORRECTLY AND INCORRECTLY IDENTIFIED AS ICU DELIRIUM RISK FACTORS	57
TABLE 6.6 CORRECT AND INCORRECT IDENTIFICATION OF ICU DELIRIUM ASSOCIATED COMPLICATIONS	58
TABLE 6.7 USE OF A VALIDATED TOOL FOR ICU DELIRIUM SCREENING	60
TABLE 6.8 AWARENESS OF DELIRIUM ASSESSMENT TOOLS	62
TABLE 6.9 FREQUENCY OF USE FOR CAM-ICU	62
TABLE 6.10 SHIFT FREQUENCY OF DELIRIUM ASSESSMENT	64
TABLE 6.11 SCREENING AND TIME OF DAY	65
TABLE 6.12 CAM-ICU FOUND TO BE EASY TO USE	66
TABLE 6.13 CONFIDENCE IN SCREENING TOOLS TO CORRECTLY DETECT ICU DELIRIUM	67
TABLE 6.14 CONFIDENCE IN PRACTICE BY PROFESSION	68
TABLE 6.15 TIME SINCE LAST EDUCATION WITH PROFESSION AND ICU YEARS OF EXPERIENCE	69
TABLE 6.16 NOTED CHARACTERISTICS OF PARTICIPANTS NOT WANTING FURTHER EDUCATION / TRAINING ON ICU DELIRIUM	71
TABLE 6.17 FACTORS ASSOCIATED WITH DESIRE FOR FURTHER EDUCATION / TRAINING ON ICU DELIRIUM	72
TABLE 6.18 TYPE OF EDUCATION / TRAINING RECEIVED AND PREFERRED OVERALL AND BY PROFESSION	73
TABLE 7: COMPARISON OF THE FREE AND SLAVE STATES INSANITY RATES FROM THE 1840 US CENSUS (JARVIS 1844)	77
TABLE 7.1: POPULATION AND INSANITY RATES BY STATE: MAINE. FROM THE 1840 US CENSUS (JARVIS 1844)	78
TABLE 7.2: 'CLASSIFICATION OF MENTAL DISEASES' FROM THE STATISTICAL MANUAL FOR THE USE OF INSTITUTIONS FOR THE INSANE (APA 1918)	81
TABLE 7.3: MAIN SECTION HEADINGS OF MEDICAL 203	84
TABLE 7.4: MAIN CATEGORIES OF DISORDER AND QUALIFYING STATEMENTS FROM DSM-I (APA 1952)	88
TABLE 7.5: MENTAL DISORDER HEADINGS IN DSM-II (APA 1968)	91
TABLE 7.6: DSM III MULTIAXIAL DIAGNOSIS (APA 1980)	95
TABLE 7.7 – DIAGNOSTIC CRITERIA FOR DELIRIUM IN DSM-III (APA 1980: 107)	100
TABLE 7.8 DELIRIUM AETIOLOGICAL TYPES INCLUDED IN DSM-IV	105

List of figures

FIGURE 3: PRISMA DIAGRAM OF SEARCH PROCESS	15
FIGURE 5: EXAMPLE OF MIND MAP CREATED FOR DATA SYNTHESIS	45
FIGURE 5.1: EXAMPLE OF A LIST CREATED FOR DATA SYNTHESIS	46
FIGURE 6: YEARS OF EXPERIENCE BY PROFESSION	50

FIGURE 6.1: RESPONSES TO WHETHER ICU DELIRIUM DEVELOPS OVER A SHORT PERIOD OF TIME BY PROFESSION	51
FIGURE 6.2 RECENCY OF EDUCATION OR TRAINING ON ICU DELIRIUM BY ICU YEARS OF SERVICE .	70
FIGURE 7: SECTION OF 'EXPLANATORY NOTES' FROM THE STATISTICAL MANUAL FOR THE USE OF INSTITUTIONS FOR THE INSANE (APA 1918)	82
FIGURE 8: POWER FORMATIONS OPERATING WITHIN THE CONTEXT OF THE EPISTEMIC DISSONANCE OF MIND-BODY DUALISM.....	111

Chapter One: Introduction and Thesis Overview

1.1 Introduction

This chapter starts by identifying the personal and professional experience that initiated my interest in researching the topic of delirium in the Intensive Care Unit (ICU) and the development of the research questions from this. The scope of the study, including the research aim and objectives, is then identified. The context of the study is discussed, followed by an overview of the organisation of the thesis.

1.2 Motivation for the study

In December 2007, I attended the State of the Art conference, held by the UK Intensive Care Society (ICS) in London, where I heard a presentation by Professor Wes Ely on the subject of delirium in the ICU. This was the first time I had heard anyone speak about ICU delirium. Professor Ely's passion and enthusiasm for the subject, combined with the undeniable importance of the information and data he was presenting, served as a catalyst for my interest in the topic. From my experience as a nurse in ICU, I was aware that patients could become confused whilst in the ICU, a phenomenon I had known of as 'ICU psychosis' (which in hindsight was just delirium by another name), but I had not been aware, until I heard Professor Ely speak, of the very serious implications for the patient.

An example of this is a patient I recalled that I had worked with during the mid-1990s. He was initially very withdrawn but, when he had become more awake, seemed convinced that he was in a pub. He would gesticulate that he wanted two pints of beer and his cigarettes, which he was sure he could see on top of the emergency trolley. At the time this seemed quite entertaining and, as long as we kept him physically safe and made sure he did not try to pull out any vital lines and other equipment, we thought we were looking after him properly. At times, he seemed a little irritated by the poor service in his 'pub' but was otherwise fairly settled. He slept a lot and we had no idea that this acute confusional state, this delirium, was such a risk to his health. I realised, as I listened to Professor Ely, that there would have been numerous patients that I had cared for over the years who had been in this position.

At the time of attending the ICS 2007 conference, I was working as a university lecturer leading the specialist course for qualified nurses working in ICU. After the

conference, it struck me that delirium was not covered in the course so I added it to the following year's curriculum. I was genuinely surprised to find that none of the students had heard of delirium when we discussed it in class and none of the five units that they worked at were assessing for it. Over the next five years, ICU delirium continued to be an area of interest for me and one that I knew I wanted to research. Published evidence on the subject continued to mount, including evidence of the negative effects on ICU patients' outcomes from being delirious, and of the experiences and memories reported by patients who had been delirious. Patients reported harrowing tales of the fear they felt and not understanding what was going on and where they were. It appeared that many patients experienced terrifying persecutory delusions such as thinking that they were being kept in a research facility to be experimented on, or that staff were trying to kill them so that they could keep their organs (Magarey and McCutcheon 2005).

ICU delirium continued to be the topic of regular and growing publications in peer-reviewed specialist journals and presentations in conferences. Although there did not seem to be a sense of urgency that said, 'This is a really important topic we must deal with now!' Talking to students and practice colleagues over time suggested a slight increase in awareness around ICU delirium. However, there seemed to be no urgency and the level of concern did not appear commensurate with the severity of the implications of delirium. Aside from all the data around mortality and outcome measures, I felt strongly that being able to prevent people from being terrified, and feeling like they were losing their minds, should be motivation enough to develop practice in this regard. I found it hard to understand why a single study or two on a subject such as sepsis or blood glucose control could stimulate a fast and widespread response in practice, yet the evidence on delirium did not seem to have the same effect. This impression of slowness in the clinical response has been widely recognised within in the literature. It has been acknowledged that despite a growing wealth of evidence about the negative impact of delirium, and professional guidelines being published relating to it its assessment and management, delirium remains underdiagnosed and frequently neglected (Salluh et al 2010, Kalabalik 2014, Brummel et al 2015).

A possible area worthy of investigation occurred to me after a meeting in 2011. The meeting was attended by a number of senior ICU nursing staff with differing management and education roles. The topic of delirium came up and one of the attendees told a story about how they had been asked to consider delirium in relation

to some unit guidance that she was writing. She said that her personal response was: 'Let's just get their breathing sorted out before we worry about them being confused'.

It was clear from the discussion that this comment was not in response to a specific situation where a patient was having difficulty breathing. The comment seemed to imply that delirium did not fall into the category of 'important stuff', such as breathing. There seemed to be general agreement with this sentiment amongst those at the meeting. I continued to think about what had been said after the meeting. It raised a question in my mind as to whether the way in which staff perceived delirium in ICU could be an important factor in why the clinical response to the evidence was not as swift as could have been expected given its significance. Despite the growing evidence, delirium appeared not to be seen as one of those acute and important areas that must be managed as a priority in the ICU. I wondered whether this comment at the meeting, and the apparent agreement of many other attendees, was a 'one-off' or whether it had provided an insight into the way that ICU staff think about and categorise ICU delirium. If so, I wondered whether this could perhaps explain the lack of prominence given to the evidence on the subject.

1.3 The study

1.3.1 The research aim and objectives

This thesis seeks to address the apparent lack of response in clinical practice to the issue of delirium in the ICU. This is manifested by a lack of appropriate assessment to enable the detection and management of delirium, despite the abundant evidence of its deleterious effects. Delirium is defined by the National Institute of Health and Care Excellence (NICE) as, 'a common clinical syndrome characterised by disturbed consciousness and a change in cognitive function or perception that develops over a short period of time (usually 1-2 days)' (2010, p37).

The aim of the research was to:

Provide an insight into the factors that may influence how ICU staff think about delirium in their patients; taking into account the historical context as well as current perspectives.

To address the research aim, five objectives were identified:

1. Critique the current literature on how ICU staff think about delirium, including their knowledge of delirium and their knowledge and attitudes toward delirium assessment.

2. Carry out a survey of ICU nurses and doctors in the UK, investigating their knowledge of and attitudes towards delirium and its assessment.
3. Carry out a Foucauldian genealogical analysis of the evolution of the definition of delirium in the Diagnostic and Statistical Manual (DSM) produced by the American Psychiatric Association (APA) from 1952-2013.
4. Synthesise the study findings with the Foucauldian genealogical lens, to provide a unique insight into potential influencing factors on ICU staff's thinking about delirium.
5. Disseminate the insights that emerge and recommendations from these findings to the Critical Care practice community and Critical Care nursing course students and education policy makers

1.3.2 Scope of the study

To investigate the second objective, a survey addressing knowledge and attitudes to delirium was carried with staff working ICUs in the United Kingdom. This was restricted to nursing and medical staff specifically due to their role in delirium assessment.

Objective three was addressed by carrying out a genealogical analysis of the nosology of delirium, with specific reference to the DSM published by the APA from 1952.

1.4 Defining the context of the study

Differing terms can be found within the literature and in clinical practice for the area of a hospital caring for the most acutely unwell patients. Terms such as 'intensive care', 'intensive therapy' and 'critical care' are often used interchangeably. A brief consideration of the recent history of the organisation of care for critically ill patients within the UK will enable clarification of terms.

Following a review of adult ICU services, the policy document 'Comprehensive Critical Care', was published by the Department of Health (DH) in 2000. This stated that the way in which critical care services were provided and planned within acute hospital trusts and beyond, needed to be transformed. Rather than classifying care according to the location where the care was being given, a classification based on the level of physical illness for the individual patient was proposed (DH 2000). The proposed levels were:

- Level 0 for a patients whose needs could be met with standard ward care
- level 1 for patients whose needs could be met on an acute ward, with additional support and advice from the critical care team
- level 2 for patients needing a greater level of care, including support for a single failing organ system
- level 3 for patients requiring advanced respiratory support alone, or basic respiratory support with for at least two organ systems (DH 2000).

In recent years, there have been moves in the UK from separate ICUs and High Dependency Units (HDUs) to combined Critical Care Units (CCUs), often referred to as Integrated Critical Care Units (ICCU). These care for patients requiring either level 2 or level 3 care in one unit. This thesis uses the term ICU delirium to refer to delirium occurring in patients in a unit that provides care for level three patients, be that an ICU, CCU or ICCU. The geographical context of the research is within UK adult ICUs.

1.5 Organisation of the thesis

The thesis is organised into nine chapters. Chapter two provides an overview of ICU delirium, in order to set the subject context for the study. The chapter defines delirium and identifies: its prevalence in ICU; patient risk factors for ICU delirium; the implications for patient outcomes; and how and why patients should be assessed for ICU delirium. It also considers patients' experience of delirium.

Chapter three presents a themed review of the current literature around staff's knowledge and attitudes to ICU delirium. The chapter describes the search and appraisal strategy employed before discussing the findings of the literature review in three themes: the recognition–action disconnect; barriers to delirium assessment and educational interventions.

Chapter four discusses the theoretical considerations underpinning the thesis. The chapter initially considers the ontological self, discussing a pragmatic philosophical alignment. Genealogy as a theoretical lens is then considered, followed by a discussion of the 'fit' of this approach, alongside an observational quantitative approach, in addressing the study's aim.

Chapter five provides details of the study design. The survey is first discussed, including the survey tool, sampling, data collection and data analysis. The

genealogical analysis is then discussed including the process adopted and key historical resources employed.

Chapter six provides the findings from the survey arm of the data collection. It commences with a summary of respondents' demographic data and is followed by the findings in relation to knowledge and attitudes towards ICU delirium.

Chapter seven provides the findings from the genealogical analysis. A summary description of the historical context preceding the publication of DSM -1 (APA 1952) is given first, followed by the findings from the analysis of DSM-1 to DSM-5 (current, APA 1952-2013).

Chapter eight discusses the findings of the study. A Foucauldian lens is used to synthesise the findings from both arms of data collection, through the consideration of power formations and the epistemological context.

Chapter nine identifies the study conclusions and recommendations.

1.6 Chapter summary

This chapter has identified the evolution of the study question and the context in which it is situated. The study's aim and objectives have been identified and the organisation of the thesis described. The following chapter will provide an overview of delirium in the ICU.

Chapter Two: Delirium in the ICU

2.1 Introduction

This chapter provides an overview of delirium in the ICU. Delirium is first defined more generally before delirium in the context of the ICU is considered. This includes: discussion of the prevalence of delirium in ICU; risk factors in the critically ill patient population; implications of delirium for ICU patient outcomes; and, why and how assessment is recommended to be carried out.

2.2 Defining delirium

Delirium is defined by the NICE as, 'a common clinical syndrome characterised by disturbed consciousness and a change in cognitive function or perception that develops over a short period of time (usually 1-2 days)', (NICE 2010, p37). Specific diagnostic criteria for delirium are provided by two internationally recognised classifications: first, the International Classification of Diseases (ICD) published by the World Health Organisation (WHO); and second, the Diagnostic and Statistical Manual for Mental Disorders (DSM) published by the American Psychiatric Association (APA). The 11th edition of the ICD was published in May 2019 (WHO 2020). The fifth edition of the DSM was published in 2013, replacing DSM-IV which had been in use since 1994. It is the most widely referred to criteria for delirium in the medical literature (Page and Ely 2015). The four core diagnostic criteria from DSM-IV remain in DSM-V, with some minor changes in wording. A fifth criterion has been added to exclude the diagnosis of delirium where arousal is severely reduced in the context of coma (Meagher et al 2014). The five diagnostic criteria for delirium in DSM-V are given below in table 2.

Table 2: DSM-V Diagnostic criteria for delirium (APA 2013)

1. Disturbance in attention (i.e. reduced ability to direct, focus, sustain, and shift attention) and awareness (reduced orientation to the environment).
2. The disturbance develops over a short period of time (usually hours to a few days), represents an acute change from baseline attention and awareness, and tends to fluctuate in severity during the course of a day
3. An additional disturbance in cognition (e.g. memory deficit, disorientation, language, visuospatial ability or perception).
4. The disturbances in Criteria A and C are not better explained by a pre-existing, established or evolving neurocognitive disorder and do not occur in the context of a severely reduced level of arousal such as coma
5. There is evidence from the history, physical examination or laboratory findings that the disturbance is a direct physiological consequence of another medical condition, substance intoxication or withdrawal (i.e. due to a drug of abuse or to a medication), or exposure to a toxin, or is due to multiple aetiologies.

2.3 Delirium in the ICU

Delirium is not an uncommon condition within the acute hospital setting, with critically ill patients and those over the age of 65 being at particular risk. Prevalence rates in the critically ill have been found to be 20-80% (Pun and Ely 2007, Page and Ely 2015). Higher rates within the range were reported in patients receiving mechanical ventilation (60-80%) and lower rates in patients not requiring mechanical ventilation (20-40%), (Vyeganathan et al 2019). Delirium is recognised to exist in three forms: (1) hyperactive, where the patient is restless and may pull at tubes and lines; (2) hypoactive where the patient is subdued and quiet; and (3) a mixed subtype where the patient demonstrates both types of behaviours (Page and Ely 2015).

A large-scale systematic review and meta-analysis was carried out by Krewulak et al (2018) to investigate the incidence and prevalence of delirium subtypes in adult ICUs. The review synthesised data from 48 studies, totalling 27,342 patients, 4550 of whom had delirium. Results identified that despite heterogeneity amongst the studies, data showed that the majority of ICU patients who have delirium have the hypoactive form

(pooled prevalence of 17%), with lower rates for mixed delirium and hyperactive delirium (10% and 4% respectively). The pooled prevalence for hypoactive delirium was shown to be higher when analysed in populations with more severe illness, or where considered only in patients who were mechanically ventilated, in which case the pooled prevalence rose to 35%. Although the hypoactive type is the most commonly occurring, and has the worst prognosis, the hyperactive form is most likely to be detected by ICU staff (Page and Ely 2015).

Historically the term 'ICU psychosis' was used and, providing patients were kept safe and prevented from harming themselves, the risk presented by the confusional state in itself tended to be dismissed (Ely 2008). However, over the last 20 years there has been increasing recognition of evidence that delirium while a patient is in ICU is related to significant negative outcomes (Devlin et al 2018)

2.3.1 Causes and risk factors for delirium in the critically ill population

A number of risk factors for the development of delirium amongst critically ill patients have been proposed and discussed in the literature. In 2015, Zaal et al carried out a systematic review synthesising data from 33 studies. They investigated the evidence for a range of predisposing and precipitating risk factors for patients in the ICU. Data revealed that there was strong evidence for a positive risk for delirium associated with: increasing age, dementia, pre-ICU emergency surgery, high Acute Physiology And Chronic Health Evaluation (APACHE-II) score, mechanical ventilation, metabolic acidosis, delirium the previous day and coma (Zaal et al 2015).

In 2018 the Society of Critical Care Medicine (SCCM) published the internationally endorsed 'Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU', (Devlin et al 2018). Within this guideline a review of risk factors for delirium in ICU patients evaluated 68 studies and identified modifiable and non-modifiable risk factors, many of which were consistent with the previous systematic review. One difference of note was the identification of strong evidence of the use of benzodiazepines as a modifiable risk factor, which previously Zaal et al (2015) had found inconclusive. Blood transfusions were also noted as a modifiable risk for which there was strong evidence. Non-modifiable risks confirmed the previous findings as being: age, dementia, prior coma, pre-ICU emergency surgery or trauma, and increasing APACHE score (Devlin et al 2018).

2.3.2 Implications of delirium in the ICU

A number of serious negative effects on patient outcomes, as a result of experiencing delirium in the ICU, have been documented. These include: higher mortality rates; increased time on mechanical ventilation; longer length of stay in the ICU; increased length of stay in hospital; need for skilled care on discharge; and, later cognitive decline (Page and Ely 2015). These negative effects have been consistently and robustly found in ICU study populations, independent of the effects of illness severity and demographic factors. This has led experts in the field to call for ICU delirium to be recognised as a medical emergency (Page and Ely 2015).

As early as 2004, Ely et al demonstrated delirium in the ICU to be a significant predictor of negative outcomes. They carried out a single centre prospective cohort study of 275 mechanically ventilated patients in an adult medical and cardiac ICU. Results, adjusted for covariates such as age and severity of illness, showed the development of delirium to be an independent predictor of 6-month mortality (adjusted HR 3.2, 95% CI 1.4-7.7 p.008); longer hospital length of stay (adjusted HR 2.0, 95% CI 1.4-3 p<.001) and higher incidence of cognitive impairment at hospital discharge (adjusted HR 9.1, 95%CI 2.3-35.3 p.002).

These findings were later supported in a systematic review and meta-analysis carried out by Zhang et al (2013). Synthesised data from 16 studies from 1995-2012, totalling 5891 patients, found that patients who were delirious during their ICU admission had a higher mortality rate (odds ratio [OR]: 3.22, 95% confidence interval [CI] 2.3-4.52), an increased length of stay in ICU (weighted mean difference [WMD] 7.32 days, 95% CI 4.63-10.01), spent more time on mechanical ventilation (WMD: 7.22 days, 95% CI 5.19-9.29), had higher rates of complications (OR: 6.5, 95% CI 2.7-15.6), an increased length of hospital stay (WMD: 6.53 days, 95% CI 3.03-10.03) and were more likely to be discharged to a setting providing skilled care (OR:2.59, 95% CI 1.59-4.21), (Zhang et al 2013).

2.3.3 The patient experience of ICU delirium

As well as these very quantifiable outcomes there is also the experience of the patient to be considered. Being delirious and not being able to make sense of events has been documented as a very frightening experience. Some patients have described nightmares and delusions equivalent to the fear evoked by watching the Texas Chainsaw Massacre repeatedly (Ely 2008). Negative impacts for the patient are not just experienced at the time of the ICU admission but can be related to psychological

distress post discharge (Jones 2010) and to a long-term decline in global cognitive functioning (Girard 2010).

Partridge et al (2012) conducted a literature review and synthesis of qualitative and quantitative studies examining the effect of delirium on patients, staff and relatives. They found a limited amount of evidence available for the review. This, combined with the authors including the three participants groups included, and the variety of clinical settings involved (ICU, hospice, surgical unit), meant that the amount of information provided in the review about the ICU patient experience is limited. However, the authors were able to conclude that some patients do recall their delirium experience and these memories are usually distressing. A number of themes were identified in the literature relating to patients' memories of delirium including: disorientation, fear, hopelessness, and, hallucinations and delusions involving staff, other patients and relatives, some of whom may be deceased.

A striking insight into the experience of delirium for the patient was provided by Misak (2005) in her article, 'ICU Psychosis and patient autonomy: some thoughts from the inside'. Misak, while a patient in ICU, experienced delirium as well as Acute Respiratory Distress Syndrome (ARDS), sepsis and multi-organ failure, for which she was mechanically ventilated. She describes delirium (ICU psychosis in the article) as a complex phenomenon that can only be fully understood from 'the inside'. Misak describes two types of 'awfulness' in her experience. The first of these was the physical aspect which, compared to the 'garden-variety' discomfort previously experienced (such as childbirth, surgery and arthritis), was described as 'unusually awful' (p413). The second type, which she says might have been worse, was 'stepping well over the fuzzy line that separates sanity from madness', (Misak 2015, 413). Misak describes the delusions and hallucinations that occur as being particularly terrifying because, unlike the usual nightmares of night time sleeping, they occur in real time and embed real data from the environment, leaving the patients unable to decipher what is real. While stating that she has left out the 'hideous details' from her descriptions of the delusions, her account still paints a clear enough picture of the sense of fear and helplessness that has endured over time:

'I think I will never quite shake that 'memory' of being completely wretched, physically restrained, and unable to speak and at the mercy of that band of cruel sadists. Of course, the fact that one has this 'memory' of people who so selflessly fought night and day to save one's life is its own kind of embarrassment', (Misak 2005, 415).

2.3.4 Assessment for delirium in the ICU

In 2013 the SCCM published its 'Clinical Practice Guidelines for the Management of Pain, Agitation and Delirium in Adult Patients in the Intensive Care Unit' (Barr et al 2013). In these guidelines, the routine monitoring of patients in ICU for delirium was recommended. The Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) and the Intensive Care Delirium Screening Checklist (ICDSC) were noted as the most valid and reliable tool for assessing for delirium in the adult ICU (Barr et al 2013).

This was more recently supported in a systematic review of 36 studies that included five different delirium assessment tools. The psychometric properties for the CAM-ICU and the ICDSC were found to be very good, whereas other tools were rated as moderate, low or very low. The review concluded that the CAM-ICU and the ICDSC remain the most valid and reliable tools for assessing delirium in critically ill adults (Gelinis et al 2018). In 2018 the SCCM updated its guidance. However, in this review, the question considered was whether patients should be routinely assessed using a valid assessment tool (as opposed to without one), rather than which tools should be used. The guidelines gave a good-practice statement that critically ill adult patients should be regularly assessed for delirium using a valid tool (Devlin et al 2018). The most widely used tool is the CAM-ICU, which was validated in the adult ICU population by Ely et al in 2001 and published in the form of a flowchart in 2002, (shown in appendix one).

2.4 Chapter summary

This chapter has provided an overview of delirium in the ICU. Delirium has been defined and identified as a prevalent disorder in the ICU, with several risk factors for its development identified in the literature. The serious negative implications for patients' outcomes evidenced in the literature have been identified, alongside the distressing personal experiences of patients. The recommendations for routine, regular assessment for delirium in the ICU and the two validated tools for carrying this out have been identified as the CAM-ICU and ICDSC. The following chapter presents the review of literature for the study.

Chapter Three: A review of the literature

3.1 Introduction

This chapter addresses the study's first objective: 'Critique the current literature on how ICU staff think about delirium, including their knowledge of delirium and their knowledge and attitudes toward delirium assessment'. A systematised review was carried out for the study. This approach draws on some of the elements of a systematic review, such as the systematised and transparent approach to the search and appraisal process, whilst recognising that the full process of a systematic review has not been followed. This approach is often used in postgraduate research studies where the necessary resources, such as the involvement of more than one reviewer, are not available (Grant and Booth 2009).

The chapter will first provide an overview of the search strategy for the review, including the selection of appropriate critical appraisal tools, before presenting the findings and considering how these answer the search question. The conclusions that can be taken from this, and the implications for the research study, will also be considered.

3.2 Literature searching strategy

An initial scoping search of the literature was carried out via the databases CINAHL and MEDLINE and the search engine Google Scholar. This identified that evidence was available that researchers had sought to evaluate ICU staff's knowledge and attitudes in this area. However, there appeared to be very little research in this area that had been carried out within the UK. This initial scoping was also used to check and establish relevant key words for the main search. The advice of an academic librarian from Cardiff University was sought in developing the search strategy. The key features of the search are summarised below in table 3. A systematic approach was taken in addressing the following question: What is currently known about the knowledge and attitudes of ICU nurses and doctors to delirium in the Intensive Care Unit?

Table 3: search strategy

Databases used	Cinahl, Medline, Pscyhinfo, Scopus, British Nursing Index
Search terms	Delirium, 'Delirium' (MH*), acute confusion, psychosis (Boolean operator OR,) Boolean operator AND Knowledge, perception, attitude*, belief*, view*, 'Attitudes of Health Personnel'(MH) (Boolean operator OR) Boolean operator AND Intensive care, critical care, I*U (Boolean operator OR) Boolean operator AND Nurs*, healthcare staff, healthcare personnel, doctor*, medic* (Boolean operator OR) <i>(MH- MeSH heading used where available)</i>
Inclusion criteria	Research articles, English language, no date restriction

Searches were carried as detailed in table 3 for each individual database, with the list of citations from the final search of each database then transferred into the reference management software Refworks for later duplicate checking (both automated and manual) and screening. Following duplicate checking and screening, full text articles were obtained for review. Screening was carried out by reviewing the title of each citation in the list to see if the article addressed the search question. If it was unclear from the title, then the abstract or brief description accompanying the citation was consulted. If any doubt remained, the full-text article was obtained to ensure that studies of value were not mistakenly excluded.

Following review, six articles were excluded as they were either not research studies or did not address the search question, despite initial screening suggesting they would. This left 28 studies. This process is summarised via a Prisma diagram shown in figure 3. Once the initial searches had been completed for each database, search alerts were set up following the original search criteria to identify any subsequent publications. Screening of alert notifications identified a further 10 studies that

appeared to be relevant to the search question from the title, one of these was excluded after full-text review as it did not address the search question. In total, 37 studies were included in the review. The contributions from each database are summarised in table 3.1.

Figure 3: PRISMA diagram of search process

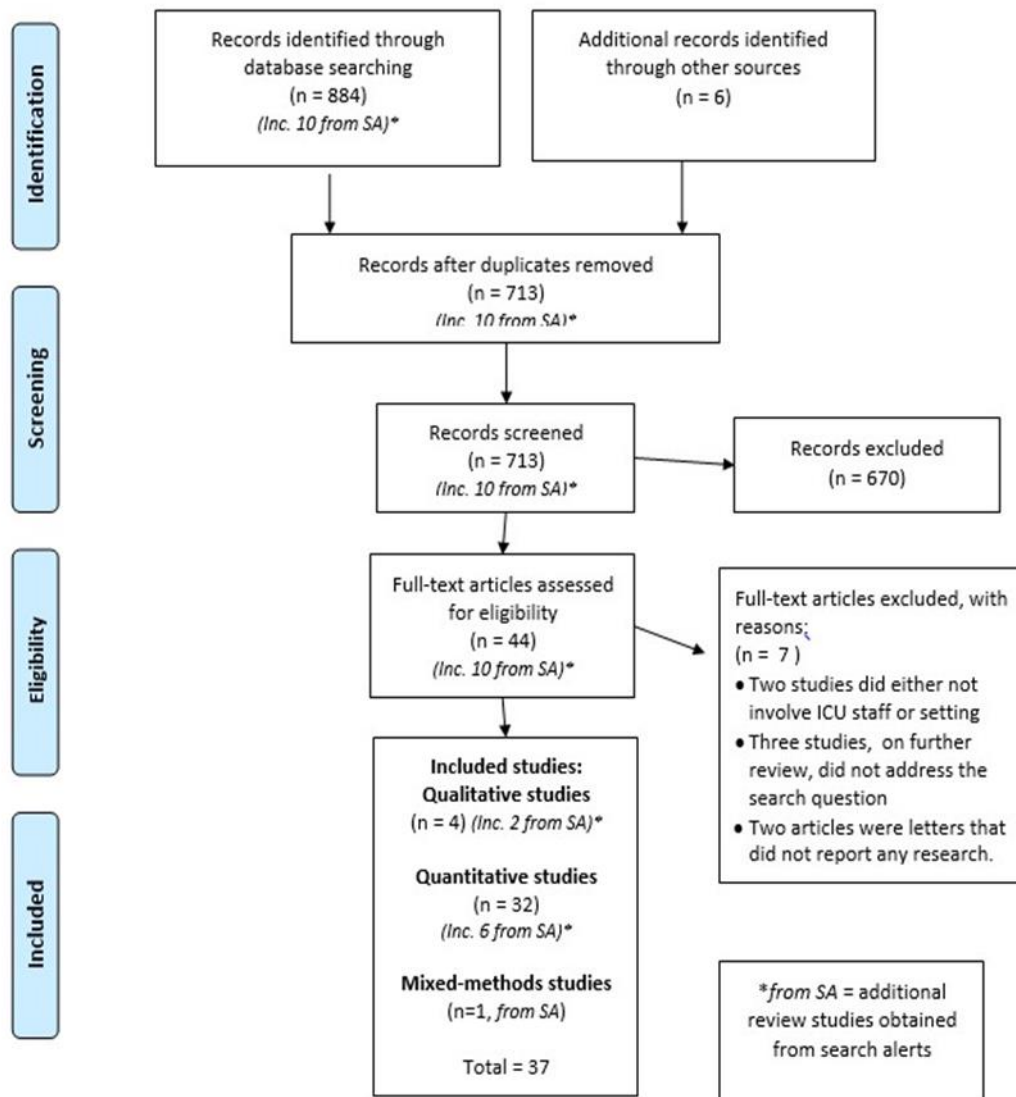


Table 3.1: contribution of individual databases

Database	Citations after final search	Full text Articles included for review
Cinahl	197	15
Medline	232	8
Psych info	83	1
Scopus	463	12
British Nursing Index	19	1
Total	994	37

3.3 Appraisal of the literature

Within the final 37 studies, the majority (n=25) were survey designs, carried out at a single point in time. Eight studies used questionnaires and other evaluation methods pre- and post- an intervention. Three studies were a focus group design. One study carried out individual interviews. Appropriate appraisal tools were sought to guide the appraisal process. The checklist 'Questions to assist with the critical appraisal of qualitative studies', provided by the Specialist Unit for Review Evidence (SURE) at Cardiff University was used for the focus group and interview studies (SURE 2013). Advice was sought as to the most appropriate tool for the survey design studies. This initially led to consideration of tools for the assessment of cohort and cross-sectional studies provided by the NIH Heart Lung and Blood Institute and the Joanna Briggs Institute. Both of these tools had a number of questions that related to the measurement of outcomes following an intervention, which fitted the ten studies whose design involved evaluation pre- and post- an educational or service improvement intervention. The appropriateness of them for the 25 single point survey studies was questionable, however, as most of the questions would be marked as not applicable. The NIH Heart Lung and Blood Institute 'Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies' was therefore employed for the pre- and post-design studies. Further investigation identified the checklist for surveys recommended by NICE, in its document 'Interim Methods Guide for Developing Service Guidance' (NICE 2014), which included questions specifically related to survey research without any assumption of, or reference to, intervention-related outcome. This tool was adopted for the 25 single point questionnaire surveys.

3.4 Findings of the literature review

The 37 studies included in the literature review demonstrated an international research interest relevant to the search question. Studies were included from: the UK, USA, Netherlands, Egypt, Jordan, Canada, Denmark, China, Turkey, Republic of Ireland, Australia, Spain, Iran and South East Asia (country not stated). Only four studies were identified that had been carried out in the UK. In Wales, a survey of 31 ICU nurses had been carried out by Rowley-Conwy (2017). Elliott (2014) led a survey of 76 ICU nurses and doctors in Scotland. A large-scale UK-wide survey by MacSweeney et al (2010) had 681 participants, all of whom were consultant intensivists. In England, no surveys had been performed that included ICU nurses. The only representation from ICU nurses in England was a small-scale focus group study with 12 nurses from one ICU (Zamoscik 2017).

As stated above, 33 of the included studies were of a survey design, three studies employed a focus group design (Zamoscik et al 2017, Oxenboll-Collet 2016, Palacios-Cena 2016) and one study employed individual interviews (Oosterhouse 2016). Following appraisal using the identified tools, the majority (19) of the studies were judged to be of a fair standard, ten of the studies were assessed as good or fair/good standard. Eight of the studies were judged to be of fair/poor standard, mainly due to a lack of clarity in the survey questions or with the presentation of results. Nine of the studies presented survey data at two or three points in time in evaluation of an educational or service improvement intervention (Hickin et al 2017, Marr 2016, Gesin et al 2012, Meredith 2018, Powell 2019, Speed 2015, Blevins 2018). One study presented data at two time points, pre- and post- the introduction of the weekly attendance of a psychiatric liaison doctor to the ICU ward round (Beach et al 2013). The remaining survey studies (n=25) addressed the research question from an observational perspective at a single point in time. Many of the studies were of a small scale, with 12 being carried out at a single centre. The number of participants in each study ranged from 13 to 1384. However, many of the studies were at the lower end of the scale.

Three clear themes emerged from the literature that were discussed across the studies which, whilst related, will be discussed in turn for clarity. Each of the themes were apparent in multiple studies and were consistent across different geographical areas.

3.4.1 The recognition – action disconnect

The first theme that was consistently noted across the studies was an apparent disconnection between participants recognising the clinical significance of delirium in ICU and taking actions to address it. This was first identified by Ely et al (2004) in a survey of 912 mixed ICU health professionals across multiple sites in the USA, investigating their opinions of the importance of delirium and on diagnosis and management. The participants were predominantly doctors (n=773) and nurses (n=113), though other professions were included in small numbers. It was found that whilst 92% of participants felt that delirium was a significant or very serious problem, and 78% agreed that it was underdiagnosed, only 32% felt the literature supported routine delirium monitoring and only 40% performed it. In the second half of the study the surveys included a definition, which had not been included for surveys in the first half. The authors note that, when comparing the second half of the study to the first half, there was no difference in the results, suggesting that a lack of understanding as to what delirium is was not a factor (Ely et al 2004). In 2009, Patel et al carried out a follow-up survey of 1384 mixed ICU healthcare professionals across multiple sites within the USA, to see if the situation had improved. Participants continued to recognise the significance of delirium, with high numbers acknowledging a number of negative outcomes, including: increased hospital length of stay (95%), increase time on mechanical ventilation (90%) and increased risk for the development of pneumonia (78%). In this study, 86% agreed that ICU delirium is an under-diagnosed condition. The study found that the number of participants reporting routine monitoring had increased but 41% still did not screen for delirium. To place this in context, routine screening for delirium has been recommended by the Society for Critical Care Medicine (SCCM) since their 2002 guidelines for the sustained use of sedatives and analgesics (Jacobi et al 2002).

Of further concern was the finding by Patel et al (2009) that, of those who do screen for delirium, 62% were using their own clinical assessment of whether the patient was delirious rather than a validated assessment tool. It is recognised that clinical assessment for delirium without the use of a validated assessment tool will result in up to 62% of delirium cases being missed. This is particularly so for the more common hypoactive form of delirium (Spronk et al 2009). Two screening tools specifically validated for the assessment of delirium in the ICU have been available since 2001; the CAM-ICU, (Ely et al 2001) and the ICDSC (Bergeron et al 2001). The SCCM current guidelines for the management of pain, agitation and delirium state that these two screening tools are the only ones validated for use in the ICU. They have good

specificity and sensitivity and are therefore recommended for use in routine delirium screening (Barr et al 2013).

Similar findings were identified by MacSweeney et al (2010) in a large-scale survey of UK consultant intensivists that aimed to evaluate the management of, and knowledge and attitudes to, delirium within UK intensive care units. Results revealed that 82% of participants agreed that delirium was a problem that required active treatment. Most participants were also able to identify some of the key negative outcome effects of delirium, for example: increased time on mechanical ventilation was identified by 78%, increased hospital length of stay (84%) and increased hospital mortality (64%). Despite this clear recognition from most participants that delirium has some very serious implications and intervention is needed, 80% stated that they did not use a screening tool to regularly screen for delirium. Similarly, in Turkey, a survey of 301 ICU nurses found that while 95% rated delirium as a serious or very serious problem, 32% did not routinely assess patients at all for delirium (by any means) and 89% did not use an assessment tool (Ozsaban and Acarogulu 2015).

A large-scale survey was carried out by Xing et al (2017), in China, which received 917 responses from ICU nurses and doctors across 74 sites. Participants had a good level of understanding of the potential implications of delirium with 78% being aware of the increase in mortality seen as a result of delirium, 80% being aware of the increase in hospital length of stay and 88% being aware of the increased time on mechanical ventilation. Despite this, only 26% of participants reported routinely screening for delirium, 42% said that they did screen for delirium but not routinely. There were also some seemingly conflicting results, with 84% of participants stating that delirium should routinely monitored whilst 27% of the same group said that screening was a waste of time

This evidence of a recognition-action disconnect was found internationally in seven other, smaller-scale studies. Cadogan et al (2009) carried out a study where one survey was completed for each of 44 ICUs in the Netherlands. It was found that 73% of units rated delirium as an important or very important issue and 80% of units stated that they had a delirium protocol. However, only 25% of units said that their protocol was being implemented. In terms of method of assessment, 25% of units reported using the CAM-ICU tool, whereas 57% reported using 'clinical impression' to assess patients. In a 2010 survey of 31 ICU nurses and 30 nurses from medical-surgical units, across two hospital sites in the USA, it was reported that most staff were aware that delirium was associated with an increase in hospital and ICU length of stay.

However, out of the 41 who answered in relation to routine assessment, 26 did not assess and no participants reported the use of an assessment tool (Flagg et al 2010). More recently in the USA, Cole et al (2016) carried out a single centre study of 38 ICU nurses. They reported that while virtually 100% of participants felt that it was very important that delirium screening was carried once a day or once a shift, most could not name an assessment tool and only 26% reported routine delirium assessment.

In the Republic of Ireland, Glynn and Corry (2015) found in a survey of 151 ICU nurses that: 95% felt that delirium was a serious problem; 93% thought it was under-diagnosed; and, 64% felt that the literature supported routine delirium monitoring. Only 18% said that they carried out routine delirium monitoring. Selim and Ely (2016) reported findings from a survey of 168 ICU nurses and doctors in Egypt. The survey showed that: 88% of respondents felt that delirium was a problem that required active intervention; 81% felt that the literature supported the need for routine delirium monitoring; but, only 27% screened on a routine basis. In China, a survey of 105 ICU nurses and doctors found that 71% felt delirium was a significant problem and 56% that it was under-diagnosed. However, none of the respondents routinely screened patients for delirium (Gong et al 2009).

Elliott (2014) carried out a small scale survey of 76 ICU nurses and doctors from three ICUs in Scotland. As well as assessing whether participants recognised the significance of delirium in critically ill patients, and whether they carried out screening for it, it also assessed their wider knowledge around delirium and asked whether participants were aware of the various delirium screening tools in existence. Answers to delirium knowledge questions were categorised using a pivot table and showed that most staff had a high level of knowledge around the delirium definition and a medium level in relation to signs, symptoms and consequences. Over half of staff (53%) were aware of the CAM-ICU assessment tool and, of those, 82% reported that it was not too time consuming to use. Despite this, only 37% reported using a screening tool to assess patients, with 30% using an unstructured clinical assessment (Elliott 2014).

These studies, large, small and in many differing geographical locations, have repeatedly demonstrated that while ICU staff recognise delirium as an under-detected yet important issue, with serious negative implications, it does not seem to motivate them to routinely screen for its presence using a validated tool. Another issue identified within the literature reviewed was that of barriers to delirium, with studies either focusing specifically on what the potential barriers to delirium assessment in

the ICU might be, or uncovering barriers as part of a wider study. This will now be explored as the second of the identified themes.

3.4.2 Barriers to delirium assessment

A lack of knowledge and understanding around delirium assessment tools, and of key features and presentation of delirium, were evident in some of the barriers to assessment identified by participants. One of the barriers that was identified in relation to assessment tools was staff concerns over using them to assess patients who were mechanically ventilated. This was identified by 59% of staff in the Glynn and Corry (2015) study and by 66% in Ozsaban and Acaroglu (2015). In her 2017 study, Rowley-Conwy surveyed 31 ICU nurses in Wales. The same barrier was found in 58% of responses. In addition, 29% of participants in this study also identified complexity of the tool as a barrier. An American study by Devlin et al (2008), surveyed 331 ICU nurses from 16 ICUs in Boston. It found that 47% of participants used a validated tool, 36% of those using the CAM-ICU. In relation to barriers to assessment, 38% identified patients being intubated as a barrier, along with complexity of the tool, which was identified by 34%. This finding was further repeated in a survey by Knight (2016) which identified that 84% of participants felt that the tool was difficult to interpret with intubated patients. However, it should be noted that this was a very small study, with only 13 participants that lacked some clarity in the explanation of findings, so limited the weight that can be given to them.

This concern about use of the assessment tool in intubated patients demonstrates a profound misunderstanding of the CAM-ICU screening tool. The tool was developed from the original Confusion Assessment Method, specifically to be useable with patients that are intubated and ventilated and therefore unable to communicate verbally (Ely et al 2001). It is in this population that the tool has been validated and shows high sensitivity and specificity (Barr et al 2013).

A further potential barrier to delirium assessment was use of an inappropriate tool. A survey of 105 nurses in a paediatric ICU found that 11% of participants thought that the Glasgow Coma Score (GCS), was the best way to diagnose delirium (Flaigle 2016), even though this is a measure of the level of a patient's consciousness and not a delirium assessment. A survey of 52 cardiovascular ICU and 45 cardiovascular ward staff in Turkey found that 53% of participants thought the mini mental state examination (MMSE) was one of the best tools for diagnosing delirium (Korkmaz et al 2015). This may be suggestive of a confusion between delirium and dementia assessment.

Eastwood et al (2012) carried out a survey in an Australian ICU with 110 nurses both before the introduction of the CAM-ICU, following a month of mandated unstructured (clinical) assessment for delirium and again after a month of mandated routine assessment with the CAM-ICU. They found that while 93% felt the unstructured assessment was worth the time required to do it, only 75% felt the same about the CAM-ICU. In addition, 33% of staff felt that the CAM-ICU was hard or very hard to complete. Despite this, 81% of staff thought the CAM-ICU should be continued with. The authors suggested this was likely to be because the nursing staff felt doctors took more notice of a positive assessment when a structured tool was used. This was supported by an increase in anti-psychotic medication prescription during the CAM-ICU period, without any accompanying change in patient acuity.

A further potential barrier to assessment was seen in the lack of awareness in the likely presentation of delirium in ICU, with an over-estimation of the prevalence of the more obvious hyperactive type. In the Xing et al (2017) survey, there were evidently gaps in the participants' knowledge that they were not aware of. Although 90% of participants reported that they had a clear knowledge of delirium, only 51% thought hyperactive delirium was the most prevalent type, with only 12% being aware that hypoactive was the most common.

The potential for staff to be looking for symptoms of hyperactive delirium was highlighted in a German survey of 559 nurses and doctors from ICU, as well as other acute areas such as theatres, of which 495 participants worked in ICU (Nydaahl et al 2017). In considering what would initiate them to perform a delirium assessment, 44% of participants answered 'suspicious behaviour' such as agitation and pulling lines, which are both behaviours that would be associated with hyperactive delirium. A survey of 232 ICU nurses in Jordan by Hamdan-Monsour (2010) revealed that only 39% of participants thought hypoactive delirium was the most common type, with the other 61% disagreeing with the statement or saying that they did not know. In addition, 87% of participants noted hallucinations as a sign of delirium. Although some patients with delirium will have hallucinations, this is not the case for all and it may not be obvious that they are occurring in a hypoactive patient. Christensen (2014), in a survey of 52 ICU nurses in a South Asian medical ICU, provided further confirmation of this potential barrier in the finding that 96% of participants were able to identify signs and symptoms of hyperactive delirium but only 12% were able to do the same for hypoactive delirium.

Professional role issues threw up further potential barriers to routine screening with a delirium assessment tool. Trogrlic et al (2016) carried out a survey in the Netherlands of 360 healthcare professionals including ICU nurses, doctors and delirium consultants, with ICU nurses making up a large majority of the participants (79%). The survey showed that although there was near-universal (99%) agreement about the value of screening, and 58% reported using the CAM-ICU, only 34% were confident that the bedside nurse was capable of identifying delirium using this tool. It also found that 74% of participants felt that collaborative working between nurses and doctors in this area would be improved by addressing delirium in the daily ward rounds, and thereby improving screening rates. In a Danish focus group study of ICU nurses (20) and doctors (14), further role-related barriers were identified (Oxenboll-Collet et al 2016). Both nurses and doctors had a number of concerns about the use of the CAM-ICU, some of which appeared contradictory. Nurses raised concerns that the recent trend for minimal sedation would mean that patients were awake earlier in the course of their ICU stay. The impact of this being that they were rousable, and therefore assessable with the CAM-ICU, at a point where they may be sicker and too weak to complete it. Doctors were concerned that the results of the CAM-ICU may be affected by residual sedatives and opioids. Both groups were concerned about the validity of the test in these situations. In this study, the doctors stated that they did not push the use of the CAM-ICU because of a lack of evidence-based medical interventions to treat delirium. This was reflected in the nurses' experience that the doctors did not take account of the results of the CAM-ICU assessment, unless they had specifically requested that it be done. Therefore, nurses only completed it when requested to do so by doctors rather than routinely.

Similar concerns were voiced by participants in a focus group study by Palacios-Cena et al (2016) in Spain, which included a total of 19 ICU nurses and 19 ICU doctors in seven focus groups. Overall, participants of both professions expressed feelings of uncertainty about patients with delirium, that they were often under-diagnosed and poorly managed. The nurses felt that, for doctors, delirium was not something they considered a matter of urgency. Whereas, doctors felt that they were sometimes pressured by nurses when it came to management of delirious patients to come up with answers that they did not have. Nurses also discussed a tension that can occur with other nurses on the unit, when they are trying to implement delirium assessment but other colleagues did not see the value of it. This was particularly noted for night shifts.

Zamoscik et al (2017) carried out a small focus group study in England that asked 12 nurses, in two focus groups, about their perceptions and experiences of delirium care. The authors concluded that the study presented 'an ICU culture in which delirium is marginalised'. Delirium was seen as a secondary issue that was not as important as care focussing on the 'main body systems' (Zamoscik et al 2017 p98). Further evidence of the relevance of the professional culture of the unit was provided by Oosterhouse et al (2016) who carried out interviews with 30 ICU nurses in the USA, which included discussion of delirium vignettes. Participants reported that doctors did not always respond positively if contacted about a patient's delirium status. One recalled being shouted at for doing so. Participants in this study also highlighted that the attitudes from other nursing staff on the unit can have an effect on how comfortable they felt with delirium assessment, and that having more progressively minded staff around would make it easier.

Studies discussed relating to barriers to delirium assessment have identified findings demonstrating a lack of knowledge about specific aspects of delirium, such as clinical presentation and use of appropriate tools. In the Rowley-Conwy (2017) study, 42% of participants identified a lack of knowledge of delirium to be a barrier to routine assessment. Educational interventions designed to address this knowledge deficit were presented in eight studies. These are discussed in the final theme.

3.4.3 Educational interventions

Gesin et al (2012) carried out a small-scale educational intervention study with 20 ICU nurses in the USA. Assessments were made of nurses' knowledge of delirium and their agreement in delirium assessment of a patient with a 'validated judge', who was a senior ICU nurse who had been formally trained in the use of the assessment tool by an expert in the field. Delirium assessments were carried out at three time points: a baseline assessment; after phase 2 where they had been given an article to read on delirium and no other information; and after phase 3 where they had received multi-faceted educational input including bedside teaching and online learning. Over the period of the study, the numbers of nurses that perceived delirium as difficult to assess dropped from 89% to 63%. The proportion that felt the ICDSC made delirium easier to identify increased from 57% to 89%. These changes were not statistically significant but this would seem likely to be due to the small sample size. The authors reported a significant increase in ICU knowledge scores at each phase of assessment. This was an interesting, if underpowered, study. The authors calculated that they needed 20 participants but then, having recruited only this exact

number, they were left with less than this when one dropped out. There were also no time frames given for the gap between the educational phases and the assessment. Therefore, it is not known whether the assessment was done immediately following the educational intervention and, if so, whether these improvements would be sustained.

Beach et al (2013) carried out a study to evaluate the educational impact of a psychiatrist taking part in ICU ward rounds, once a week, over a period of nine months. They looked at the impact of this on the knowledge and beliefs of nurses and doctors in an ICU in the USA. Participants completing both the pre- and post-questionnaire were 23 ICU nurses, 23 internal medicine doctors (working in ICU) and 23 psychiatry residents. The authors noted that the inclusion of the psychiatry residents was essentially as a control group and they did not expect their scores to change. Post-intervention surveys revealed that when evaluated as a group overall there had been no statistically significant change in any item. However, when the nurses' scores were evaluated alone, there had been a significant increase in the recognition that patients newly diagnosed in ICU as having anxiety or depression most commonly have delirium. There was also a significant decrease in the number of nurses that agreed with the statement that delirium is diagnosed less often than it actually occurs. This finding may seem counter-intuitive but the authors report that the CAM-ICU was piloted on the same unit during the study period. This may have led nursing staff to feel that it had become less the case that delirium was being missed. Whilst there was no significant effect on scores of the group overall, the authors report that the intervention was very positively received on the unit. They suggested that more frequent input on the unit, or supplementing ward round attendance with some didactic teaching, may be required to have a significant effect overall on attitudes and beliefs.

In order to address the issue of sustaining the outcomes of educational interventions, Hickin et al (2017) evaluated the effects of an educational intervention in a single ICU in Canada. They took a baseline and then looked again at 3 months post-education and at 18 months post-education. They found that knowledge scores increased significantly from baseline to period two at 3 months, but that this effect was lost by 18 months. The authors argued that this showed that knowledge is not maintained and that repeated educational interventions are required. They also stated that staff turnover may have been a contributory factor since some staff that completed the knowledge survey at 18 months may not have had the educational intervention. The authors stated that they chose not to control for this as it reflected real life events in

an ICU. It would have seemed feasible that whilst allowing any staff to complete the knowledge survey at 18 months, to maintain this pragmatic approach, a subset analysis could have been facilitated, by use of an anonymous code, to assess whether those who had had the education maintained their knowledge. This is a possibility not addressed by the authors.

Padilla (2018) discusses a study in which 32 participants were split between an intervention group that received an education program and a control group who did not. The education program consisted of teaching and simulation with delirium vignettes. Following the education program, 32 of the participants completed a post-intervention survey and six were interviewed. The intervention group showed a significant increase in scores for the self-confidence scale of the survey but not for the knowledge scale. In the interviews, however, participants reported that the educational intervention had helped both their confidence and their knowledge of ICU. There is some lack of clarity in the discussion of the required sample size, but it is possibly under-powered, with only 16 participants in each arm of the study.

A similar-sized educational intervention study was carried out by Blevins (2018) in the USA, with 34 nurses from one ICU completing a 32-item delirium knowledge survey, before and after taking part in an educational session. The study was a pre- and post-design without control group. All 34 participants received the education session, which consisted of didactic teaching, a video from a delirium survivor and a demonstration of the CAM-ICU assessment. The intervention significantly increased scores on the knowledge subscale of the survey but not on the 'tools' subscale. The authors argue that further pedagogical research is required to determine the most effective strategies for improving nurses' knowledge of delirium scales.

Three further small-scale educational studies were identified in the literature, each of which had significant weaknesses affecting the clarity, and therefore credibility, of their findings. An educational intervention study was identified by Marr (2016) in Canada. Very scant detail was available for this study, as it was presented in letter format. It briefly describes a study in which a four-hour education session was introduced on delirium, and nurses' knowledge was tested pre- and post-intervention. The author notes that their level of delirium knowledge was low at both pre and post-assessment. It concluded that education alone is not sufficient to improve nurses' knowledge. However, the information provided was insufficient to judge the credibility of these conclusions.

Speed (2015) described a study in which 24 ICU nurses completed a pre- and post-ICU delirium knowledge survey, and received a 20 minute PowerPoint presentation on delirium. The presentation was focused on areas of weakness identified in the pre-intervention surveys. The post-intervention surveys demonstrated a significant increase in knowledge scores. There was room for more clarity in the discussion of the study findings but it shows some support for the potential effectiveness of an educational intervention on delirium knowledge.

A small-scale study by Powell et al (2019) reported on the findings from an educational study of 27 nurses in a burns ICU in the USA. Pre- and post- surveys on knowledge and attitudes to delirium were carried out. Between surveys, participants took part in a seven-month education program that included an information board in the unit and a delirium week where a video was played to staff during handover. The authors reported that mechanical ventilation was perceived as a barrier and, despite the educational intervention, 26% of participants still reported that a tool was not needed to detect delirium. Unfortunately, the findings for this study are very poorly presented. The quantitative data for the closed questions was presented purely in graph form, without the values being provided separately, and they were not clearly decipherable from the charts. This, therefore, quite strongly limits the weighting that can be given to these findings.

3.5 Chapter summary

This chapter has presented the findings from a systemised review of 37 studies in order to critique the currently available evidence in relation to ICU staff members' knowledge and attitudes toward delirium and its assessment. In summary, the evidence reviewed has identified that while there are some gaps in knowledge relating to delirium presentation, and misunderstandings relating to aspects of delirium screening tools, ICU staff recognise the significance of delirium and its implications. This recognition, however, does not appear to motivate staff to carry out the necessary, and recommended, routine assessment screening or to develop the gaps in their knowledge. Research carried out to evaluate the effect of educational interventions on knowledge and attitudes has demonstrated some positive effects but studies have tended to be small, with some lacking clarity in relation to findings.

Chapter Four: Theoretical Considerations

4.1 Introduction

As outlined in chapter one, this study aimed to provide an insight into the factors that may influence how ICU staff think about delirium in their patients; taking into account the historical context as well as current perspectives, and it had five objectives:

1. Critique the current literature on how ICU staff think about delirium, including their knowledge of delirium and their knowledge and attitudes toward delirium assessment.
2. Carry out a survey of ICU nurses and doctors in the UK, investigating their knowledge of and attitudes towards delirium and its assessment.
3. Carry out a Foucauldian genealogical analysis of the evolution of the definition of delirium in the Diagnostic and Statistical Manual (DSM) produced by the American Psychiatric Association (APA) from 1952-2013.
4. Synthesise the study findings with the Foucauldian genealogical lens, to provide a unique insight into potential influencing factors on ICU staff's thinking about delirium.
5. Disseminate the insights that emerge and recommendations from these findings to the Critical Care practice community and Critical Care nursing course students and education policy makers

In order to surface the tensions surrounding delirium, the study adopted a postmodern position by mixing two methods, a survey design and a genealogical analysis. This chapter presents the theoretical basis of the study. The work of the philosopher and historian Michel Foucault is first introduced, with discussion of the application of Foucault's genealogy as both a method of investigation and a lens through which to consider and interpret the findings in relation to wider literature. An overview of four specific Foucauldian concepts, with particular relevance to the current study, is then provided. Following this, the 'fit' of the study in terms of its ontological, epistemological and axiological assumptions is discussed. Finally, the chapter considers reflexivity as a characteristic of this study.

4.2 Foucauldian genealogy as a theoretical lens

The theoretical framework utilised to address the overall aim of this research is provided by the work of the philosopher Michael Foucault who wrote critical, historical analyses on subjects such as madness, crime and punishment, and sexuality,

examining the knowledge and power constructs involved (Rabinow 1991). Foucault sought to provide an alternative perspective and explanation by considering the historical influences and development of these topics, which he described as 'a history of the present' (Gutting 2005 p50). Foucault challenged the received wisdom of these subjects and questioned what were accepted as societal norms. He is considered one of the 20th century's most influential thinkers (Rabinow 1991, Gutting 2005, Oksala 2007). Foucault's historical studies, initially conducted through a method termed 'archaeology' and later the method of genealogy, took a step back in considering the phenomena in question and revealed a perspective not immediately apparent by simply examining the 'here and now' of a given situation.

Foucault's archaeological studies considered the way in which the thinking on a particular topic might be constrained by what was conceivable about that topic for people at that given point in time. What was conceivable would inform implicit rules of thought within which the framework for the range of thought and consideration possible would sit (Gutting 2005). The archaeological method was a structural, synchronic approach in which Foucault described issues at given points, without discussing causal developments between them, which he acknowledged in the foreword of 'The Order of Things' (Foucault 2005). Foucault's later genealogical studies took a more causal, historical approach considering the development through points in history. An example of this can be found in his book 'Discipline and Punish' (Foucault 1979), his history of how cultural notions of punishment have developed over time, and the nature of the power that is exerted within those developments. Of the two historical approaches, it was, therefore, genealogy that was most suited to the second research objective of this study, to evaluate the evolution of the nosology of delirium. It is an approach that sought to extend the understanding of potential influences on staff's perceptions of delirium, beyond that which is explained by their current knowledge; by evaluating the roots and development of the delirium nosology, to see whether an alternative perspective and insight could be gained on clinical practice.

4.3 Key Foucauldian concepts

Foucault's historical studies of society focused on different aspects, such as madness and unreason, discipline and punishment, and sexuality. Foucault examined the forms in which power is enacted in society and sought to provide an alternative perspective from the standard historical accounting on a topic. Rather than simply documenting a series of events, Foucault asked questions about what events had

occurred and, importantly, what had not occurred. He looked at what has been taken for granted and not questioned, and what these things may reveal about how power is exerted to maintain the accepted order. In an essay on genealogy and history, Foucault emphasised the importance, when considering the occurrence of events in history, of defining 'those instances where they are absent, the moment when they remain unrealised' (Foucault 1977, p140). This point is illustrative of Foucault's approach to historical analysis; the aim being to look differently and see what may not have been seen previously, illustrating that we are all both subjected to, and subjectors of, normalising power formations in society. Within his studies Foucault examined power within society and the different way this is manifested and expressed. However, this was not just focused on the notions of power that may immediately spring to mind when the word 'power' is mentioned, such as the government, the police and judiciary. Whilst these formations of power exist and play an important role within society, exerting what Foucault termed as a repressive power, his work meticulously examined society to surface the more pervasive but unseen practices and formations that exert what he termed a 'normalising power' (Foucault 1979, 1989, 2002a, 2004).

Foucault's focus on mechanisms of power, and how these function could be misinterpreted as being an assertion that all power is a negative thing, but this is not the case. This would have been far too simplistic an assertion and would imply that power is one thing and that, as a concept, it is possible for it to be fundamentally good or bad, which Foucault would have rejected (Rabinow 1991). His work illustrated that power can be repressive or productive, and that it has different forms and interactions. His work also did not seek to judge societal mechanisms but to uncover them, like an archaeologist, digging away to see what had always been present but not previously observed. Key to Foucault's discussion of power functions within the modern era was the concept of governmentality, or the mesh of administrative and managing organisations and bureaucracy that extend through society, enabling the power of a centralised state (Oksala 2007). Another key concept of power, for consideration of the modern era particularly, is that of biopower. This is a productive form of power, focusing on the body. It is an exertion of power, managing the population through administration of life processes such as births, deaths, reproduction and wider health services. The combination of these concepts, the mechanisms of governmentality with a focus on issues of biopower being biopolitics.

4.3.1 Knowledge

The relationship between knowledge and power was central to Foucault's oeuvre. Foucault saw power and knowledge as intrinsically related to each other and logically comparable (Oksala 2007, Gutting 2005). Whilst knowledge was constrained by the overall framework of what was thinkable at a given time, or episteme (see 4.3.4), within that time formations of power would act to direct and produce knowledge. An example discussed in detail being the development of modern penal systems and the production of knowledge in the field of criminology (Foucault 1979). This intertwined relationship was shown to be reciprocal. Knowledge may arise from the workings of non-discursive power formations (see 4.3.2), such as prisons or hospitals, but may also be directed by those in the positions of power to do so. An example of this is funding bodies deciding where research grants should go, which projects should be supported, which areas of knowledge warrant being developed. The identification, formation and dissemination of new knowledge requires instigation from people in a position of power to do so. Equally, the possession of knowledge, or the perception of possessing knowledge, lends power to the owner of it (Foucault 2002b, 2004).

4.3.2 Discursive formations

In his book, the 'Archaeology of Knowledge' (2002b), Foucault discusses discursive and non-discursive formations, which he describes as systems of language and systems of representation. The non-discursive formations are visible, actual things that have a function, such as a hospital with its function to care or a prison with its function to penalise. Discursive formations refer to systems of language which, through statements, identify the order and assumptions on a given subject. These discursive formations then form part of the wider concept of discourse (Foucault 2002b).

4.3.3 Personal ethics

In his later works, Foucault's focus turned more to consideration of power formations working at the level of the individual, through systems of personal ethics (Oksala 2007). In these works, Foucault's considerations moved from focusing on the individual as the object of power, acted upon by discursive and non-discursive formations of normalising and punitive power within society, to the subject exerting a normalising power on themselves, through a personal expectation of the ideal self.

4.3.4 Epistemes

Foucault's notion of the 'episteme' was central to his approach to historical analysis and was articulated in his text 'The Order of Things' (Foucault 2005). Foucault described epistemes as the unconscious framework that governed what was thinkable, and therefore knowable, at a given time. Similarities in the concept can be seen in Kuhn's idea of scientific paradigms, first published in 1962 (Kuhn 2012). In proposing the scientific paradigm, Kuhn argued that developments in science were not smooth, linear progressions where science moved inexorably forward as one new discovery built on the previous one. Instead, scientific history is characterised by 'fractures'; moments where unexpected discoveries result in a change in the rules and shared knowledge of the science, causing a move forward in a different direction and creating a 'paradigm shift' (Kuhn 2012). The advent of antisepsis in medicine could be considered an example of this. Within a few decades, the work of Joseph Lister demonstrated that using antiseptic techniques could significantly reduce morbidity and mortality in patients. His work went completely against the perceived wisdom at the time, where it was routine for surgeons to move between the mortuary and operating theatre without washing their hands, and it was rare for instruments to be cleaned between surgeries (Fitzharris 2018). Following acceptance of Lister's findings, the use of antisepsis spread through medicine, such that it became accepted practice and received wisdom that it was essential to avoid the spread of germs and harm to the patient (Fitzharris 2018).

The non-linear, fractured nature of history are where Kuhn's and Foucault's concepts are similar. However, they differ in certain key aspects, the first being that a paradigm relates to a particular scientific discipline, whereas the episteme relates to society as a whole. The rules of what is known and accepted within a scientific discipline are consciously known to the scientists working within them, whereas the episteme describes the unconscious framework of what is knowable at the time. An essence of order exists at a level separate to the theoretical orders of the universe, between that and the culture in which it is expressed (Foucault 2005).

Foucault's concept of the episteme has not been without criticism. Merquoir (1985), for example, argued that within Foucault's own texts there were examples of concepts which were continued across time periods, contradicting the societal change in epistemology that Foucault had proposed. However, it can be argued that Foucault's concept of the episteme does not require all concepts of thought to be discontinued and changed in the passage from one episteme to another, in order for it to stand as

he described it. The change of episteme indicates a change in the dominant mode or nature of the unconscious framework of what is knowable, some continuity of lines of thought may continue from a previous episteme. Indeed, theorists on the work of Foucault have identified his inclusion of discussion of both the shorter-term discontinuities of history and some longer continuities (Rabinow 1991)

4.4 The Ontological, Epistemological and Axiological 'fit' of the study

4.4.1 The ontological self – my philosophical alignment

My own ontological status is best described as being that of a pragmatist, and the study followed a pragmatic approach to achieve the stated outcomes and in doing so utilised different data sources. William James, although not the originator of the term pragmatism, was one of its early champions and was hugely influential in raising the profile of pragmatism as a theoretical perspective (Malachowski 2010). James argued that philosophy focused too much on metaphysical theoretical perspectives without adequate consideration of the outcome of one perspective opposed to the outcome of another (James 2012). In recent years, there has been renewed interest in pragmatism as a theoretical approach with 'new pragmatist' thinkers taking the initial ideas of James and Pierce and developing them. Although there are some clear differences between the classical pragmatists and the new pragmatists, a focus on outcome remains fundamental (Malachowski 2010). The overall approach to the current study has been a pragmatic one in that the starting point has been to consider the desired outcome, the overall aim of the research. From this, five specific objectives were defined (4.1) and two strands of collection designed to address these. Taking a pragmatic approach to the study overall allowed for an open consideration of which types of research methodologies and theories would best inform the design needed to tackle each objective. It also allowed for the use of differing methods alongside each other.

4.4.2 The epistemological assumptions and methodological approach

In his text 'The Order of Things', Foucault stated that he would not want his having focused on one particular approach to his work to imply that he rejected other methods. It was, on the contrary, something he encouraged.

'Discourse in general, and scientific discourse in particular, is so complex a reality that we not only can, but should, approach it at

different levels and with different methods. If there is one approach that I do reject, however, it is that (one might call it, broadly speaking, the phenomenological approach) which gives absolute priority to the observing subject, which attributes a constituent role to an act, which places its own viewpoint at the origin of all historicity – which in short leads to a transcendental historicity’ (Foucault 2005, pxv).

This perspective is of particular relevance to the aim of the current research, and supports the fit of the design employed to the overall theoretical approach. This study aimed to provide a unique perspective on the potential influencing factors on how members of staff think about ICU delirium. An approach to this that would have been rejected by Foucault would have been to directly ask staff ‘What do you think influences your thinking?’ and expect them, as the subject in question, to be automatically aware of these influences. This would either suggest that all influences originate within current perception or would imply the transcendental awareness of which Foucault spoke.

The study approached the research problem with two design aspects (discussed in detail in chapter five), a genealogical analysis and a survey, both of which are compatible with a synthesis via a Foucauldian genealogical lens. Whilst the survey element of the study can be considered positivist, it is its observational quantitative element that lends its findings to deeper consideration. The knowledge and attitudes of staff being measurable, albeit within the constructs of current definitions and understanding, does not discount other approaches being taken. Knowledge of ICU delirium as a topic overall can be considered both socially constructed (the process of definition development) and that which is more objectively measurable, for example studies showing increased mortality rate and hospital length of stay. If staff are not aware of the latter, it will have an impact on how they respond in practice. The findings obtained from the survey provide not only quantitative data from an under-represented group, that would warrant dissemination in its own right, but also presents a picture of the knowledge and attitudes to delirium and its assessment from that group of staff which can then be viewed via a Foucauldian genealogical lens. By adopting a relativist position and taking a pragmatic approach to the study design, it has enabled me address the identified research problem from a postmodern stance, without being constrained by what Atkinson (1995) termed the ‘perils of paradigms’.

4.4.3 The axiological place of the study

The study that a researcher chooses to carry out is, in itself, a value judgement. The value I attribute to the current study is rooted in several perspectives originating from my professional experience as a nurse in ICU, my experience as a developing researcher and my personal beliefs about the value of knowledge. As a registered nurse and lecturer with a clinical background in ICU, the distress caused to patients by the experience of ICU delirium is one which concerns me greatly. I feel the onus is with ICU staff to act to minimise its occurrence. As an educator of nurses working in this area, I feel a responsibility to improve knowledge and understanding of the topic area as much as I can. To this end, I view any research that contributes to these goals as being inherently valuable. As a developing researcher, I have found value in embracing a methodology (Foucauldian genealogy) of which I was not aware prior to starting the research. This experience has developed my knowledge of the range of possible research methods that can be applied but, beyond this, and perhaps more importantly, it has also broadened my ways of thinking about issues within the social world. The final way in which I place value in the current study is from the generation of new knowledge for its own sake. Whilst the study can only offer a single unique perspective on a problem for which there are likely to be a number of alternatives, given the complex nature of the human populations and interactions involved, I believe any generation of new knowledge or insight into a problem of significance to be of value.

4.5 Reflexivity as a researcher

Reflexivity is argued to be an important aspect of the research process, as it allows the researcher to acknowledge and be transparent about the relationship between themselves acknowledging their motivations, value judgements and potential biases (Davis 2020, Dodgson 2019). This has been argued to be especially important in qualitative research, given its contextual nature (Dodgson 2019). In addressing the ontological, epistemological and axiological fit of the study, I have needed to consider my own standpoint in terms of the legitimacy of knowledge and its generation, along with the value judgements I have made in the choice of research topic. I have also become aware of relationships between these aspects of consideration. My experience as a nurse in ICU, I believe, is related not only to the value I would attach to minimising the distress patients experience but also to my pragmatic approach to the research process. Within the ICU, good care is a combination of the personal human connection with the patient and the complex technical support of life-

sustaining equipment and medication. There is not a dividing line between the two but a combination of them both to best care for patients' needs. Throughout the research process, I have endeavoured to maintain a reflexive approach and consider my own position in relation to that of the research.

4.6 Chapter summary

This chapter has identified and discussed the theoretical approach underpinning the study. The ontological, epistemological and axiological fit of the study has been outlined and the importance of reflexivity in research, and its bearing on the current study, has been discussed. The following chapter presents the study design.

Chapter Five: Study Design

5.1 Introduction

This chapter presents the study design and procedures followed for the survey and the genealogical analysis. The survey design is discussed first and includes consideration of the survey tool, the participants and recruitment, data collection and data analysis. The genealogical analysis is then discussed and includes the rationale for focusing on the DSM, the key historical sources used and a description of the process. Ethical considerations for the study are then addressed.

5.2 Research procedure - survey

5.2.1 The survey tool

In deciding on the appropriate survey tool, the two previous survey studies carried out in the UK were considered. MacSweeney et al's instrument (2010) focused largely on aspects of clinical management, such as the prescription of Haloperidol, and therefore did not sit well with the current study's aims and objectives. Instead, the survey developed and used by Elliott (2014) was chosen as it had been previously validated and used in a UK-based study, and focused on the specific areas of relevance in relation to ICU delirium for the current study's aim. The author was contacted, and a copy of the full survey was provided with permission to use it in the current study. The original survey was in paper format and included two questions that were related to the specific units that the study was carried out in. These were removed as they were not relevant to the current study and the study was converted to an electronic format, (see 5.2.3 for further detail).

The survey asked questions related to participants' knowledge of features of delirium, their beliefs and practices around assessment, and their experience and preferences in relation to education on ICU delirium. At the start of the survey, a number of demographic questions were asked including whether the participant was a nurse or doctor, their length of service in ICU and the grade or position which they held. For the nursing staff, they were asked to record the band at which they were employed. This refers to the grade bandings of the Agenda for Change (AFC) pay framework that was introduced in October 2004 (NHS Libraries and Knowledge Services 2014). See appendix two for bandings and corresponding nursing roles.

Doctors, alongside dentists and senior managers, are not included in the AFC framework. They have a separate system of grades that relate to the year that the

doctor is in of their post-qualifying training. See appendix two for medical grades and corresponding roles.

5.2.2 Participants and recruitment

The participants sought for the survey were nurses and doctors working in ICU across the UK. An approach was taken to recruitment that aimed at maximising the reach of the study to the target participant group. A number of recruitment avenues were followed to achieve this. Two critical care professional organisations were approached with requests to forward the study link to their members. The Intensive Care Society (ICS), a multi-professional society of doctors, nurses and allied health professionals, was approached and agreed to support the survey. The ICS sent out a brief study description and link to the study in one of its newsletters to members. The British Association of Critical Care Nurses (BACCN) was also approached. However, they declined to support the survey as they could only provide this service for members of the BACCN. The lead nurse for the Critical Care National Network Nurse Leads Forum (CC3N), was contacted to ask if a brief description of the study and link to the survey could be sent out for dissemination via the network nurse leads, which was agreed to. Recruitment via this method had the disadvantage of not knowing a response rate for the survey. However, this was deemed to be worthwhile as it allowed the study to reach a large number of potential participants and meant participation was not restricted to one ICU or area of the UK.

5.2.3 Data collection

The online survey software, SurveyMonkey, was used to host the survey (SurveyMonkey 2017). This software was chosen primarily for the ease of use for participants. I had previously had experience of completing a number of surveys myself using the software. I had found it very easy to navigate and was motivated to ensure this experience for participants in my own study. Before deciding on this software, I accessed information from the SurveyMonkey (2017) website to familiarise myself with the process of setting up a survey and the types of question structures that would be available, to ensure they would be suitable. I also investigated the analysis options available and whether it would be possible to export the data set to an external analysis software of my choosing. Having established that all these factors were suitable for my survey, and that I had access to the software that would not limit the number of participants that my survey could receive, a final decision was made to use the SurveyMonkey software.

The question structures available within the software allowed for the original structure of the questions and answer options to be maintained. Once potential participants followed the link to the Survey Monkey site, they were initially brought to an information page, briefly introducing the study and providing a contact email address for any queries (see appendix three). The survey questions as they appeared in SurveyMonkey are shown in appendix four.

Once the survey had been set-up in SurveyMonkey, it was initially tested by two participants who were not of a critical care background. To ensure that the survey was working as planned, the two participants checked that:

- the study link was working and took participants to the correct survey
- the first page participants arrived at was the study information page
- the instructions on how each question should be answered were clear
- participants' desired answers could be selected without any technical problems.
- navigating through to the survey pages was clear and straightforward, and the questions followed on from each other in the correct order.

This was what could be considered a mechanical check of the survey. The data from these two participants were removed from the analysis. Following this, the link to the survey was forwarded, via a clinical contact, to an ICU, where it was piloted by 30 members of nursing staff. Feedback confirmed that these participants had found the survey straightforward to complete and that they did not feel that any changes to it were necessary. As the piloting did not result in any changes to the survey, this data remained in the analysis. The survey was piloted in February 2017, distributed in March 2017 and closed in July 2017. Utilising a survey approach allowed for data to be collected from a large number of participants, in relation to their knowledge and attitudes towards delirium and its assessment, as opposed to an interview or focus group approach which would have allowed for deeper exploration of questions but for a much smaller number. In view of the paucity of data on this topic in the UK, with three out of four studies being small in scale, with data only having been previously obtained from 12 ICU nurses in England, in the form of a single unit focus group, the survey was the most appropriate choice.

5.2.4 Data analysis

For analysis, the survey data was exported from Survey Monkey to the Statistical Package for the Social Sciences (SPSS) v25 (IBM 2017). In planning the analysis of

the data, the advice of a statistician from Cardiff University was sought. Details of the study participants, sampling, target population, question and answer design, and comparative variables of interest were discussed. In view of the data characteristics discussed, the statistician consulted advised that inferential statistics for the main study questions would be most suited to analysis for association via contingency table analysis.

The demographic data was presented in raw numbers and percentages. For the main survey questions, analysis via Chi Square goodness of fit test was carried out in order to assess for potential differences between groups. Comparisons were carried out in relation to profession, length of service in ICU, time since last education on ICU delirium and type of education received. As recommended, where greater than 20% of cells in the contingency table for the Chi Square analysis had an expected frequency of less than five, a Fisher's exact test was carried instead (Dancey and Rowe 2012). In the analysis of group occurrences for four of the questions, SPSS was unable to carry out the Fisher's exact test, due to timing out of the software whilst completing computations. Fisher's exact test is noted to be computationally intense and analysis software may be unable to complete the required calculations in a pre-set time. In large sample sizes with contingency tables of greater than 2x3, the calculation can become computationally impractical and a Chi square is then recommended (McDonald 2015). Both of these issues applied to the current study. In this situation the software will terminate the analysis. For the four questions where both Chi Square and Fishers exact test could not be calculated, findings were presented as numbers and percentages alone.

Comparisons of the two professions in terms of banding /grading were presented as demographic data. The two differing scales of banding for nurses and doctors prevented the use of this variable as one for which inferential comparisons could be carried out across the group. Although it can be noted that, even if both professions had been on a single scale of seniority, a reliable inferential analysis for this aspect would not have been possible due to the very large number of medical participants at the highest grade point (see section 6.2), which would have left many cells representing junior staff at very low numbers or zero.

5.3 Research procedure – genealogical analysis

5.3.1 Rationale for focusing on the DSM

Two internationally recognised classifications of disease exist that are of relevance to delirium. These are the Diagnostic and Statistical Manual of Mental Disorders (DSM), currently in its 5th edition and published by the APA (2013), and the International Classification of Diseases (ICD), currently in its 11th edition and published by the World Health Organisation (WHO 2018). Both classification systems include delirium. However, it is the DSM-IV criteria that are nearly always referred to in the medical literature on the topic (Page and Ely 2011).

In their clinical guidance on delirium, NICE defined delirium according to the criteria in the DSM-IV (APA 1994) and identified it as the reference standard for the document. This guideline was reviewed in 2015 with no evidence being found that necessitated updating the guidance, which remains current (NICE 2018). NICE acknowledged both classifications and, in the description of search criteria, it was stated that the reference standard was to be the DSM-IV or the ICD-10 (APA 1994, WHO 1996). Later in the guidance, however, NICE discuss the effect on detection caused by differences in the criteria of the two classifications. Based on this, they decided to use DSM-IV alone as the reference standard:

‘A comparison of the DSM-IV and the ICD-10 criteria reveals the ICD-10 criteria to include additional requirements for the diagnosis of delirium.....The stricter inclusion criteria and additional diagnostic requirements of ICD-10 have an associated impact on case detection and identify a cohort of patients who are frequently dependant on others for care needs and more likely to be resident in a long-term care setting (Laurila 2004). Therefore, we used the DSM-IV criteria as the standard operational definition for delirium’ (NICE 2010, p99).

A survey of 5000 psychiatrists from 44 countries found that the ICD-10 was the classification system used most in daily clinical work, and was particularly predominant in Europe (Clark et al 2017). However, for the reasons identified above, it would appear that for a study on delirium with a UK perspective, the DSM is the most appropriate focus.

5.3.2 Key historical sources

The primary source materials for the genealogical analysis were the copies of each of the main DSM editions: DSM-I (APA 1952), DSM-II (APA 1968), DSM-III

(APA1980), DSM-IV (APA 1994) and DSM-5 (APA 2013). During the process of analysis, further materials were accessed including: the DSM text revisions; articles discussing the development of the APA; the DSM and the position of psychiatry; websites sources such as that of the APA and other relevant sites; articles from the time period analysed, as well as more recent accounts; and, dissertations or theses of relevance.

5.3.3 Description of the process followed

Foucault did not provide a 'set of instructions', prescribing how a genealogical analysis should be carried out. It was demonstrated through the writing of his genealogies, archaeologies and other essays, and through the approach that he took and the insight he sought to obtain in relation to the power dynamics of societal constructions. His thinking on which was further expanded in various interviews and presentations, a number of which are still accessible in print, audio and video format (Rabinow 1991, Elders and Foucault 1971). Whilst Foucault was not prescriptive about steps for genealogical analysis, as many theorists are when setting out a methodological approach, in his essay 'Nietzsche, Genealogy, History', he did set out some principles for carrying out a genealogy (Foucault 1977). Foucault stated that genealogy should look for events that do not occur. When an event of interest occurs, consideration should include what could have occurred instead. A genealogy, he states, should not be the search for the 'lofty' and 'falsely held-up' origins of something to discover its essence, but rather the exploration of the fractures and accidents of history that set a particular path. In describing the detailed consideration of source material required to detect the 'insignificant truths', he states that 'genealogy requires relentless erudition (Foucault 1977, 140).

Before beginning the genealogical analysis, my first action in preparation for doing so was to familiarise myself with Foucault's work, in particular, my understanding of his genealogical method. This was even more important given the lack of a prescribed process, as noted above. In order to do this, I obtained a range of sources, from very basic introductory texts on his work, to more detailed accounts from scholars of Foucault, such as Rabinow (1991) to then reading the original work of Foucault (translated to English). As 'Discipline and Punish' (Foucault 1979) was noted to be his primary example of the genealogical method, this text was read in full. A number of other key original texts in English translation were obtained for reference (Foucault 1979, 1989, 1994, 1998, 2000, 2002, 2004, 2005, 2008, 2009). Most of Foucault's key texts were not published in English for several years, sometimes decades, after

their original publication in French. For example, 'History of Madness' was first published in English by Routledge in 2006 and in paperback in 2009 (referenced here), whereas the original publication of the book in French, 'Folie et Deraison: Histoire de la folie a l'age classique', was in 1961. References to Foucault's texts here are for the English publications and dates and, therefore, may differ significantly from the known original publication dates. Examples of published genealogies were also accessed to further elucidate the application of the method (Angioli and Kruger 1998, Meeth 2011, Hicks and Jeyasingham 2016).

On commencing the genealogical analysis, hard copies of the key historical sources, the five editions of the DSM, were purchased. Editions one and five were easily sourced as both were still in print. Editions three and four were also relatively easily found as a number of second hand copies were available. The second edition took significantly longer to obtain as it was no longer in print and having being published in 1968, very few original copies appeared to be in circulation. After several weeks searching online second hand bookshops, an affordable copy of DSM-II was found and purchased. These key sources were read and referred to numerous times in an iterative process. It was therefore essential to have copies of each edition to allow for this without needing to return them to a library, or to have to use them only in a library (as some library editions were found to be reference only copies). Each edition could then be examined without any additional time pressures. It was also essential to have the full original source. It would not have been possible to examine the source material in any valid way, for events previously unnoticed, if relying on another's interpretation of the contents of the manuals. The full manual, as well as the detail of the definitions and descriptions of the mental disorders contained within, also holds valuable information as to the approach at the time of publication, through sections such as the preface and introductory notes.

The editions of the DSM were worked through chronologically in turn, starting with DSM I (APA 1952). Each edition was read through, paying detailed attention to the contents section to identify how each manual was organised and the sections included. The content of the manual categories of relevance to delirium; the preface, introduction and any other sections included that discussed the manual overall. After the initial read through of the manual some preliminary notes were made. Following this the manual was reviewed two or three more times and further notes made in an iterative process of reading, considering, analysing and reading again. This process was then repeated for each of the other editions. Once this had been done a natural framework for the genealogy emerged in the form of three sections: the early period

of classification of Pre DSM, DSM-I and DSM-II; DSM-III and the change of direction; and the modern and current era of classification of DSM-IV and DSM-5 (APA 1952, 1968, 1980, 1994 and 2013). Further work was then carried out in these sections, chronologically. In establishing the context preceding the publication of DSM-I, the 'Statistical manual for the use of institutions for the insane' (APA 1918), was obtained and reviewed as outlined above for the DSM manuals.

For each section wider sources were then consulted. It was important that the stages of analysis discussed above were carried out prior to this, in order to prevent other interpretations or histories of the given time section interfering with the generation of initial ideas, thoughts and points of note about the texts. Once detailed notes for each edition had been made, other sources of information were consulted to build the picture of the context as the DSM evolved. Where possible, original articles from the time period considered were obtained rather than, or in addition to, more recent accounts. In addition to the six manuals obtained, 28 journal articles were included in the analysis; these were further supported by reference to relevant books (e.g. Scull 2015) and websites (e.g. APA 2020) Several different sources relating to each time period were accessed so that the understanding of context was not skewed by the interpretations of a single author. The genealogical analysis progressed in an iterative manner, moving back and forward between reading key texts and wider sources, making notes on emerging points of analysis, returning to the texts, and so on. This process was carried out for each of the three sections until a point of saturation appeared to have been reached and no further points of analysis were being identified. At this point, work moved on to the next section. Once this had been completed for all three sections, the analysis was then considered as a whole, to see if any further points of note surfaced when considering the genealogy in its entirety. When a point of saturation appeared to have been reached for the whole period being evaluated, the genealogical analysis was deemed to have been completed.

5.4 Synthesis of data via the genealogical lens

In order to achieve objective four (see 4.1) a Foucauldian genealogical lens was used to synthesise the findings from both data strands. Initially the findings from the survey were summarised and listed on a sheet of paper. These findings were then re-evaluated applying the aim and key concepts of Foucauldian genealogy as a theoretical lens (see 4.2, 4.3). The combination of the descriptive quantitative data and the free text narrative data, painted a picture of staff knowledge and behaviour in relation to ICU delirium to which the lens could be applied. From the evaluation, notes

were made and a mind map created of instances where examples of the normalising power formations could be seen in the survey data.

A list and map summarising the findings of the genealogical analysis of the DSM was then drawn up. These maps were then evaluated together, using the genealogical lens, in an iterative process of going back and forth between them to surface commonalities in the Foucauldian genealogical concepts apparent, and any relationship between them. A large joint map was created representing this. As key power formations evolved that were common to the synthesised data, each of these formations were represented on a separate mind map to allow for visualisation and further detailed notes and examples to be added. This process continued until no further common formations or relationships were seen and a point of saturation was felt to have been reached. At this stage the points identified for inclusion in the discussion were re-condensed into a list, in order to plan the framework of discussion. Examples of a mind map and a list created are shown below in figure 5 and 5.1.

Figure 5: Example of mind map created for data synthesis

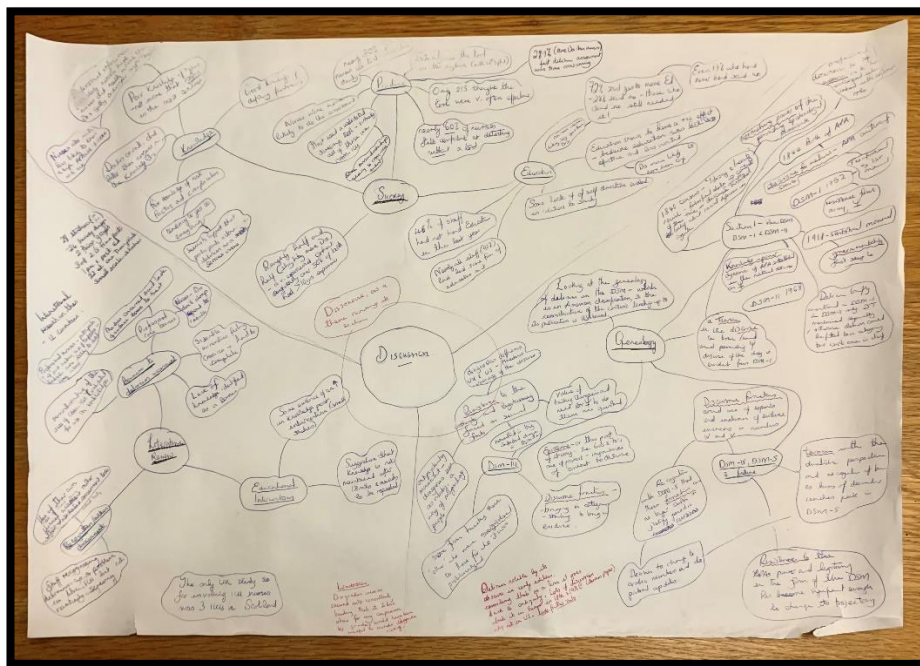
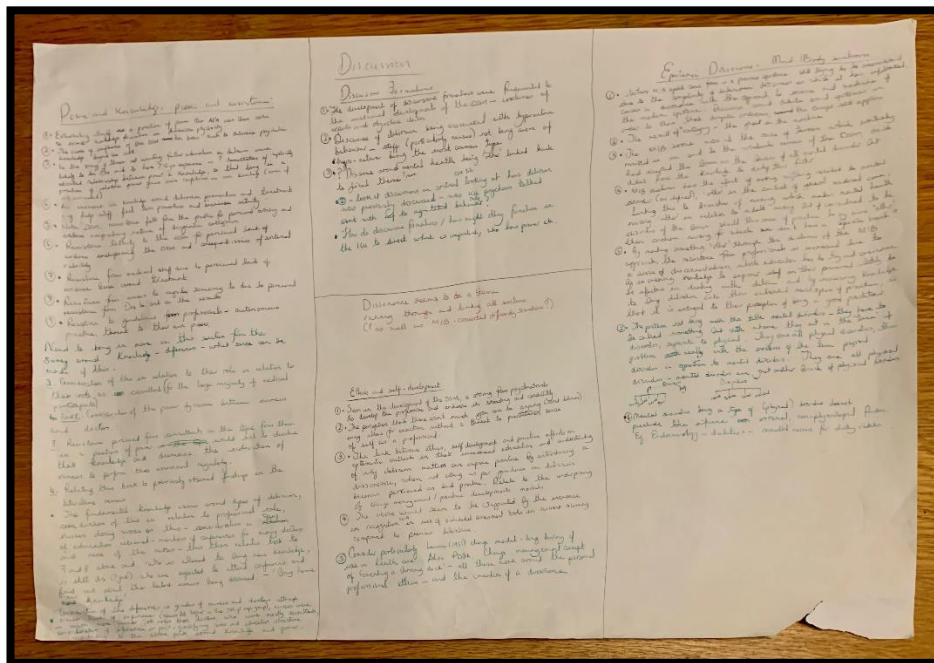


Figure 5.1: Example of a list created for data synthesis



5.5 Ethical approval

Ethical approval for the study was obtained from the School of Healthcare Science's Research Review and Ethics Screening Committee, at Cardiff University. In order to ensure informed consent for participation in the survey, an introduction to the study page was written which participants were initially taken to when clicking on the study link (see appendix four). The introduction page gave a brief overview of what the study was about and the style of the survey. Potential participants were also informed that the data from the survey may be submitted for publication but that any data would be anonymous. A contact email was provided to allow potential participants to ask questions about the study, if they wished to, before deciding whether to take part. All data from the survey was anonymous.

5.6 Chapter summary

This chapter has discussed the design and the processes followed in conducting the survey and genealogical analysis study. The rationale for the choice of survey tool, and the dissemination of this via a link to an online survey, have been identified. The process of recruitment and pilot testing have been discussed and the analysis identified. For the genealogical analysis, the preparation for applying a method for

which a step approach is not prescribed has been discussed, along with the key sources and process of analysis. The following chapter presents the findings of the survey.

Chapter Six: Survey Findings

6.1 Introduction

This chapter addresses the second study objective to: 'Carry out a survey of ICU nurses and doctors in the UK investigating their knowledge of and attitudes towards delirium and its assessment'. A picture of the survey participants will first be provided. Following this, findings will be presented in three sections. The first section will address the findings from questions that assessed participants' knowledge of ICU delirium. The second section will focus on questions related to assessment practice and attitudes toward this. The third and final section presents findings from questions that related to experience of and attitudes toward education and training about ICU delirium. In each of these sections, the potential associations between responses and profession, length of ICU service, time since last education or training on ICU delirium, and type of education or training received were considered. The chapter will finish with a summary of the survey findings.

6.2 Survey participants

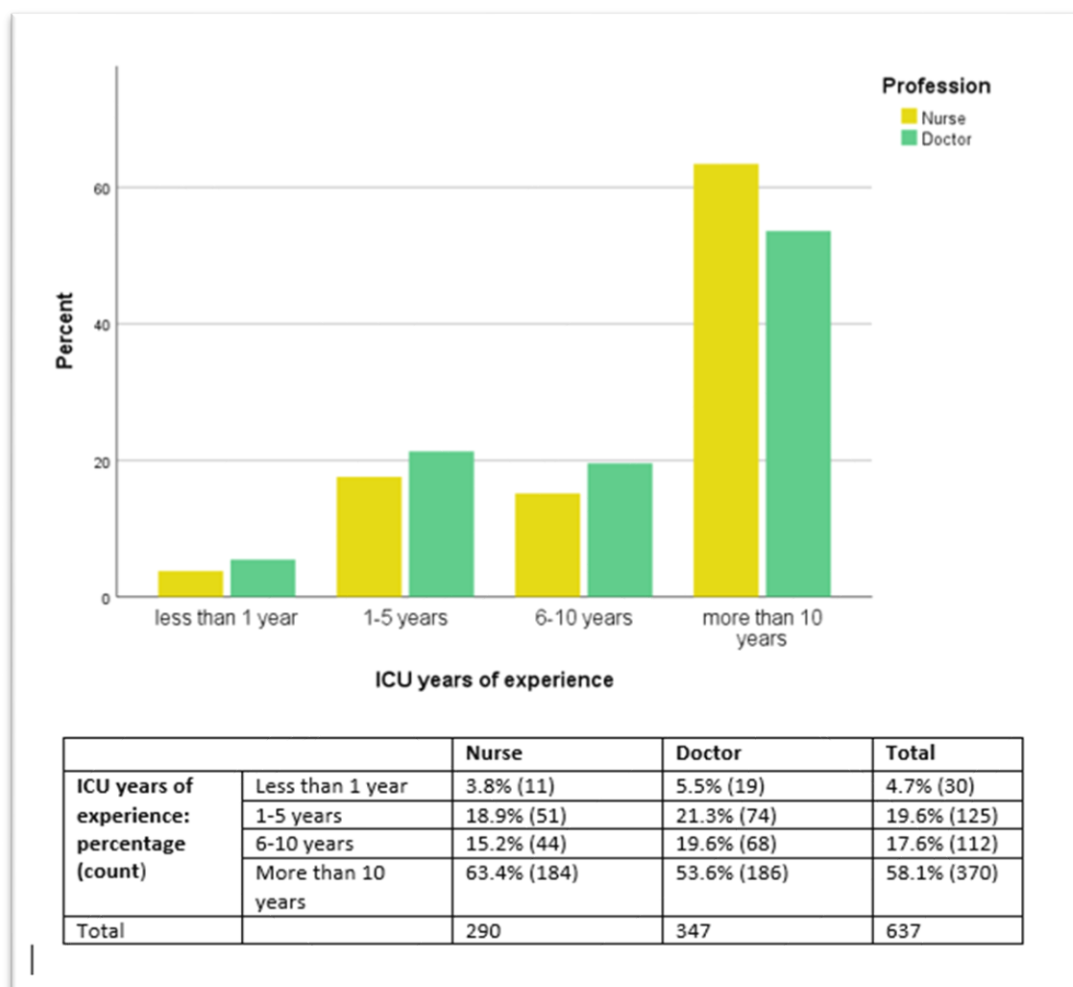
A total of 650 ICU nurses (n=302) and doctors (n=348) participated in the survey. Participants represented all four UK countries though, within this, England was most strongly represented, accounting for 84.2% (n=547) of participants. Nurse participants were spread across the bandings, from band five to eight, with the highest number of participants being in band five and the lowest number in eight (see 5.2.1 for discussion of nurse bandings and doctors' grades). Band six was split to show those who were in the post of sister at this banding, since this can vary between units. In comparison with the medical participants, the nurses were much more evenly spread across their grades. Doctors were represented across their grades from FY2 to consultant. However, the large majority were in consultant posts (72.7%). These demographic details are provided overleaf in table 6.

Table 6: Characteristics of survey participants

Profession	Nurses – 302 (46.5%)			Doctors 348 (53.5%)		
<i>(no response 4)</i>						
UK Country	England – 547 (84.2 %)		Wales – 63 (9.8%)	Scotland – 21 (3.3%)		Northern Ireland – 15 (2.3%)
<i>(no response 8)</i>						
Nursing Band	Band 5 - 99 (32.78%)		Band 6 -45 (14.9%)	Band 6 sisters – 43 (14.24%)	Band 7 – 80 (26.49%)	Band 8 – 35 (11.59%)
Medical Grade	FY1 - 0	FY2 - 2 (0.57%)	ST1 – 3 (0.86%)	ST2 – 10 (2.87%)	ST3 – 10 (2.87%)	
<i>(no response 1)</i>						
	ST4 – 19 (5.45%)	ST5 -14 (4.02%)	ST6 – 13 (3.74%)	ST7 – 24 (6.9%)	Consultant -253 (72.7%)	

Although the medical participants showed a much higher representation in the most senior grade or banding than the nurses, this was not reflected in years of experience. When the answers to this question were split according to profession, it showed that years of experience were more similar between the professions than the above grades/bandings would suggest, with nurses showing a greater number of participants with 10 or more years' experience than doctors, despite having less participants in the most senior roles. This is illustrated in figure 6. The participants were an experienced group of staff overall, with 58% having more than 10 years ICU experience.

Figure 6: Years of experience by profession



6.3 Knowledge of ICU delirium

Questions 8, 9, 10 and 11 of the survey addressed participants' knowledge of ICU delirium, including defining features, frequency of types, risk factors and complications of delirium.

6.3.1 Defining features

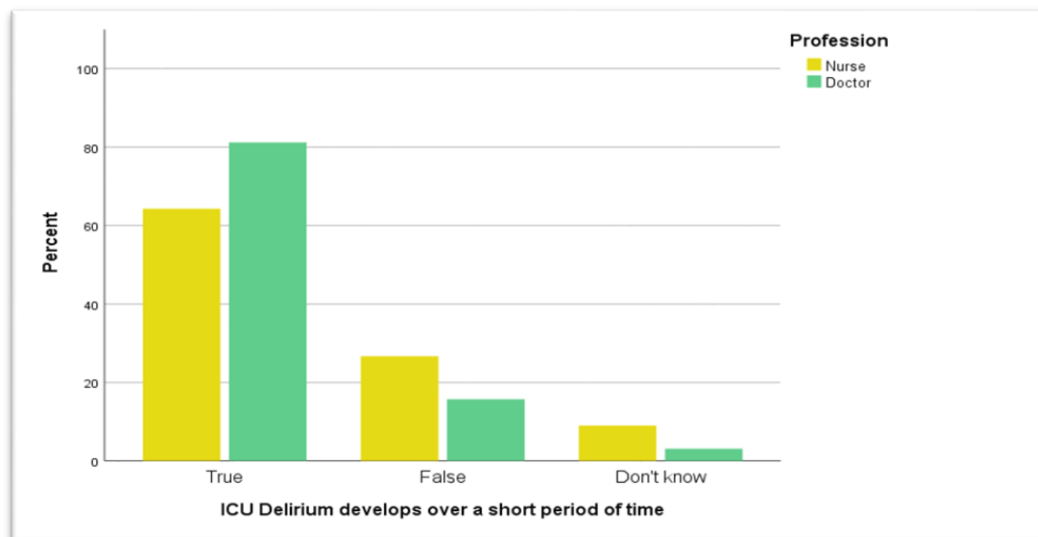
Overall, participants demonstrated very good knowledge of the defining features of delirium. In response to true/false statements, over 90% of participants chose the correct answer to four out of following five statements, demonstrating an awareness that:

- ICU delirium is an acute condition (95.9%)
- ICU delirium is characterised by fluctuating mental status (96.4%)

- Inattention is a symptom of ICU delirium (92.2%)
- Patients with ICU delirium are not always physically and/or verbally aggressive (98.7%).

The majority of participants correctly answered true to the fifth statement, that ICU delirium develops over a short period of time, though a lower percentage were correct (73.5%). For this statement, significantly more doctors (81.2%), than nurses (64.3%) answered correctly ($X^2(2) = 23.51$ $p < .000$). Responses for this question are illustrated in figure 6.1 below. No association was found with years of experience.

Figure 6.1: Responses to whether ICU delirium develops over a short period of time by profession



Responses to the statement as to whether delirium develops over a short period of time also varied according to how recently education had been received and the type of education. Of those who had received education/training within the last year, 75-80% correctly answered true to the statement, whereas only 68% of those who had never received training did. When the type of education was evaluated, those who received bedside training had had the lowest rate of correct answers compared to other types of education such as an organised study day or tutorial (see table 6.1). Further consideration of timing and types of education revealed that this had also demonstrated a difference in answers for the fifth statement in question eight, which asked whether inattention was a symptom of delirium. Those that had never had any education on the topic were less likely to answer correctly, a difference that reached significance when analysed with Fischer's exact test ($p = .009$). The type of education that had been received revealed a non-significant difference, with those that had

bedside training being least likely to answer correctly. Correct answers to these two statements are shown below in tables 6.1 and 6.2 for time since education and type of education respectively.

Table 6.1 Correct answers to ICU delirium statements by time since last education

Correct answer to - ICU delirium develops over a short period of time				
Time since last education	Less than 6 months	6-12 months	More than one year	Never
	80.1% (161)	75% (90)	68.9% (160)	68.1% (32)
Correct answer to – inattention is a symptom of delirium				
Time since last education	Less than 6 months	6-12 months	More than one year	Never
	95.5% (193)	92.5% (111)	92.2% (212)	78.7% (37)

Table 6.2 Correct answers to ICU delirium statements by type of education received

Correct answer to - ICU delirium develops over a short period of time						
Type of education received	Bedside teaching	Internet	Organised course	Organised study day	Tutorial	University lecture
	67.5% (83)	77.1% (47)	70.7% (29)	71.2% (89)	75.8% (47)	80.8% (21)
Correct answer to – inattention is a symptom of delirium						
Type of education received	Bedside teaching	Internet	Organised study day	Organised study day	Tutorial	University lecture
	86.3% (107)	96.8% (60)	92.7% (38)	91.9% (113)	98.4% (60)	96.2% (25)

6.3.2 Prevalence of delirium types in ICU

Participants showed a poor level of knowledge regarding how common the three types of delirium are in the ICU. Whilst for each ranking (most common, second most common and least common) the highest percentage of responses was to the correct type, for each rank the correct response was given by less than 50% of participants. This demonstrated that the majority were unable to correctly rank the prevalence of

different types of delirium. Of particular concern, given that it is the type most likely to be missed without the use of an assessment tool, was that the majority of participants were unaware that hypoactive is the most common type of ICU delirium. For each delirium type, doctors got a significantly higher percentage of correct answers. These findings are summarised in table 6.3 below. The percentage of participants overall choosing each type is first given and then shown by profession, along with the Chi² statistic for association with profession for each type. When considering both the most common type (hypoactive) and the least common type (hyperactive), it can be seen that nearly twice as many doctors as nurses, gave the correct answer.

Table 6.3: Ranking of ICU delirium subtypes prevalence

Hypoactive delirium					
	<i>Most common (correct answer)</i>	<i>Second most common</i>	<i>Least common</i>	<i>Don't know</i>	<i>Chi² statistic for association with professions</i>
Participants total	40.38%	31.1%	27.66%	1.71%	(3), = 33.69 p<.000*
Nurses	27.91%	35.66%	34.88%	1.55%	
Doctors	50.94%	27.19%	21.56%	0.31%	
Mixed delirium					
	<i>Most common</i>	<i>Second most common (correct answer)</i>	<i>Least common</i>	<i>Don't know</i>	<i>Chi² statistic for association with professions</i>
Participants total	32.22%	42.07%	20.87%	4.84%	(3), = 28.28 p<.000*
Nurses	30.29%	33.94%	28.47%	7.3%	
Doctors	33.54%	49.07%	14.6%	2.8%	
Hyperactive delirium					
	<i>Most common</i>	<i>Second most common</i>	<i>Least common (correct answer)</i>	<i>Don't know</i>	<i>Chi² statistic for association with professions</i>
Participants total	27.01%	23.93%	47.35%	1.71%	(3), = 64.15 p<.000*
Nurses	41.15%	25.77%	30.77%	2.31%	
Doctors	15.53%	22.36%	60.87%	1.24%	

A difference in the percentage of participants correctly identifying the prevalence rank of delirium was also seen when answers were considered alongside how recently participants had received education on delirium. Over 54% of those who had received education in the last year correctly identified hyperactive as being the least common

type, compared to 31.8% of those who had not received education on ICU delirium. Of those who had received education in the last year, 44.4% correctly identified hypoactive as the most common type, whereas only 23.8% of those that had not received education were aware of this. Across the three delirium types, of those who had received education in the last year, 48% gave the correct rank for each type, whereas for those not receiving education this was 28%. Whilst these differences would suggest a clear role for education in knowledge development, it is also acknowledged that of those receiving education in the last year, less than half knew the correct ranking of the three types (see table 6.4).

When the type of education was considered alongside participants' ranking of delirium types, those that had received bedside teaching were less likely to correctly identify the ranking of hypoactive and hyperactive delirium than those who had received other types of education. Only 33% of those who had received bedside training knew that hyperactive delirium is the least common type, compared to 50% of those who had attended an organised study day or had had internet-based training, and 60% of those who had attended an organised course. This may reflect a risk of informal teaching being more likely to pass on misunderstandings or leaving out vital information such as type prevalence (see table 6.4). Significant effects were either not found using Chi² test or were not reliable due to cell counts and were unable to be calculated with Fischer's exact test (see 5.2.4).

Table 6.4: Correct ranking of ICU Delirium types with time and type of education

Time since last education			
	Hypoactive correctly identified as most common type	Hyperactive correctly identified as least common type	Mixed correctly identified as second most common type
Less than 6 months	43.15% (85)	54.59 (107)	47.26% (95)
6-12 months	46.61% (55)	54.24% (64)	42.15% (51)
More than 1 year	38.01% (84)	41.07% (92)	40.97% (93)
Never	23.81% (10)	31.82% (14)	27.66% (13)
Type of education received			
	Hypoactive correctly identified as most common type	Hyperactive correctly identified as least common type	Mixed correctly identified as second most common type
Bedside teaching	31.9% (37)	33.04% (38)	40.65% (50)
Internet	45% (27)	50% (30)	45% (27)
Organised course	55% (22)	60% (24)	46.34% (19)
Organised study day	43.8% (53)	50.41% (61)	43.09% (53)
Tutorial	34.43% (21)	53.23% (33)	46.77% (29)
University lecture	32% (8)	44% (11)	36% (9)

6.3.3 Risk factors for ICU delirium

A varied level of knowledge was seen when participants were asked whether each of the 11 items presented were independent risk factors for delirium in the ICU (survey question 10). Four of the items were identified risk factors and seven were not. As can be seen in table 6.5, participants scored very highly in correctly identifying three of the four risk factors, with over 90% of participants correctly identifying each. For the fourth, a high APACHE–II score, 73.5% of participants correctly identified it as a risk factor. The APACHE-II score is a widely used tool for indexing the severity of condition, with a higher score indicating a sicker patient.

Table 6.5 Items correctly and incorrectly identified as ICU delirium risk factors

Participants correctly identifying items as risk factors for ICU delirium
<ul style="list-style-type: none"> • Alcohol – 92.4% (557) • High Apache II score – 73.5% (443) • Mechanical Ventilation – 90.8% (545) • Psychoactive medication – 95.4% (575)
Participants incorrectly identifying items as risk factors for ICU delirium
<ul style="list-style-type: none"> • Diabetes – 50.3% (303) • Female – 10.59% (63) • Hypoxia 94.2% (564) • Obesity – 14.4% (86) • Pain – 94.4% (570) • Sepsis – 97.5% (587) • Smoking 48.6% (292)

Significantly more doctors (86.7%) than nurses (57.6%) recognised a high APACHE-II score as a risk factor ($X^2 (2) = 71.72$ $p < .000$). The awareness of illness severity being a risk factor for ICU delirium was also significantly affected by length of service in ICU and time since last education. For those who had less than a year's service in ICU, 53.3% identified a high APACHE-II score as a risk factor, compared to over 70% for those with over one year's experience (1-5 years 70.3%; 6-10 years 81.9%; over 10 years 74.2%: $Chi^2 15.29 (6)$ $p = .019$). Participants who had received education on delirium at some point correctly identified this risk factor at a rate between 71.4% and 77.11%. This fell to 60.4% for those who had never received education/training on ICU delirium ($X^2 15.58 (6)$ $p = .016$). A non-significant difference was seen in correct identification of this risk factor when the type of education received was examined, with 59.8% of those participants who had received bedside training identifying it, compared to 71.8% to 88.7% for the other five types of education/training.

Of the seven remaining options, which have not been shown to be risk factors, three were incorrectly identified as being so by over 90% of participants. The identification of hypoxia, by 94.2% of participants, and sepsis, by 97.5% of participants, is understandable. Although not identified as independent risk factors, they are associated with a higher level of illness severity which is, in turn, related to ICU delirium. The same explanation may be relevant for the 94.4% of participants

identifying pain as a risk factor. Diabetes and smoking were identified as risk factors by around half of participants. This too may relate to a perceived association with illness severity via likely co-morbidities. In answering whether diabetes was a risk factor, nurses were significantly less likely to incorrectly answer 'true' (38.6%) than doctors (60.5%). No other associations were apparent between the identification of risk factors and profession, ICU experience or ICU delirium education.

6.3.4 Complications of ICU delirium

Participants were presented with seven potential associated complications of ICU delirium, and asked to say which were correct. Responses indicated the potential seriousness with which they viewed ICU delirium, as they positively identified six out of seven items as being associated complications, though this was only correct in the case of four. See table 6.6 below.

Table 6.6 Correct and incorrect identification of ICU delirium associated complications

Participants correctly identifying items as associated complications of ICU delirium
<ul style="list-style-type: none"> • Extended ICU stay – 99% (600) • Extended hospital stay – 96.9% (587) • 6 month mortality – 70.3% (424) • Dementia – 42.3% (255)
Participants incorrectly identifying items as associated complications of ICU delirium
<ul style="list-style-type: none"> • Reintubation – 88.4% (531) • Self-extubation – 85.7% (517) • Immobility - 84.1% (507)

As can be seen, nearly all participants correctly identified extended ICU and hospital length of stay as complications of ICU delirium. The third complication, 6-month mortality, was correctly identified by 70.3% of participants and answers were affected by profession, type of education and time since education. Significantly more doctors (82.8%), than nurses (55.3%) ($X^2(2) = 53.98$ p.000) identified 6-month mortality as a complication. Those who received bedside teaching as their form of education were least likely to correctly identify this complication, at 46.7% compared to 60% to 86.9%

for other forms (X^2 (60.42 (2) p- .000). A non-significant difference was seen when time since last education was considered, with those who had received education in the last 6 months most likely to correctly identify 6-month mortality as a complication (76.5%), compared to those who had received education less recently (6-12 months, 71.9%; over 1 year, 66.5%; never, 60.4%). A minority of participants were aware of the associated complication of dementia. No associations were seen between other variables.

Three items were incorrectly identified as complications by the large majority of participants: immobility, re-intubation and self-extubation. It is notable that two of these, self-extubation and reintubation, would be more associated with the restlessness of hyperactive delirium. Their identification as associated complications may be reflective of participants over-estimating the prevalence of this type. There was a significant association with profession noted, with nurses being less likely to identify both factors as complications. Self-extubation was identified by 78.6% of nurses and 91.7% of doctors (X^2 13.01 (2) p- .001). Reintubation was identified by 85.1% of nurses and 91% of doctors (X^2 23.38 (2) p-.000). No other associations were seen for the complications incorrectly identified.

6.4 ICU Delirium related assessment practice

Questions 12 – 22 asked participants about delirium-related assessment practice and attitudes towards this. Three aspects of delirium-related assessment practice were addressed in the survey: ICU delirium assessment tools, screening practice, and confidence in practice.

6.4.1 ICU delirium assessment tools

Participants were asked whether their unit used a validated ICU delirium screening tool, to which a very large majority replied 'yes' (92.7%). There was a small but significant difference between the professions, with nurses more likely to say 'yes' than doctors (X^2 (2) = 6.108) (see table 6.7). The amount of time since participants had received education or training on ICU delirium also showed a significant effect on participants' responses to this question. Those who had never received education were less likely to say 'yes' to use of a validated tool and more likely to give the answer 'don't know' (Fischer's exact test p -.000). Those participants with the least experience, less than one year in ICU, were less likely than other groups to say 'yes' to their unit having a validated tool and more likely to report that they did not know, but this difference was not statistically significant (see table 6.7).

Table 6.7 Use of a validated tool for ICU delirium screening

		Yes	No	Don't know
Overall		92.69% (545)	4.59% (27)	2.72% (16)
Profession	Nurses	95.52% (256)	2.61% (7)	1.87% (5)
	Doctors	90.22% (286)	6.31% (20)	3.47% (11)
Years of ICU experience	Less than 1 year	78.57% (22)	3.57% (1)	17.86% (5)
	1-5 years	88.7% (102)	4.81% (5)	5.22% (6)
	6-10 years	94.23% (98)	4.81% (5)	0.96% (1)
	More than 10 years	94.58% (314)	4.22% (14)	1.2% (4)
Time since last education on ICU delirium	Less than 6 months	95.94% (189)	1.52% (3)	2.54% (5)
	6-12 months	94.74% (108)	4.39% (5)	0.88% (1)
	More than 1 year	92.04% (208)	6.19% (14)	1.77% (4)
	Never	76.6% (36)	10.64% (5)	12.77% (6)

Those participants who said that their unit did not use a validated screening tool were asked to state, in a free-text response, what means they used to screen for delirium. Thirty-eight participants, 16 nurses and 22 doctors, completed this question. The answers provided demonstrated some misunderstanding, from both professions, about assessment for delirium in ICU. The CAM-ICU was mentioned by 11 participants (7 nurses and 4 doctors). Having already answered that their unit did not use a validated tool, these participants clearly were not aware that the CAM-ICU is one. Other scoring systems, not designed to assess for delirium, were identified in the answers. One nurse mentioned the Glasgow Coma Score (GCS), which is derived from a scale designed to assess and communicate a patient's level of consciousness, not the quality of that consciousness. The Richmond Agitation and Sedation Scale (RASS) was mentioned by five of the nurses. The RASS is a scale widely used in ICU to determine how sedated a patient is but, again, without assessing the quality of the consciousness. One of the doctors stated, 'We have a sedation scoring system, but it isn't good at detecting delirium'. Four of the doctors simply stated that nothing was used, without further comment.

From some respondents there appeared to be a lack of awareness of the unreliability of clinical assessment without the use of a validated tool in detecting delirium in the ICU, as six of the doctors gave clinical evaluation at the bedside as the means of assessment they used. Responses also suggested that in their clinical assessments, participants were looking for patient behaviours that would be associated with hyperactive delirium, with seven doctors and one of the nurses mentioning agitated or aggressive behaviour. None of the participants mentioned characteristics of hypoactive delirium such as motor retardation or the patient appearing withdrawn. Hallucinations, which are often but not always experienced, and are not diagnostic of delirium, were mentioned by eight participants (1 nurse and 7 doctors). The responses from two of the doctors indicated that they had concerns about delirium assessment within their units. One stated: 'About to launch validated tool. At present rely on questioning and clinical observations. Hence feel hyperactive delirium reported more often but do not know if incidence of hypoactive delirium under reported in ICU environment'. A second doctor simply stated, 'At present this is done extremely poorly. Hopefully we will improve this in the near future'.

For questions relating to awareness and use of screening tools, participants were asked about the following: the CAM-ICU tool, the ICDSC tool; the Neelon and Champagne Confusion Scale (NEECHAM); the Nursing Delirium Screening Scale (Nu-DESC); and, the Delirium Detection Score (DDS). Nearly all participants were aware of the CAM-ICU (95%) and a sizeable minority were aware of the ICDSC (37%). Awareness was much lower for the other assessment tools. For two of the assessment tools, the differences between the two professions was found to be significant. A small but significant difference was seen for the CAM-ICU ($X^2(1) p = .003$), with higher numbers of doctors being aware of the tool in comparison to nurses. For the ICDSC, there was a larger significant difference between the professions, also showing a higher number of doctors to be aware of the tool in comparison to nurses ($X^2 12.33(1) p = .000$) (see table 6.8)

Table 6.8 Awareness of delirium assessment tools

Assessment tool	Total	Nurses	Doctors
	Aware of	Aware of	Aware of
CAM-ICU	95.04% (556)	92.05% (243)	97.48% (310)
ICDSC	37.01% (215)	29.17% (77)	43.31% (136)
NEECHAM	6.74% (39)	4.92% (13)	8.01% (25)
Nu-DESC	7.09% (41)	4.92% (13)	8.68% (27)
DDS	16.81% (97)	12.55% (33)	20.26% (63)

Awareness of the CAM-ICU and ICDSC was also significantly affected by the time since education/training on ICU delirium. For the CAM-ICU, those who had received education on ICU delirium, at any point, showed an awareness of the tool at a rate of 95.7% to 96.9%. Whereas, for those who had never had training, this fell to 80.9% (X^2 21.94 (1) p-.000). For the ICDSC, those who had received education in the last six months showed an awareness of 46.7%. This fell to 30.4% and 34.5% for those who had received education 6 – 12 months ago or more than a year ago respectively, and to 25.5% for those who had never received education (X^2 13.16 (1)p-.004). The type of education received was found to affect the responses for one of the tools, the ICDSC, where those who had received bedside training had a lower awareness of the tool (19.3%), compared to each of the other education methods (36.2%-50.5%) (X^2 26.74 (6) p-.000).

6.4.2 Screening practice

Participants were asked how often they used the screening tools discussed above, ranging from 'never' to 'very frequently'. For each of the tools, with the exception of the CAM-ICU, over 90% answered 'never'. The CAM-ICU was used by 92.8% of participants. The breakdown of frequency is given in table 6.9.

Table 6.9 Frequency of use for CAM-ICU

Never	Rarely (< once in 6 months)	Occasionally (once a month)	Frequently (once a week)	Very frequently (daily)
7.2% (41)	6.8% (39)	9.3% (53)	21.2% (121)	55.4% (316)

As can be seen, just over half of those using the tool did so daily, followed by weekly. The figure for daily is lower than might be expected given the fluctuating nature of delirium. As may be expected, nurses were significantly more likely (62%) than doctors (50.6%), to carry out daily assessment (X^2 15.75 (4) p -.003). However, this still left 29.8% of nurses who said they used the CAM-ICU but did so less frequently than daily. More experienced staff were likely to use the tool more frequently, with 25% of staff that had less than one year's ICU experience likely to say they never used the tool, compared to 2% to 9.8% of more experienced staff. Of staff with over 10 years' experience, 60.3% said they used the tool daily, compared to 46.4% to 54.9% of less experienced groups (X^2 58.62 (12) p .000). Education/training on ICU delirium was also a significant factor with 56.8% of those who had never received education giving the answer of 'frequently' or 'very frequently', compared to 73.1% to 85.9% of participants who had received education, regardless of how long ago (X^2 58.62 (12) p .000). The form of education received did not demonstrate any association.

Participants were then asked to further break down how frequently they carry out delirium screening. Despite only 62% of nurses stating previously that they carried out daily assessments, a total of 70.5% of nurses stated that they performed this once, twice or three times per shift (see table 6.10). It was surprising to note that less than half of the nurses, and just over a third of all participants, stated that they would carry out assessment in response to a change in the patient's mental status. However, it is possible that participants did not realise that they were able to select more than one answer for this question, and thought that selecting this would suggest that this was the only time that they performed the assessment. When asked, in a separate question, whether they would perform additional screening if there was a fluctuation in the patient's mental status, 87.5% of nurses and 78.7% of doctors said 'yes' (X^2 7.62 (1) (p -.006). Apart from profession, the other variable seen to influence this response was education or training. Of participants who had never received education on ICU delirium, 65.9% said that they would perform extra screening, compared to 82.6% to 86.1% of participants who had received education, regardless of how long ago it was (X^2 10.5 (3) p -015). Other than profession, no patterns of association in shift frequency of assessment were seen from other variables such length of experience, or time and type of education.

Table 6.10 Shift frequency of delirium assessment

Profession	Once per shift	Twice per shift	Three times per shift	Change in patients mental status	N/A	Other (please state)
Total	48% (281)	14% (82)	3.4% (20)	36.9% (216)	5.8% (34)	10.9% (64)
Nurses	47.9% (127)	17.7% (47)	4.9% (13)	47.6% (126)	1.9% (5)	10.2% (27)
Doctors	48.3% (153)	11% (35)	2.2% (7)	28.1% (89)	8.5% (27)	11.7% (37)

Twenty-seven nurses and 37 doctors took the opportunity to provide free-text responses, having ticked the 'other' option in response to question 18 which asked how often, on average, participants screened for ICU delirium. Eleven of these responses either repeated options already offered, or gave them in a different format, such as the number of times per day rather than per shift. Thirteen of the doctors responded to say that it was the nursing staff, rather than them, who performed the delirium assessment, which could explain the lower rates of assessment given by doctors. There were some positive comments noted, that demonstrated a tendency for more frequent assessment in response to the patient's mental status: '2-4 hourly if the patient is positive for ICU delirium', (nurse); 'any in-between as clinically indicated', (nurse); and, 'throughout the shift and inform doctors of psychological concerns', (nurse). However, there were also a number of more concerning statements that did not suggest that the screening was a valued assessment: 'the policy is to screen once a shift but it never gets done', (doctor); 'when staff remember', (nurse); 'when apparently needed, maybe 2 or 3 times a week' (doctor); and, 'when we have a talk reminding staff of the importance of screening' (doctor). One doctor stated, 'on suspicion of delirium'. This would raise the question as to what would make them suspicious of delirium, given that it is recognised that hypoactive delirium is often missed without routine screening using a validated tool. The risk of missing hypoactive delirium due to lack of appropriate screening was also highlighted by a comment from one of the nurses, who stated: 'hyper-delirium often seen easily, hypo-delirium I personally ask my patients questions about seeing things, hallucinations, sleep etc.'

As well as the frequency of assessment, participants were asked whether they performed delirium assessments during the day, at night or both (see table 6.11). As may be expected, doctors were more likely to only screen patients during the day, as they would be carrying out ward rounds and routine care during this time and overnight would be mostly focused on urgent or emergency issues. The findings previously discussed could also explain the larger number of doctors ticking 'N/A'. These professional differences were found to be significant (X^2 29.3 (2) p -0.000). Nurses would be the professional responsible for monitoring the patient at the bedside, throughout the 24-hour period. However, only 72.5% said that they carried out delirium screening during both day and night shifts. Given that patients are not going to be asleep for the whole 12 hours of the night shift (or awake for the whole 12 hours of the day), the decision to only screen within the 12 hours of the day shift would appear to be an arbitrary one, and one that leaves half of every 24 hours unassessed for delirium. Other variables such as ICU experience, and time and type of education, did not offer any patterns of association.

Table 6.11 Screening and time of day

Profession	Day (08:00-20:00)	Night (out of daytime hours)	Both	N/A
Total	34.5% (202)	0% (0)	60.3% (353)	5.13% (30)
Nurses	24.5% (65)	0% (0)	72.5% (265)	3.0% (8)
Doctors	43.2% (137)	0% (0)	50.5% (160)	6.31% (20)

Participants were asked whether they found the screening tools easy to use and whether they felt they were time consuming. Categories for whether participants found tools easy to use ranged from 'never' to 'almost always', with an option for 'not used' (see table 6.12). As the vast majority of participants only used the CAM-ICU, further analysis was focused on answers pertaining to this tool only. Findings showed that the majority of staff find the tool easy to use. Association with profession was seen, with doctors being more likely to say that they almost always found the tool easy to use, though this association was not significant. The only other variable where a difference was apparent in the rating for ease of use was education, with 40% of participants who had never received education rating the tool as almost always easy to use, compared with 57.4% to 64.6% of those who had previously received education or training.

Table 6.12 CAM-ICU found to be easy to use

Profession	Not used	Never	Rarely	Sometimes	Almost always
Total	7.2% (42)	.69% (4)	3.78% (22)	29.4% (171)	58.9% (343)
Nurses	9.1% (24)	.76% (2)	3.79% (10)	31.8% (84)	54.6% (144)
Doctors	5.7% (18)	.63% (2)	3.8% (12)	27% (85)	62.9% (198)

When asked whether they felt that screening was time-consuming, 71.1% of participants said 'no' and 28.9% said 'yes'. There was a non-significant difference between professions, with a higher percentage of doctors (31.9%) than nurses (25.2%) saying that they found delirium screening to be time-consuming; a finding that might be expected as nurses would be likely to be performing the screening more regularly. A non-significant increase was seen for those who had never received delirium education in their rating of screening as time-consuming, at 43.9%, compared to 26.5% to 30% for those who had previously received education at some point.

6.4.3 Confidence in practice

Participants were asked about their confidence in both the screening tools used for assessment and in their own practice. When asked whether they felt screening tools correctly detected delirium, 66% of participants felt they did so 'always' or 'very often', thus leaving a third of participants who felt this was not the case (see table 6.13). This figure is surprising, given the very high sensitivity and specificity established for the CAM-ICU (see 2.3.4), that 92% of participants use. No association with profession was found for this question. However, non-significant associations were seen with ICU experience and education. For participants with less than one year's experience in ICU, 46.4% rated the screening tool as 'always' or 'very often' accurate, whereas this was 61.6 to 72.1% for more experienced staff. Of participants who had never received education or training on ICU delirium, 50% rated accuracy as 'always' or 'very often', compared to 61.6% to 70.9% of those who had received education at some previous point.

Table 6.13 Confidence in screening tools to correctly detect ICU delirium

Always	Very often	Sometimes	Rarely	Never	N/A
3.5% (20)	62.6% (363)	31.4% (0)	1.21% (7)	0% (0)	1.4% (8)

Participants were asked to consider their confidence in relation to three aspects of practice: their ability to explain what ICU delirium is; their ability to identify its risk factors; and, their ability to detect delirium without a screening tool. For all of the questions, a significant association with profession was seen. The findings for each question are summarised in table 6.14. Overall, participants were confident in their abilities to explain what delirium is and to identify its risk factors, with doctors more likely to be very confident in both questions (Fischer's exact p-.000). A non-significant association was found with both ICU experience and education, and confidence in explaining ICU delirium, with 64.3% of those with less than one year's ICU experience rating themselves as 'confident' or 'very confident', compared to 82.2% to 93.9% of more experienced staff. Of those staff who had never received education/training, 69.6% rated themselves as 'very confident' or 'confident', compared to 85.1% to 93.9% of participants who had received education at some point previously.

A similar picture was seen when it came to participants' confidence in identifying risk factors. Those who had less than a year's experience in ICU were less likely (64.3%) to identify as 'confident' or 'very confident' than more experienced staff (71.4% to 86.5%). Those who had never received education on delirium were less likely (54.4%) to feel confident or very confident than those who had received education at some previous point (78.3% to 88.3%).

It was concerning to note that the majority of participants also felt confident in their ability to detect ICU delirium without the use of a screening tool. A significant professional association was noted, with nurses being more likely to rate themselves as 'confident' or 'very confident' in comparison with doctors (X^2 29.66 (3) p-.000). It was found that 68% of nursing staff, who would be the ones most likely to carry out delirium screening, were confident or very confident to do this without use of a screening tool. Across participants, a non-significant increase was seen as staff became more experienced, with ratings of 'confident' or 'very confident' for detecting delirium without a screening tool being: 42.9% in those with less than one year's experience; 46.4% for 1 – 5 years' experience; 55.8% for 6 – 10 years' experience; and, 60.7% for those with more than 10 years' experience. No associations were

noted with time or type of education. This association with years of experience is concerning as it would seem likely that the more senior or experienced staff would have a greater role in the education and training of junior staff members.

Table 6.14 Confidence in practice by profession

Confidence in:		Very confident	Confident	Unconfident	Very unconfident
Explaining what ICU delirium is	Nurses	20.1% (53)	62.5% (165)	16.3% (43)	1.1% (3)
	Doctors	32.9% (103)	59.4% (186)	6.7% (21)	1% (3)
Identifying risk factors	Nurses	13.7% (36)	60.8% (160)	24% (63)	1.5% (4)
	Doctors	20.1% (63)	67.4% (211)	11.5% (36)	1% (3)
Detecting ICU delirium without using a screening tool	Nurses	9.1% (24)	58.9% (155)	28.5% (75)	3.4% (9)
	Doctors	4.8% (15)	40.9% (128)	48.6% (152)	5.8% (18)

6.5 Delirium education and training

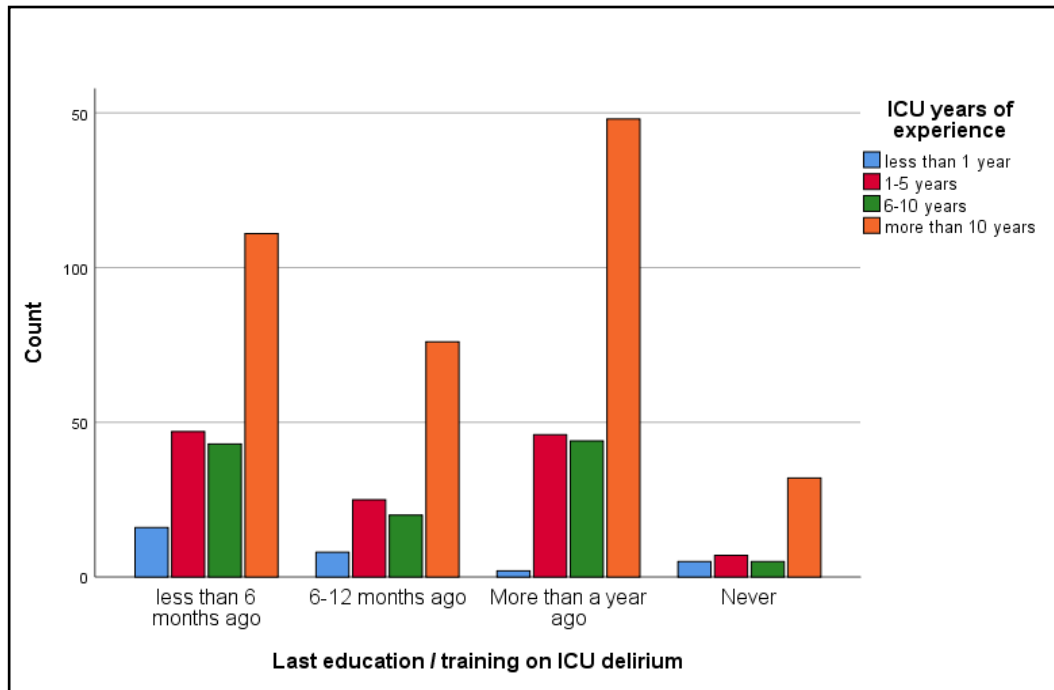
Questions 6, 7, 23 and 24 asked participants about their experiences of, and preferences, in relation to education and training on ICU delirium. Nearly all participants (92%) had received some form of education or training. How recently participants had received education was examined for the group overall and then in relation to profession, length of ICU experience and type of education. Doctors had received education more recently than nurses, though this difference did not quite reach statistical significance ($X^2(3) = 7.16$ p-.067). It is notable that 51.7% of nurses and 41.4% of doctors had not had any education or training in relation to ICU delirium within the last year (see table 6.15)

Table 6.15 Time since last education with profession and ICU years of experience

Time since last education/training on ICU delirium	Participants overall	Nurses	Doctors	ICU years of experience			
				Less than 1 year	1-5 years	6-10 years	More than 10 years
Less than 6 months ago	34.1% (221)	29.67% (89)	37.68% (130)	51.61% (16)	37.6% (47)	38.39% (43)	30.25% (111)
6-12 months ago	19.91% (129)	18.67% (56)	20.87% (72)	25.81% (8)	20% (25)	17.86% (20)	20.76% (76)
More than 1 year ago	37.96% (246)	43.0% (129)	33.91% (117)	6.45% (2)	36.8% (46)	39.29% (44)	40.33% (148)
Never	8.02% (52)	8.67% (26)	7.54% (26)	16.13% (5)	5.6% (7)	4.46% (5)	8.72% (32)

When the recency of education on ICU delirium was considered, alongside years of experience in ICU, a significant association was found ($X^2(9) = 20.62$ p = .014). Those who had less than one year's experience were more likely to have received education on ICU delirium in the last 6 months than other groups, which may reflect education included in an initial preceptorship program. Perhaps predictably, they were also least likely to have had education more than a year ago. The answers of those with over 10 years' experience in ICU, representing the majority of both nurses and doctors in this study, showed that 40.33% had not had any education or training on delirium in the last year (the largest cell in the cross tabulation) and 8.72% had received none at all. The association of length of service in ICU and recency of education on delirium is illustrated in figure 6.2. Although only representing a small number of participants (n=5), the largest percentage (16.13%) that reported having received no education at all on the subject was those with less than one year's experience working in ICU (see table 6.2). For nursing participants, this would be surprising as current education guidelines recommend following a framework in the first year that includes delirium as a subject area (FIMS & ICS 2019). On examination of the data, one of the participants in this position was a nurse and the other four were doctors.

Figure 6.2 Recency of education or training on ICU delirium by ICU years of service



When asked if they would like further education/training on ICU delirium, 72.66% of participants said 'yes', while 27.34% said 'no', suggesting the majority of participants felt they would benefit from knowing more about the topic. Those that said they did not want any further education or training were mostly doctors with more than 10 years' experience. They were also, however, likely to have made some of the same errors in relation to delirium knowledge and practice as previously identified for the wider group, such as the majority not realising that hypoactive was the most common delirium type and the majority feeling confident to assess for delirium without the use of a tool. These characteristics are summarised in table 6.16.

Table 6.16 Noted characteristics of participants not wanting further education / training on ICU delirium

Profession	Nurses - 24.84% (39) / Doctors - 76.16% (118)
ICU years of experience	Less than 1 year - 0.64% (1) / 1-5 years - 10.9% (17)/ 6-10 years - 23.08% (29) / Over 10 years 65.38% (102)
When education or training on ICU delirium was last received	Less than 6 months - 44.3% (70) / 6-12 months - 18.35% (29) / more than 1 year ago - 32.28% (51)
Knowledge of delirium	Correctly identified hypoactive as the most common type - 46.45% (72) Correctly identified dementia as a complication – 47.13% (74)
Practice	Confident or very confident in detecting delirium without the use of a screening tool – 56.33% (89)

When the desire for further education or training was considered in relation to profession, a significant association was found, with 85.17% (n=224) of nurses saying 'yes' compared to 62.18% (n=194) of doctors ($X^2 (1) = 38.0$ p-.000). A significant association was also found between the desire for further education and length of ICU experience, time since last education and the type of education. Although they were the most likely to have had education on the topic in the last six months, those with less than a year's ICU experience were the most likely to want further education/training. Unsurprisingly, those who had never received previous education were most likely to say 'yes'. Those who had previously had education/training in the form of bedside teaching or a university lecture were most likely to want further education (see table 6.17)

Table 6.17 Factors associated with desire for further education / training on ICU delirium

Numbers of participants who wishes to have further education / training on ICU delirium					
ICU years of experience	Less than 1 year – 96.3% (26)	1-5 years – 84.82% (95)	6-10 years – 65.38% (68)	Over 10 years – 68.71% (224)	$X^2 (3) = 21.22$ p-.000
Time since last ICU delirium education / training	Less than 6 months – 64.1% (125)	6-12 months – 73.87% (82)	More than 1 year – 77.03% (171)	Never – 82.61% (38)	$X^2 (3) = 11.64$ p - .009
Type of education / training previously received	Bedside teaching - 86.21% (100)	Internet – 66.67% (38)	Organised course – 74.36% (29)	Organised study day – 68.33% (82)	$X^2 (6) = 23.9$ p-.001
	Tutorial – 71.19% (42)	University lecture - 87.5% (21)			

Participants were asked about the type of education/training they had previously received about ICU delirium and what they would like to receive in the future. Potential associations between these and other factors were considered. The types of education previously received were spread across the seven categories asked about, with the two most commonly experienced being bedside teaching (22.37%) and an organised study day (21.88%). However, when participants were asked about their preference for future education, an organised study day was a clear favourite at 34.47% with only 12.24% expressing a preference for bedside teaching (see table 6.18). The contrast between the two sets of responses would raise the question as to how well the style of education/training provided fits with individual preferences. An interesting point of note was that over twice the percentage of participants who had previously received education from the internet wanted to receive education in this form. As internet access to information on ICU delirium would seem the most amenable to self-directed study, it raises the question as to why these participants had not undertaken such training independently. In table 6.18, notable differences may be observed between the frequencies and corresponding percentages in the first question when compared to the second. This is because 608 participants answered

the first question, about the education they had previously received, whereas only 441 participants answered the second question, as to which type of education they would prefer in the future.

Table 6.18 Type of education / training received and preferred overall and by profession

	Bedside teaching	Internet	Course	Study day	Tutorial	University lecture	Other
Education previously received:	1) 22.37% (136)	10.53% (64)	7.24% (44)	21.88% (133)	10.86% (66)	4.28% (26)	22.86% (139)
1) Overall							
2) Nurses	2) 37.23% (105)	3.9% (11)	3.55% (10)	25.53% (72)	5.32% (15)	6.38% (18)	18.09% (51)
3) Doctors	3) 9.6% (31)	16.41% (53)	10.53% (34)	18.58% (60)	15.79% (51)	2.48% (8)	26.63% (86)
Preferred future education:	1) 12.24% (54)	23.81% (105)	16.55% (73)	34.47% (152)	7.03% (31)	7.03% (31)	4.76% (21)
1) Overall							
2) Nurses	2) 15.38% (36)	14.1% (33)	19.23% (45)	42.31% (99)	3.42% (8)	1.28% (3)	4.27% (10)
3) Doctors	3) 8.78% (18)	34.63% (71)	13.66% (28)	25.37% (52)	11.22% (23)	.98% (2)	5.37% (11)

A significant interaction was noted between profession and both the type of education that had previously been received ($X^2 (6) = 112.17$ p- .000) and that which was preferred for future education ($X^2 (6) = 44.26$ p-.000).

For questions that asked about the form of education received or preferred, participants were given the option of 'other' with space to type in a free text-answer. In relation to the form of education or training previously received, 51 nurses and 86 doctors provided free-text responses. Several of these were to confirm that the participant had received no education or training, or that they had received education via a combination of the options in the question, with a number of responses repeating options available in the question list such as study day or the internet. The responses

from both nursing and medical participants did, however, also highlight various methods of education or training that were not included in the question, such as: having a role in teaching/training staff about ICU delirium themselves; being involved in audit and guideline development; in-house teaching sessions both in ICU and hospital-wide; and, general self-directed study. Two modes of education/training were notably different in how frequently they were mentioned by the two professions. Conference presentations were mentioned by 28 of the doctors but only 3 nursing staff, suggesting that a difference in how large a role conferences play in their educational development. Journal articles were specifically mentioned by 10 doctors and journal clubs by 2, neither of which were specifically mentioned by nurses. Again, this suggests a difference in the experiences of nursing and medical staff in their professional educational development.

There were fewer free-text responses in relation to the format that participants would like future education to take, with responses provided by 10 nurses and 11 doctors. A preference for a mixture of types was expressed by both nurses and doctors, as were the terms 'e-learning' and 'web-based'. Three nurses stated that they would like an update on current thinking, while one of the doctors stated, 'I want to know about it as much as diagnosis', and another simply stated, 'more research'. One of the nurses stated, 'I think we need to re-evaluate CAM scoring and educate based on that'. What specifically the participant felt needed to be re-evaluated about the CAM-ICU or the preferred mode of education, was not specified. No specific alternative formats of education/training to those listed in the question were identified in the free-text answers. It was notable that despite 31 participants having identified conferences as having been a form of education that they had previously had on the topic, no participants mentioned this as a preferred form for future education.

6.6 Chapter summary

This chapter has reported findings from a survey addressing the knowledge, attitudes and practice of UK ICU staff in relation to ICU delirium. This is the first UK survey to obtain this data from nurses in England. The survey has found that staff recognise ICU delirium to be a condition with a number of serious potential complications. It has also shown, however, that there is a lack of understanding as to the form in which ICU delirium is most likely to present and, potentially related to this, a lack of appreciation as to the importance of the use of a validated screening tool. Whilst the majority of participants were aware that ICU delirium fluctuates in its presentation, the corresponding appreciation for the need for frequent and regular screening was not

apparent. A positive impact of education on ICU delirium was apparent, with a suggestion that bedside teaching was less effective than some other methods.

Chapter Seven - Genealogical Analysis

7.1 Introduction

This chapter addresses the third study objective to: 'Carry out a Foucauldian genealogical analysis of the evolution of the definition of delirium in the Diagnostic and Statistical Manual (DSM) produced by the American Psychiatric Association (APA) from 1952-2013'. A Foucauldian genealogical approach was utilised in order to view the evolution of the current delirium definition through a different lens to that which would have been provided by a traditional historical analysis, and thereby allow for potentially unique insights to be uncovered as to how this evolution may have influenced current perceptions of delirium. As discussed in chapter four, a genealogical historical analysis of a topic recognises the contingent, non-linear nature of developments that come about as a result of accidental events and fissures created (Foucault 1977). Reflecting this, the genealogical analysis will be presented in three sections, progression through which represents moments of discontinuity and development. The first section will consider the early context of the DSM, presenting the events that led up to its publication to set it in context. It will then go on to analyse the development of the DSM and the classification of delirium within this, starting with DSM-I and DSM-II (APA 1952, 1968). The second section will focus on DSM-III (APA 1980) and the significant change of direction in classification that this edition represented. The final section will focus on DSM-IV and DSM-5, the current classification manual (APA 1994, 2013).

7.2 Pre DSM, DSM-1 (1952) and DSM-II (1968) – the early days of classification

Prior to the development of a classification system for mental health disorders, the first attempt in the USA to gather data about the occurrence of mental illness can be dated to the 6th decennial census in 1840 (Deutsch 1944). That this census was carried out at a time when thinking in relation to mental illness was considerably different to the current era, is immediately apparent from the language used and chosen categorisation. The census sought to quantify, for the first time, the numbers of the population that were 'mentally diseased' or 'mentally defective'. To enable this, a single category of 'insanity and idiocy' was included, with each area recording the number of its population that fell into the category. Prevalence was recorded for each town, and categorised as to whether cases had occurred in the White or Black population, and whether care was in a private home or at public expense (Deutsch

1944). The mentally ill were a marginalised population to be accounted for, in order to identify how many of those firmly sat within the category of ‘other’ by virtue of their ‘idiocy or insanity’ when compared to the ‘normal’ population. The Black population were also marginalised at this time, as evidenced in the legality of slavery in the southern states and the discourse of the census. The data sought not to differentiate amongst a variety of demographic details for those judged as idiots or insane but simply whether they were White or ‘coloured’, the term in itself indicating that anything other than White was different, ‘other’ and marginalised.

The results of the census produced a notable finding, with levels of idiocy and insanity in the Black population of the free northern states being ten times higher when compared to the southern slave states. As can be seen from table 7 below, the overall census figures suggested that the Black slave population of the Southern states were the least prone to ‘insanity’. The data, which turned out to be profoundly inaccurate, was used at the time as a defence for slavery (Deutsch 1944). This type of data, despite having been shown over many years to have no scientific basis, has contributed to the argument proponents of so called ‘race science’ have made that there is a connection between race, intelligence, mental health and other human characteristics and behaviour (Ruane 2019). Writing in 2018, Evans noted that there had been an unwelcome recent resurgence of these views, which seek to promote a relationship between race and intelligence, despite none of the so-called evidence for it standing up to scientific scrutiny.

Table 7: Comparison of the Free and Slave States insanity rates from the 1840 US census (Jarvis 1844)

	White population	Number of Insane	Prevalence	Coloured Population	Number of Insane	Prevalence
Northern States	9,557,065	9693	1:995	171,894	1191	1:144.5
Southern States	4,632,153	4900	1:945.3	2,701,491	1734	1:1557.9
Total	14,189,218	14,503	1:978	2,873,385	2925	1:982

Not long after the census was published, the inaccuracy of its data was identified and highlighted by Jarvis (1844) in a damning article entitled ‘Insanity among the Coloured Population of the Free States’, in the American Journal of the Medical Sciences. In this, Jarvis showed that the data for ‘insanity’ and ‘idiocy’ in the free northern states were entirely inaccurate, with towns recording half, all or sometimes over 100% of their Black inhabitants as being ‘insane’ or ‘idiots’. The extent of these falsehoods is illustrated in table 7.1. The census data was riddled with these inaccuracies and it was later noted that ‘Jarvis did proceed to expose effectively one of the most amazing tissues of statistical falsehood and error ever woven together under government imprint’ (Deutsch 1944 p475).

Table 7.1: Population and insanity rates by state: Maine. From the 1840 US census (Jarvis 1844)

Towns	Total coloured inhabitants	Total coloured insane	Towns	Total coloured inhabitants	Total coloured insane
Limerick	0	4	Industry	0	3
Lymington	1	2	Dresden	3	6
Scarboro	0	6	Hope	1	2
Poland	0	2	Hartland	0	2
Dixfield	0	4	Newfield	0	5
Calais	0	1			

In analysing the historical events occurring in a particular episteme, it is important and informative to consider not just what happened but also what did not happen (Foucault 1977). What was not seen at the time of the census was any widespread disbelief at the findings, or outrage when the inaccuracies were uncovered. At this time, there was a near universally accepted belief that the Black population was biologically and intellectually inferior to the White population, a belief supported by pseudo-scientific studies such as the use of phrenology to ‘demonstrate’ differences in brain size and structure (Forret 2016, Cartwright 1851). The normalising power of the epistemological framework in relation to race and cognition allowed the findings from the census to slip into the realm of new ‘knowledge’ on the topic relatively unchallenged, as it spoke to the ‘truth’ that was accepted at that time. Though there was some resistance to this by people such as Jarvis, and most likely others who

were starting to question the entrenched thinking of the time, this was not significant enough to tear at the interwoven fabric of societal and economic behaviours that embedded beliefs around racially-based differences in cognitive function. Despite concerns being raised at congressional level about the inaccuracies of the data, the findings were not withdrawn or corrected. In response to criticisms of the census, President John Quincy Adams instructed the Secretary of State, John Calhoun, to carry out an investigation on behalf of the government. The man Calhoun chose to lead the investigation was William Weaver, the same man who had led the original census. Colhoun's report to the House of Representatives following the 'impartial investigation' stated that it had resulted in two conclusions; the first conclusion was to confirm the correctness of the original census results and the second was that the census findings had confirmed that bringing an end to slavery would be a harmful thing for the Black population (Deutsch 1944). The result of this being that the findings continued to be cited to support the argument that emancipation was damaging to the mental health of the Black population (Wingerson 2018, Deutsch 1944).

At this very early stage of classification, there was no place for identification of delirium or any other specific disorder. At this point, there was no detailed consideration of mental health and relative disorders. The census dealt purely in the binary opposites of 'sane' or 'insane', in order to quantify the proportion of the population who fell into the category of 'insane'.

In 1844, another significant event occurred with the formation of the APA and its journal, the first of the discursive formations that would start to build the power and legitimacy of the APA to define mental health and disease. The association was originally called the Association of Medical Superintendents of American Institutions for the Insane (in 1844), before becoming the American Medico-Psychological Association (in 1892), and eventually the American Psychiatric Association (in 1921) (APA 2019). For clarity, the association will be referred to as the APA throughout.

At this time, hospitalising patients for mental illness was in its infancy, with only 23 institutions in existence in the USA, which housed 2561 of the estimated 17,457 mentally ill patients in the country, the rest being either at home, in work houses/alms houses or in jail (APA 1976). Dr Samuel B Wood, a psychiatrist and institution superintendent, proposed the idea of the body so that members could discuss issues and share problems. At a meeting in Philadelphia on October the 16th 1844, attended by 12 other institution superintendents, the APA was formed and took the decision to only admit superintendents, so that the newly-formed institution, representing

American psychiatric care, consisted of 13 White, male doctors. At this time, the patient was a subject of observation to be managed. The idea of patients having any part to play, as users of services, in influencing the direction these services would take would not have been part of the thinking at this time. At its inception, the APA set up 16 committees to reflect what were seen as important issues in the field at the time and, from these, the following five areas were chosen to be focused on: the moral treatment of insanity; the medical treatment of insanity; the jurisprudence of insanity; the statistics of insanity; and, the contraction of hospitals for the insane. The setting up of the association and its initial areas of focus was announced in the January 1845 issue of the American Journal of Insanity (later the American Journal of Psychiatry) (APA 1976). These discursive formations set in motion the reciprocal power-knowledge relationship that would support the legitimacy of the APA as the authority in American psychiatry and beyond, to have an international influence on psychiatry. The 13 White, male doctors had, by establishing the APA, given themselves the power to decide what knowledge was relevant to be produced and published. By doing this, they further reinforced their legitimacy as an organisation empowered by knowledge of the field.

The next significant point of note preceding the development of the DSM manual of mental disorders was the publication of the 'Statistical Manual for the use of Institutions for the Insane' by the APA in collaboration with the bureau of statistics of the National Committee for Mental Hygiene, in 1918. By this time, the working environment for psychiatrists had changed significantly. These were now much larger institutions, with 150,000 patients housed within them in the USA by 1904 (Shorter 1997). The optimism which accompanied the 19th century reformers, that care in an asylum would bring about a cure for mental illness, had not come to fruition (Scull 2015). Psychiatry wielded a repressive power within asylums that acted to corral patients and hide behaviours seen as irrational and unacceptable, from society at large.

Psychiatry found itself, at the start of the 20th century, with large institutions full of patients that they seemed unable to treat, leaving it desperate to find cures as other areas of medicine were doing (Scull 2015). The situation would have created a dissonance for psychiatrists in the ethics of their individual professional development. It would seem unlikely that the professional role they envisioned for themselves, and strived towards in their daily practice, would have been one more akin to a prison warder than a doctor for the 'insane'. Individually and collectively, the esteem of the profession was compromised by its impotence.

The manual can thereby be seen as an attempt to create order and drive American psychiatry forward from the point at which it found itself. The manual broadened the discursive formations of the APA in its authority, building on over 70 years of directing the formation of knowledge of mental illness through its journal, to step into governmentality with a manual designed for national use within asylums.

That the manual was written at a time when there was limited knowledge and understanding about mental disorders is evident from its size and contents. The manual was a 40-page document, containing 22 diagnostic categories (see table 7.2), 11 of which had between three and nine sub-categories. The disorders included those associated with severe and enduring mental illness. Classification of mental illness did not yet include less severe disorders that might have been present in the wider, independently living population.

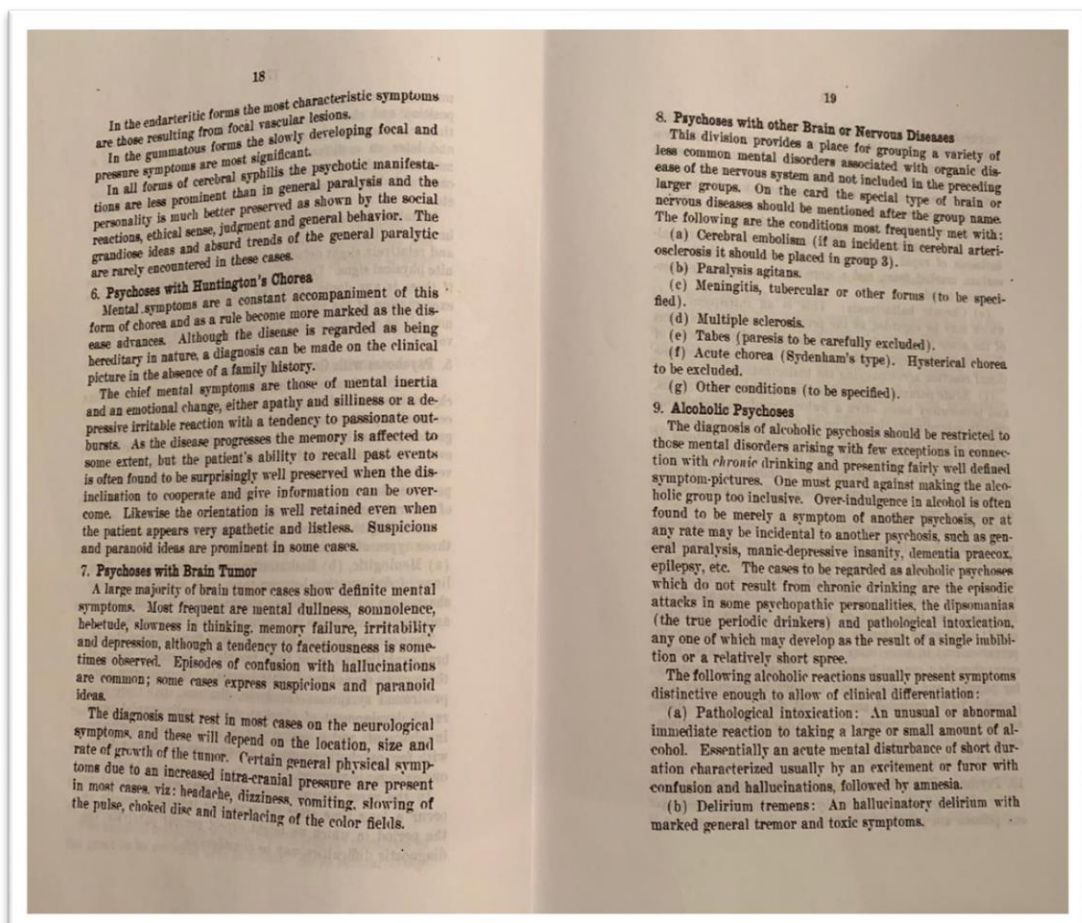
Table 7.2: 'Classification of Mental Diseases' from the Statistical Manual for the use of Institutions for the Insane (APA 1918)

1. Traumatic psychoses	12. Psychoses with other somatic diseases
2. Senile psychoses	13. Manic-depressive psychoses
3. Psychoses with cerebral arteriosclerosis	14. Involution melancholia
4. General paralysis	15. Dementia praecox
5. Psychoses with cerebral syphilis	16. Paranoia or paranoic conditions
6. Psychoses with Huntington's chorea	17. Epileptic psychoses
7. Psychoses with brain tumor	18. Psychoneuroses and neuroses
8. Psychoses with other brain or nervous diseases	19. Psychoses with constitutional and psychopathic inferiority
9. Alcoholic psychoses	20. Psychoses with mental deficiency
10. Psychoses due to drugs and other exogenous toxins	21. Undiagnosed psychoses
11. Psychoses with pellagra	22. Not insane

The 22 categories are first listed, after which brief descriptions of each are given in a section titled 'explanatory notes'. The descriptions are narrative in nature, with no

specific measurable signs or required criteria. Though there are some differences in the symptoms discussed in each category, there are also many similarities. The explanatory notes were very limited, reflecting the lack of knowledge on these conditions at the time. No reference could be made to aetiology or pathophysiology as this was largely not understood, with the exceptions of the connection between syphilis and general paresis in the late 19th century, and vitamin B3 to pellagra in the early 20th century being identified (Kawa and Giordano 2012). The brief descriptions were, therefore, confined to types of behaviour that may be seen to occur in each category. Figure 7 shows an example of the explanatory notes provided.

Figure 7: Section of 'Explanatory notes' from the Statistical Manual for the use of Institutions for the Insane (APA 1918)



By contrast to the brevity of the descriptions given at the beginning of the manual, instructions setting out exactly how the details for each patient should be recorded are very specific, detailed and precise, giving lengthy descriptions of various statistical cards that should be filled out for patients. The manual was clearly designed, primarily, as a way of cataloguing the types of patients that the institutions had been

treating, rather than any attempt to clarify clinical diagnoses for the purpose of managing patient care and treatment. Where psychiatry found itself lacking in its ability to provide in-depth clinical information, it appears to have sought to make up for this by demonstrating its credentials as a serious medical speciality through the rigour of its record keeping and statistics. Of the manual's 40 pages, 18 are taken up with the explanatory notes (illustrated above) and 11 are instructions and tables relating to correctly preparing the statistical records.

By publishing a manual on mental illness, the APA thereby became the organisation that published *the* manual on mental illness. Each subsequent, revised edition reinforced, through systems of language, the discourse of mental illness based around description and categorisation of behaviours and the authority of the APA to produce them. Revisions of the manual continued over the following years, with the title being modified to 'Statistical Manual for use of Hospitals for Mental Diseases', the 8th edition being published by the APA in 1934. Around this time there was awareness in broader medical circles in the USA, beyond psychiatry, that disease nomenclatures varied according to local institutions, making disease identification chaotic and inconsistent. This led the New York Academy of Medicine to initiate a movement towards a nationally agreed disease nomenclature. In 1933, the first edition of the Standard Classified Nomenclature of Disease, compiled by the National Conference, was published (Logie 1933). The 8th edition of the APA manual adopted some structural changes, to allow it to fit in the national nomenclature as the mental disorders section (APA 1952).

In the genealogy of American psychiatric nomenclature, World War Two (WW2) was a point of fracturing and division. It had a significant impact on the remit and identity of psychiatry as a profession in the USA, which in turn dictated the future direction of its classification of mental illness. Prior to the WW2, psychiatry was a profession predominantly based in asylums, working with patients suffering from severe, enduring mental illness, with few psychiatrists based outside of institutions. Over the course of WW2, the balance was to change dramatically. In 1944, psychiatry was made a division under the Office of the Surgeon General, giving it equal organisational status with medicine and surgery (Grob 1991). The number of psychiatrists working in the military setting rose from 35 at the start of WW2 to 2400 by the end, which can be compared to the total APA membership at the time of 2295 (Grob 1991).

This significant shift in the balance of psychiatric practice led to the first threat to the authority of the APA as the author of mental disorder classification. The discourse on mental disorder, of which it had been the architect, did not fit the narrative of practice now seen by psychiatrists during WW2. At the start of WW2, military psychiatrists found that as they were using a nomenclature designed around institutionalised patients with severe mental health issues. The classifications being used were appropriate for 10% or less of the military patients they saw (Houts 2000, APA 1952). In response to working with a classification system that was not fit for purpose, the army, under the leadership of brigadier-general and head of psychiatry, William Menninger, decided to develop its own classification. In 1946, the War Department published its 'Nomenclature of Psychiatric Disorders and Reactions – War department technical bulletin, Medical 203', which subsequently came to be referred to as simply Medical 203 (Shorter 2015, APA 1952).

This was a short document, at just under eight sides of A4 paper, when it was published. A psychoanalytic approach was employed in Medical 203, which is immediately apparent from the use of the term 'reactions' in the category titles, and the inclusion of both 'reaction' and 'ego' in the main body of the text. Medical 203 had ten main headings. The document starts by explaining the headings used, albeit somewhat unclearly. It states that the term 'disorders' indicated a generic group of specific reactions. The term 'reaction' was used for specific reactions (War Department 1946 p289). The ten main section headings for Medical 203 are shown in table 7.3.

Table 7.3: Main section headings of Medical 203

Simple Personality Reactions
Psychoneurotic Disorders
Somatization Reactions
Character and Behaviour Disorders
Immaturity Reactions
Disorders of Intelligence
Psychotic Disorders
Paranoid Disorders
Affective Disorders
Organic Psychoses

Descriptions of disorders and reactions focus primarily on the personality, such as: its inability to cope with acute, severe situational stress (simple personality reactions); repression by the personality of 'powerful emotional charges' (usually related to childhood experience); and, the resultant disorders caused by this repression (psychoneurotic disorders). The final section, Organic Psychoses, contained the disorders for which there was a known aetiology or structural change. This was the section that described disorders that would now be defined as delirium, though the word is not used in Medical 203. A tension is apparent here, resulting from the binary opposition of psychiatry versus non-psychiatry, underpinned by the opposition of mind versus body. As can be seen from the following instruction from Medical 203, psychoses where there was a demonstrable cause, such as infection (delirium), were effectively given back to general medicine and disowned for being non-psychiatry:

The mental reactions with systemic infection and with brain infection, neoplasm, trauma, degenerative disease, or vascular disease, are to be regarded as symptoms of the physical (nonpsychiatric) condition with which they are associated. (War Department 1946 p296)

The psychoanalytic approach was dominant in American psychiatry at the time, to the extent that, in 1946, psychodynamic theory was officially recognised as the leading school of thought by the American Board of Psychiatry (Kawa and Giordano 2012). Although Freud's psychoanalytic theory purely stemmed from his own ideas, and could not be evidenced or explained in any scientific manner, as an approach, the war experience showed it had one very seductive feature; it appeared to work. Psychiatrists working with large numbers of neuropsychiatric casualties found that by providing supportive psychotherapy, along with food, rest and sleep, in a setting local to the conflict, 60% of patients were able to return to work within 2 to 5 days (Grob 1991: 427). In this setting, psychiatry was dealing with previously 'normal' patients, in terms of their mental well-being, who had become psychologically unwell due to the extreme stress of the circumstances they found themselves in, and it seemed it was able to help them.

After a century of professional impotence, WW2 indicated an approach (psychoanalysis) and a population (those without severe, enduring mental illness) in which psychiatry could finally make its mark. These would both come to be embraced

under the leadership of William Menninger. Menninger had been elected leader of the American Psychoanalytic Association (APaA) and then president of the APA, in 1948, and was aware of the expectation for psychiatry to perform within the treatment narrative of wider medical practice, in order to be recognised as a legitimate speciality. He warned that there was a need for psychiatry to develop its underpinning knowledge of the conditions it defined, so that clarification and agreement could be reached, stating that other areas of medicine were aware of their confusion and would capitalise on this (Menninger 1945).

Following WW2, American psychiatry found itself in the position of having several different classifications of psychiatric disease in use concurrently: the army nomenclature, Medical 203; a similar nomenclature developed by the veterans administration; and, the brief section on mental health disorders in the Standard Nomenclature of Disease, referred to as the 'psychobiological unit' (Shorter 2015). These posed a threat to the authority of the APA by diluting the discursive formations it had built up over many years and, in doing so, weakening the systems of language supporting its power over classification and knowledge development. The APA acknowledged, and sought to address, what it saw as a state of confusion in psychiatric nomenclature by developing a single national nomenclature of psychiatric disease. The APA obtained feedback from both the army and the Veterans Administration, along with feedback from its own membership, about what changes they felt were needed to the current standard nomenclature. This resulted in an extended and developed 'diseases of the psychobiological unit' section of the 4th edition of the Standard Classified Nomenclature of Disease, which the APA obtained permission from the American Medical Association to publish as its own, stand-alone nomenclature, the Diagnostic and Statistical Manual of mental disorders (DSM) (APA 1952).

DSM-I, at 86 pages excluding appendices, was significantly longer than both Medical 203 and the Statistical Manuals. Though the DSM was a lot more detailed than Medical 203, the influence of this document is clear, with wording in many sections being very similar and a continuance of the psychodynamic approach, which remained popular at this time. Some authors went as far as to say that DSM-I was simply a 'rehash' of Medical 203 (Shorter 2015). Despite the similarities in overall approach, this may be somewhat of an exaggeration, ignoring the extensive statistical coding information not included in Medical 203 and the considerable expansion of the coverage of disorders related to organic brain disorder that had been identified as being deficient during the consultation and feedback process. It is clear that the DSM,

from the influence of the war experience and Medical 203, was a classification looking beyond the marginalised and institutionalised mentally ill, as previous APA manuals had been, to the governmentality of mental disorder within the wider population.

DSM-I is divided into two major sections of disorders, the first being those associated with a specific impairment of the brain, the second section being those that were not. There are a number of main disorders in each section, each of which is then subdivided underneath into anything from two to 20 plus subtypes. There were also qualifying statements that were not required to be used but could be if they added clarity to the diagnosis (APA 1952). These are summarised in table 7.4.

Table 7.4: Main categories of disorder and qualifying statements from DSM-I (APA 1952)

<p>Disorders caused by or associated with impairment of brain tissue function:</p> <p><i>Acute Brain disorders:</i></p> <ul style="list-style-type: none"> • Disorders due to or associated with: infection / intoxication/ trauma /circulatory disturbance /disturbance of innervation or psychic control /disturbance of metabolism, growth or nutrition /new growth /unknown or uncertain cause /unknown or uncertain cause with the functional reaction alone manifest <p><i>Chronic brain disorders:</i></p> <ul style="list-style-type: none"> • Disorders due to prenatal (constitutional) influence • Disorders due to or associated with: infection / intoxication/ trauma /circulatory disturbance /disturbance of innervation or psychic control /disturbance of metabolism, growth or nutrition /new growth /unknown or uncertain cause /unknown or uncertain cause with the functional reaction alone manifest • <i>Mental deficiency:</i> • Disorders due to unknown or uncertain cause with the functional reaction alone manifest; hereditary and familial diseases of this nature • Disorders due to undetermined cause
<p>Disorders of psychogenic origin or without clearly defined physical cause or structural change in the brain:</p> <p><i>Psychotic disorders:</i></p> <ul style="list-style-type: none"> • Disorders due to or associated with disturbance of metabolism, growth, nutrition or endocrine function • Disorders of psychogenic origin or without clearly defined tangible cause or structural change <p><i>Psychophysiologic autonomic and visceral disorders:</i></p> <ul style="list-style-type: none"> • Disorders due to disturbance of innervation or psychic control <p><i>Psychoneurotic disorders:</i></p> <ul style="list-style-type: none"> • Disorders of psychogenic origin or without clearly defined tangible cause or structural change <p>Personality disorders:</p> <ul style="list-style-type: none"> • Disorders of psychogenic origin or without clearly defined tangible cause or structural change <p>Transient situational personality disorders</p>
<p>Optional qualifying phrases to be added after named disorder:</p> <ul style="list-style-type: none"> • with psychotic reaction • with neurotic reaction • with behavioural reaction

Following the listings of disorders in each of the two main sections, a brief, paragraph-long narrative description is given of each disorder. As with the previous nomenclatures and manuals discussed, there are no defined diagnostic criteria that have to be met. Diagnosis is based on the psychiatrist's interpretation of how well their patient fits with the narrative description in the manual.

A tension is apparent, however, at this time, between the acceptance of a need to recognise organic brain disorder as a cause of psychiatric illness, with the overall desire for a psychodynamic approach and its belief that personality response is the driver of mental illness. In the introduction to section one, it is stated that where the disorder is associated with additional manifestations (the psychotic, neurotic or behaviour reactions), 'These associated reactions are not necessarily related to the degree of organic brain disorder or to the degree of brain damage; they are determined by inherent personality patterns, current emotional conflicts, the immediate environmental situation and the setting of interpersonal relations, as well as by the precipitating organic disorder' (APA 1952: p14).

This statement seems to give voice to a desire to hold on to the role of the personality in the cause of mental illness, in the face of increasing awareness of physiological causes. The manual notes that while the disorders identified in sections one and two are fine for statistical recording, they do not give a full clinical picture. Further options to record details related to stress experienced and personality are given, thereby attempting to apply the psychodynamic perspective to all diagnoses, a perspective that had become central to the identity of psychiatry in the USA. At this time, the discourse employed can be seen to be trying to marry two dissonant approaches.

In DSM-I, delirium is not included as a category or diagnosis on its own. Within the introductory paragraph to the Acute Brain Disorders section, the term 'acute delirium' is mentioned once. After this, delirium is not mentioned again, by name, in the list of diagnoses or narrative descriptions, with the exception of delirium tremens. A clinical picture of delirium could, however, sit comfortably within certain categories of the acute brain syndromes, such as 'acute brain syndrome associated with systemic infection' or 'acute brain syndrome of unknown cause'. Indeed, in a section of the manual where explanatory examples of the correct use of diagnostic terms are provided it states:

'Should the state of apprehension or tension associated with pneumonia progress to a severe delirium, the double diagnosis will require separate diagnoses of 'Pneumonia etc' and '*Acute* brain syndrome associated with systemic infection, pneumonia', (APA 1952, p46).

Within this psychodynamically-driven nomenclature, a glimpse of delirium is seen and appropriately associated with acute brain disorder, though the significance of it as a disorder is not yet apparent.

DSM-I went through 20 printings between 1952 and 1967, before the second edition of the manual was published in 1968. Whereas DSM-I was developed from review and feedback from various stakeholders inside American psychiatry, the development of DSM-II was characterised by a much broader and lengthier consultation, internationally as well as nationally. The APA go to great lengths in the preface and introduction of DSM-II in discussing the international collaboration with the WHO and member countries contributing to the 8th edition of the ICD, that had coincided well with the period when the APA were ready to develop a second edition of the DSM. This narrative was, on face value, an expression of how much this collaboration was valued by the APA, but it also acted to signal to local and international audiences the organisation's standing on the world stage of psychiatry.

This spirit of international collaboration was embraced and celebrated by the APA. However, this only held to a point. There were a number of areas of the ICD nomenclature where agreement could not be reached. Where this was the case, and the ICD terms were felt to be unacceptable, adaptations were made to DSM-II accordingly, with some classifying terms included in the 8th ICD being omitted completely from DSM-II, and in other sections sub-categories being included in the DSM-II that do not appear in the 8th ICD (APA 1968). The language in use indicated a clear sense of ownership of mental disorder definition and classification in the USA and that final decisions on these matters belonged to the APA, who now had the confidence to assert it. The sociologically and environmentally contingent nature of mental illness diagnosis was acknowledged with a statement made in the foreword of DSM-II to the effect that disagreement as to what constitutes mental ill health was to be expected. Recognising the lack of certainty at the time around the cause and exact nature of mental disorders, it states:

'No list of terms could be completely adequate for use in all those situations and in every country and for all time. Nor can it incorporate all the accumulated new knowledge of psychiatry at any one point in time. The committee has attempted to put down what it judges to be generally agreed upon by well-informed psychiatrists today' (APA 1968, pviii).

At 134 pages in length, DSM-II is virtually the same length as DSM-I, once account is taken that DSM-II did not include any appendices, and all coding information and sample tables were included, on this occasion, in sections of the main text. DSM-II lists 10 main disorder headings (see table 7.5), each with several sub-sections beneath, instead of disorders being housed within two main sections, as was the case in DSM-I.

Table 7.5: Mental disorder headings in DSM-II (APA 1968)

I.	Mental Retardation
II.	Organic Brain Syndromes A. Psychoses Associated with Organic Brain Syndromes B. Non-psychotic Organic Brain Syndromes
III.	Psychoses Not Attributed to Physical Conditions Listed Previously
IV.	Neuroses
V.	Personality Disorders and Certain Other Non-Psychotic Mental Disorders
VI.	Psychophysiological Disorders
VII.	Special Symptoms
VIII.	Transient Situational Disturbances
IX.	Behaviour Disorders of Childhood And Adolescence
X.	Conditions Without Psychiatric Disorder and Non-Specific Disorders

For delirium diagnosis, there was no real change between DSM-I and DSM-II. As previously, delirium tremens is included as a disorder in its own right but, otherwise, delirium does not occur as a disorder. From the brief narrative description, cases of delirium could be fitted into a sub-category of the Organic Brain Syndromes such as 'psychosis with systemic infection'. However, this would include no recognition of the specific characteristics of delirium such as being acute in onset, fluctuating and the core characteristic of inattention. The disorders that were acknowledged to be associated with some sort of impairment of brain function constituted one half of the disorders listed in DSM-I. In DSM-II, with its continuance of the psychodynamic approach, Organic Brain Disorders was only one of ten listed categories, thus leaving the implication that for the other nine categories the brain was not of relevance. In

terms of understanding delirium as a specific acute brain dysfunction, DSM-II makes no forward progress and could be considered to have stepped backwards.

7.3 DSM-III (1980) – a change of direction

In the period preceding publication of DSM-III, American psychiatry found, for the second time in its relatively short history as a discrete and organised speciality that its legitimacy was under fire. Having recovered from the disappointment at a lack of success within asylums at the turn of the century, and thrived with a psychodynamic approach during WW2, in the 1960s and 1970s its credibility as a bonafide medical speciality was being questioned again, to the extent that some authors have termed this period, 'The Crisis of Legitimacy in Psychiatry' (Mayes & Horwitz 2005). The power of American psychiatry was encountering resistance on several fronts and its internalising of the gaze of its critics led to a third version of the DSM that was quantitatively and qualitatively different to its predecessors.

The pressures on psychiatry at the time were of a political, professional and financial nature. In the late 1960s and early 1970s, psychiatry came under increasing pressure to defend its worth as a professional speciality in the face of this being questioned. Increasingly, psychiatrists had moved away from working with patients diagnosed as being insane and living in institutions, to working in an outpatients setting providing psychoanalytic, 'talking therapies' to those who were troubled but would not have been considered 'insane', thus following up on the success they had experienced in WW2. They were becoming a profession that moved from a predominant focus on a marginalised population to the general population where mental health was problematised. This led to the accusation that psychiatry did not treat those who were actually mentally ill but largely pandered to the needs of the young, middle-class, 'worried well' (Mayes and Horwitz 2005). These 'talking therapies' were also offered by other professions, such as psychotherapists and social workers, who asked what extra psychiatrists brought to the therapy merely because they were psychiatrists, and challenged the reasons as to why they should be able to charge more for providing the same therapy. The value of these talking therapies also began to be questioned by health insurance companies, who argued that these therapies were lengthy, expensive and lacking in evidence as to their efficacy. This led to both insurance companies and federal government, cutting back and placing restrictions on the types of psychiatric therapy that would be financially reimbursed (Mayes & Horwitz 2005).

Further resistance came from the 'anti-psychiatry movement', which challenged the legitimacy of psychiatric diagnoses. It was argued that these were arbitrary labels given to those who did not fit a prescribed view of societal norms at the time, rather than genuine illness (Wilson 1993). A key example of this was homosexuality, which was included in both DSM-I and DSM-II as a mental disorder. In order for the discursive formations of the APA to remain effective, it required the population over which they sought to exert a normalising power, to accept them and function within them. The America of the 1960s and 1970s was a different time sociologically, characterised by movements of political protest and resistance. The APA found itself under pressure from a growing rejection of what was seen as the pathologising of people's lives by a few 'men in white coats' sitting around a table.

Homosexuality was no longer a mental disorder by the time DSM-III was published in 1980. In fact, under mounting pressure, the APA had dropped homosexuality from the 7th print (1974) of DSM-II onwards. The dramatic about-turn from DSM-II in 1968, to DSM-III in 1980, with regard to homosexuality, would seem to lend support to the arguments around the constructed and arbitrary nature of some mental health diagnoses. Not only was homosexuality no longer a mental disorder in DSM-III but a new disorder called 'ego-dystonic homosexuality' was included, which was where a person who was homosexual was unable to accept themselves as such, which had adverse effects on their well-being (APA 1980). In 12 short years, psychiatry had gone from defining a disorder as evidenced by homosexual tendencies to defining a new disorder as evidenced by an individual's rejection of those same tendencies. Whilst undoubtedly a positive change, it is also a clear illustration of the historically situated nature of mental health diagnoses.

A further blow to the credibility of psychiatry in America came from within the profession itself, when the findings of the US-UK Diagnostic Project, carried out by Kendell et al (1970), were published. Following evidence from some small-scale studies to suggest that there may be diagnostic differences between US and UK psychiatrists, the project was set up. The study showed diagnostic interviews of eight psychiatric patients (five British, three American) to groups of between 30 and 200 psychiatrists in both the UK and USA, who were then asked to provide a diagnosis, along with an index of their certainty and a clinical rating scale. Whilst there was agreement with some of the cases, there was also marked disagreement with a number of cases, with the US psychiatrist much more likely to provide a diagnosis of schizophrenia than their UK counterparts. The authors concluded that US psychiatrists had developed a very broad sense of schizophrenia that included the

UK psychiatric concepts of depressive illness, personality disorder, mania and neurosis (Kendell et al 1970). They further concluded that this was a serious issue, given the potential implications of inconsistent diagnosis and one that needed to be addressed as soon as possible. The study was said to have 'put the cat amongst the pigeons' of US psychiatry and indicated the need for it to tighten up its diagnostic criteria (Shorter 2015). The increasing availability of psychoactive drugs, for which there was a need for specific diagnostic criteria to facilitate research, approval and appropriate prescription, also supported a drive for the development in nomenclature seen in DSM-III (Shorter 2015).

A multi-faceted resistance was now faced, due to the perception that psychiatry was essentially an expensive indulgence for the well-off, lacking in consistency and validity. In order to shape a future for itself, the APA realised that a different approach was needed. This they took with DSM-III. At 335 pages long, with a further 142 pages of appendices, it is considerably longer than either previous edition. This is acknowledged in the manual, which asks users not to be put off by its length (APA 1980). This extended length is not only a result of more disorders being included but of an entirely new structure, termed a 'multi-axial' approach. Instead of simply identifying a single diagnosis, patients were to be assessed on a minimum of three out of five axes, as shown in table 7.6.

Table 7.6: DSM III Multiaxial Diagnosis (APA 1980)

Axes I to III – official diagnostic assessment	Axes IV and V – optional use in research and special clinical settings
<p>Axis I -</p> <ul style="list-style-type: none"> ○ Clinical syndromes ○ Conditions not attributable to a mental disorder that are a focus of attention or treatment (V. codes) ○ Additional codes <p>Axis II –</p> <ul style="list-style-type: none"> ○ Personality disorders ○ Specific developmental disorders <p>Axis III –</p> <ul style="list-style-type: none"> ○ Physical disorders and conditions 	<p>Axis IV –</p> <ul style="list-style-type: none"> ○ Severity of psychosocial stressors <p>Axis V –</p> <ul style="list-style-type: none"> ○ Highest level of adaptive functioning in the past year
<p><i>Example of diagnosis recording using all axes:</i></p> <p>Axis I - 296.23 Major depression, single episode, with melancholia 303.93 Alcohol dependence, in remission</p> <p>Axis II - 301.60 Dependant personality disorder (provisional, rule out borderline personality disorder)</p> <p>Axis III – Alcoholic cirrhosis of the liver</p> <p>Axis IV – Psychosocial stressors: anticipated retirement and change in residence with loss of contact with friends Severity: 4 – moderate</p> <p>Axis V – Highest level of adaptive functioning in past year: 3 – good</p> <p>(APA 1980:30)</p>	

**N.B. – patients can be assessed on one or both of axes I and II, one of these must be the primary diagnosis, this assumed to be the Axis I diagnosis unless otherwise stated.*

The third edition of the manual was also different in the way in which it was developed, that is, the basis on which the revisions of the classifications were considered. For the first time, it was an aim of the committee to bring data into consideration, with field

trials being carried out as part of the process. There is a clear sense of trying to base the classification on some sort of evidence, on what was known at the time about mental disorder, rather than it being solely based on the consensus opinion of a group of psychiatrists. Although this was still the mode of decision making, there was an aim to ensure that opinions were based on some evidence, where possible. As well as the desire to ensure data was included wherever possible, this edition included a quite detailed discussion about the committee's desire not to imply support for a particular theoretical approach with the terminology adopted in relation to the nature or cause of disorders (with the exception of where a known pathophysiological cause had been established) (APA 1980). This wish, not to lead the reader/clinician with diagnostic labels that would imply support for a specific theoretical approach, was briefly mentioned in DSM-II, though it was still, quite clearly, a psychodynamic approach. In DSM-III this is discussed more fully in the introduction to the manual which describes itself as being 'atheoretical' (APA 1980 p7). The reason given for this approach serves to highlight the tensions present in trying to compose an authoritative manual of disorders on which there was still much disagreement about the nature of them:

'The major justification for the generally atheoretical approach taken in DSM-III with regard to etiology is that the inclusion of etiological theories would be an obstacle to use of the manual by clinicians of varying theoretical orientations, since it would not be possible to present all reasonable etiological theories for each disorder. For example, Phobic Disorders are thought by many to represent a displacement of anxiety resulting from a breakdown of defensive operations for keeping internal conflict out of consciousness. Other investigators explain phobias on the basis of learned avoidance responses to conditioned anxiety. Still others believe that certain phobias from a dysregulation of basic biological systems mediating separation anxiety. In any case, as the field trials have demonstrated, clinicians can agree on the identification of mental disorders on the basis of their clinical manifestations without agreeing on how the disturbances came about'. (APA 1980 p7).

A further major departure from previous editions was the inclusion of specific diagnostic criteria. Previous editions had only included a brief narrative description of each disorder and it was for the assessing psychiatrist to decide whether the patient fitted the fairly broad description. This new approach sought to introduce some

objectivity, to move away from the loose category descriptions of the past that allowed for subjective interpretation and application by individual psychiatrists. In designing the manual to be outwardly more objective, there was significant broadening of the dissection, naming and categorising of aspects of subjects' lives, with a significant increase in the breadth of the biopolitics of mental illness.

Another feature aimed at a more objective and scientific approach was that this edition acknowledged what was unknown about disorders at the time. In the diagnostic descriptions, after the initial narrative overview, there are short, headed sections, of one or two sentences, on things such as 'associated features', 'age at onset' and 'predisposing factors'. These are included for each disorder and, if it is not known, it simply says 'no information'. This is an example of the way in which this edition seems, in general, to have a greater willingness to be open about uncertainty. This is also apparent from the narrative descriptions in which the authors have discussed a number of disorders where there are issues that might affect interpretation or certainty, or that they feel need to be borne in mind. For example, they highlight issues such as cultural variation, in the drug dependency section, or the controversy around the hypothesis that suggests certain patterns of family interaction may be a predisposing factor in the development of schizophrenia.

The bizarre anomaly that diagnostic criteria can throw up is discussed in relation to a smoker, who is very likely to be tobacco-dependant but as long as they are making no attempt to give up, and therefore not experiencing any of the problems associated with withdrawal, then they would not satisfy the criteria for a diagnosis of tobacco dependency. Whereas previous editions were less detailed, what was included was presented in a way that seemed to say, 'this is how it is'. This could perhaps seem paradoxical, given what could be considered the more instructional approach, with the extra information and criteria for each disorder. However, these statements that identify and discuss uncertainty can also be seen to act to limit and corral that uncertainty, thereby acting as discursive formations, signalling that the APA is still in control, despite uncertainty

It is also in the third edition that delirium appears for the first time as a separate named disorder, in the 'Organic Mental Disorders' section. The introduction to the section included a detailed discussion and rationale, as to what the difference between an organic mental disorder and an organic mental syndrome was and why the two terms were used. The section identifies, first of all, 'organic brain syndromes', which are each a 'constellation' of signs and symptoms without a specifically defined aetiological

cause, such as delirium or dementia. Ten organic brain syndromes are defined of which the most common are identified as being: delirium, dementia, intoxication and withdrawal. The ten syndromes were grouped into six categories, the first of these categories being delirium and dementia, where the nature of the cognitive impairment is global. Organic mental disorders are then instances of each syndrome, where a specific aetiological cause has been identified, such as multi-infarct dementia or alcohol withdrawal delirium (APA 1980).

On first reading the organic mental disorders section, it is striking, not only that delirium has appeared for the first time as a discrete disorder but how much extra detail there is about delirium and the other organic disorders in comparison to DSM-II. This could initially appear to indicate a step forward in the understanding of the aetiology of these types of disorders and the underlying neuropathophysiology. However, when considered in the context of the whole manual, the increase in detailed description of this section is simply reflective of the increase in the manual as a whole. The organic disorders section remains only one out of 15 sections. The others do not make reference to the underlying brain function. In the manual, the APA is, for the first time, clearly acknowledging its acceptance of the brain's role in all mental disorders but that it just does not have the knowledge yet to discuss it in those terms.

'Differentiation of organic mental disorders as a separate class does not imply that nonorganic ('functional') mental disorders are somehow independent of brain processes. On the contrary, it is assumed that all psychological processes, normal and abnormal, depend on brain function' (APA 1980:101).

Even within the organic brain disorders section, the two subsections of disorder are categorised as to whether the aetiological cause is known or presumed e.g. multi-infarct dementia (disorder), or where it is not e.g. delirium (syndrome). The result being that whilst with the section the APA is making a clear statement in moving away from its previous approach to a more biological, evidence-based one, it still has to base its content around descriptions of presentation rather than an understanding of the underlying mechanism. For delirium, knowledge has not progressed much more than being able to say, 'it is to do with the brain'. Which was no more than had been stated in a book on delirium, called at the time 'Phrensy', over 200 years before (Frings 1749).

Whilst the underpinning mechanism could not be moved forward, this was an important difference to its predecessors, where a dominant psychodynamic paradigm led to disorders of unknown organic aetiology being proposed to have been caused by the inability of the personality to adapt to environmental stressors. This was an explanation, which in psychodynamic theorising was sufficient and not in need of further causal explanation. A link back to previous editions is claimed by the authors of the third edition in their statement that delirium is roughly equivalent to 'acute brain syndrome' in DSM-I (APA 1980).

The key characteristics of delirium, as would be recognised in current definitions, are described, including the essential feature of a 'clouding of consciousness', which would result in the ability to shift, focus or sustain attention. Although not named as such, the motoric sub-types of hypoactive and hyperactive delirium are described in terms of the variable behavioural and emotional features that may be stable, of one type or another, or may fluctuate in a single patient. In identifying the age at onset information, it is noted that although delirium can occur at any age, children and persons over 60 are most at risk. At this point, the critically ill had not yet been identified as a patient population at specific risk of developing delirium. This is perhaps not surprising, given the relatively young nature of ICU as a discipline, the first ICU in the UK having been opened in the mid-1960s (Reynolds and Tansey 2010). A set of specific diagnostic criteria were provided, as shown in table 7.7.

Table 7.7 – Diagnostic criteria for delirium in DSM-III (APA 1980: 107)

Diagnostic criteria for delirium

- A. Clouding of consciousness (reduced clarity of awareness of the environment), with reduced capacity to shift, focus and sustain attention to environmental stimuli.**
- B. At least two of the following:**
 - i) Perceptual disturbance: misinterpretations, illusions or hallucinations**
 - ii) Speech that is at times incoherent**
 - iii) Disturbance of sleep-wakefulness cycle, with insomnia or day-time drowsiness**
 - iv) Increased or decreased psychomotor activity**
- C. Disorientation and memory impairment (if testable).**
- D. Clinical features that develop over a short period of time (usually hours or days) and tend to fluctuate over the course of a day.**
- E. Evidence from the history, physical examination, or laboratory test, of a specific organic factor judged to be aetiologically related to the disturbance.**

In the third edition, not only is delirium included for the first time as a discrete disorder, the way in which it (and every other disorders) is included is recognisable as the style of the modern day nomenclature, unlike both of its predecessors.

DSM-III (APA 1980) was a radical change in the direction of psychiatric nomenclature, driven by political pressures of varying types at the time, which resulted in a manual with a greater desire to include and importantly, to be seen to include, objective data on mental disorder. The identifying of delirium as a specific and significant disorder was a beneficiary of this process.

7.4 DSM-IV (1994) and DSM-V (2013) – the modern and current classification

The modern era of the DSM is characterised by its embracing of evidence as a base for its discourse, and its increasing distancing from a dualistic perspective. The tension created by the expectation of an increasing biological structure to the post

DSM-III editions (Shorter 2005), against a lack of corresponding increase in knowledge of the biological basis of behaviour, led the APA to significantly change its plans for future development of the DSM, post DSM-5. Across the production of both DSM-IV and DSM-5, the APA can be seen to be employing and expanding the discursive formations which had served it well, to this point, in maintaining a discourse of psychiatric classification that implied authority and legitimacy.

In 1994, the APA published the fourth edition of the DSM. The size of the manual continued to grow, with the main body of this edition being 689 pages in length, with a further 186 pages of appendices. Rather than one task force for revising the whole edition, DSM-IV development involved 13 working groups, each covering a particular section, in order to increase the input of experts within specific areas. The authors note that a number of steps were taken to ensure that, while the use of work groups ensure expert input, the developments were still based on the breadth of available evidence and not just the opinions of a few individuals (APA 1994). The consultation process for this issue was wider than ever, including over 60 organisations within the USA, many of which were other professional bodies, and the production of an 'options book' two years before the final publication. The options book contained a detailed summary of all the proposals for inclusion into DSM-IV. It was distributed widely by the APA for review and feedback. One year before publication, a 'near final' draft was distributed for a final round of feedback. The APA seems to be at great pains in this edition to stress how widely it had consulted about the new edition, with six pages of the introduction given over to describing the process. Even before getting to the introduction this is stressed, with the opening line of the Acknowledgements section reading: 'DSM-IV is a team effort. More than 1000 people (and numerous professional organizations) have helped us in the preparation of this document' (APA, 1994 pXiii). In this, the APA can be seen to be still defending itself from previous accusations of arbitrary decision making. The reciprocal power-knowledge relationship inherent in the concept of expertise and the consultation process, strengthened by the systems of language in which they were immersed, reinforced the power of the DSM and the perception of its legitimacy. The discourse around wider consultation is one of marginalisation for those not agreeing with the approach of DSM-IV, as they are set in contrast with array of experts who support it.

Within the introductory information describing the development process, the authors stress the systematic and evidence-based nature of the edition's development, continuing the ethos set out in DSM-III and further distancing themselves from the earlier days of a psychodynamic-based approach and descriptions decided on by the

opinion of a few. The contingent nature of any discourse on the wider professional and social context is apparent here. This was an era where the importance of evidence in the wider medical discourse had been gradually increasing since an influential publication on the topic by Cochrane in 1972, the adoption of which is evident in DSM-IV. It is noted that there had been a substantial increase in diagnosis-related research since DSM-III, such that most disorders had empirical literature or data sets relevant to decisions relating to developments in the manual. The process of evidence gathering described included systematic reviews of literature, secondary analysis of already collected data sets and extensive 'issue-focused' field trials (APA 1994). The authors state:

'It is our belief that the major innovation of DSM-IV lies not in any specific content changes but rather in the systematic and explicit process by which it was constructed and documented. More than any other nomenclature of mental disorders, DSM-IV is grounded in empirical evidence' (APA 1994: xvi).

A detailed description of the three processes of evidence gathering mentioned above is provided, along with a statement that the threshold for making revisions was set higher in DSM-IV than it had been in DSM-III, and a clear rationale, along with supporting evidence, was needed for any change to be considered. Whilst describing in detail the development process, DSM-IV also seems very willing to discuss its limitations. The potential limitations of a categorical approach to diagnostic nomenclature are discussed, with the authors stating that, although the system is not perfect, there was a lack of a viable alternative. This was also the reason for keeping the term 'mental disorder'. The increasing tension between the firmly established discursive formations of psychiatry and its mental disorders, and a growing recognition of a relevant biological basis, is evident. Approximately half a page of discussion is included that identifies the authors' misgivings over the term 'mental disorder'. In the dualist perspective it suggests, they also note that the problems raised by the term are much clearer than the solution. They acknowledge that there is 'much mental' in physical disorder and vice versa.

'The term mental disorder unfortunately implies a distinction between 'mental' disorders and 'physical' disorders that is a reductionist anachronism of mind/body dualism' (APA 1994: xxi).

Here the APA appear to acknowledge that they are using a term, that they themselves would question the validity of, for want of an alternative. The systems of language in

psychiatry are so firmly embedded in not only its own discourse, but also wider societal discursive formations of what constitutes mind and body, that an alternative terminology is not easily found without tearing at this densely interwoven fabric.

The APA has started to attempt to balance the complex power-knowledge relationship within, and expressed by, its own discourse. A complete denial or avoidance of areas of uncertainty with psychiatric nomenclature would have been, too obviously, a falsehood by omission, and would have detracted from the credibility of the manual. This credibility is dependent on the manual still being seen as the culmination of psychiatric knowledge at that time. This is achieved by strengthening the discursive formation around expertise and evidence, whilst acknowledging areas of ignorance, from which the APA effectively distance themselves. They say to the reader, 'look at all this information we know, all these experts and evidence we have included; there are some things we don't know, but no one knows that yet'. They maintain ownership of psychiatric knowledge whilst disowning its ignorance, giving that to the 'other' of wider medicine and society.

DSM-IV continues to follow the multi-axial system, the same five axes being assessed, with minor change in some wording but, essentially, assessing the same things as in DSM-III. Whilst the system developed with DSM-III, it clearly brought psychiatric nomenclature closer to the medical model, with its clearly defined clinical diagnostic criteria. The APA cite the multi-axial approach as a feature that acknowledges and supports a biopsychosocial approach to assessment. In the discussion of the multi-axial system, a description of each axis is given and there is further evidence of the DSM/APA's rejection of dualistic perspectives and embracing of the biological context of disorders. Axis three, which had previously been called 'physical disorders and conditions', is now termed 'general medical conditions'. It is also noted that the reason for having mental disorders on axis one, personality disorders and 'retardation' in axis two and general medical conditions on axis three, is to encourage a full assessment that does not end with identification of the primary mental disorder. It is not intended to imply a conceptual difference in disorders that may be commonly described as either mental or physical. In this section, examples are given as to how clinicians not wishing to use the multi-axial system may correctly record their diagnosis. By providing this information, the authors indicate an awareness that some clinicians were not keen on using the full multi-axial assessment and this is predicative of future changes to occur with DSM-5.

A further indication of the increasingly medical model approach was the addition of two new subsections in the descriptions accompanying diagnostic criteria for

disorders, that of 'associated laboratory findings' and 'associated physical examination findings and general medical conditions'. One of the strongest indications of this, however, comes in the form of a change of name of the section which includes delirium. In DSM-III, delirium was in the section called 'Organic Mental Disorders'. However, in DSM-IV it states that, 'The term Organic Mental Disorders is no longer used in DSM-IV as it implies that other mental disorders in the manual do not have a biological basis' (APA 1994: 10).

The previous Organic Mental Disorders section is split into three separate sections, the first of which is 'Delirium, Dementia and Amnestic and Other Cognitive Disorders'. Within the delirium section, some relatively minor changes occurred. Two types of delirium, as classified by aetiology, that had previously been included but separately to the main delirium description, were moved so all types were included together. The sub-type of 'delirium due to multiple aetiologies' was added. The chapter first provides general information for delirium as a whole, such as: diagnostic features; associated features; culture, age and gender features; prevalence; course and differential diagnosis. It then moves on to give further detail about specific aetiological types. See table 7.8 for a summary of delirium types. In the diagnostic criteria, the cognitive dysfunction criteria were simplified, and assessment of sleep disturbance and psychomotor were removed for often having different causes and being difficult to assess. Beyond this, the essential content of the delirium description and diagnostic criteria is not significantly changed. The changes to delirium in this edition are more refinements to the organisation and structure of the section than an actual change in the substance of the definition of delirium, which remains that of an acute, global disturbance of consciousness, affecting attention and cognitive processes.

Table 7.8 Delirium aetiological types included in DSM-IV

Delirium type	Features required additionally to the general delirium criteria
Delirium due to general medical condition	<p>Evidence required from history, physical examination or laboratory findings, that cognitive function is a direct physiological consequence of a general medical condition.</p> <p>Examples of general medical conditions include: systemic infections, metabolic disorder and electrolyte imbalances</p>
Substance induced delirium	<p>Evidence required from history, physical examination or laboratory findings of substance intoxication or withdrawal, medication side effects, or toxin exposure judged to be etiologically related.</p> <p>Examples of substances that may cause delirium include: alcohol, amphetamines, cannabis, cocaine and opioids</p>
Delirium due to multiple etiologies	<p>Evidence required from history, physical examination or laboratory findings that the delirium has more than one etiology.</p> <p>For example where there is more than one relevant general medical condition, or a general medical condition as well as substance use</p>
Delirium not otherwise specified	<p>A delirium that does not meet the diagnostic criteria for the other types, such as suspected general medical condition but without evidence; or not listed such as sensory deprivation</p>

In 2013, the APA published the current edition of the manual, DSM-5. It is also the longest edition. The main body of DSM-5 is 808 pages in length, with a further 109 pages of appendices. The previously mentioned discursive formations employed by the APA to maintain authority and legitimacy, inclusion of expert input and inclusion of available evidence, are maximised in this edition. The use of specialist task force groups for the development of each section continued from DSM-IV, as did the trend for an increasingly lengthy and in-depth consultation and development process. For DSM-5, this was noted to have involved hundreds of people and taken 12 years (APA 2013) and an estimated cost of 20-25 million dollars to produce (APA 2020). As well

as the previously employed methods of seeking expert opinion and consulting various professional groups, for DSM-5 the APA launched a development website to allow for public as well as professional input and feedback. Whilst previous editions had included extensive details of the corresponding ICD codes, including alphabetical and numerical listings in appendices, DSM-5 includes a particular emphasis on the desire to harmonise, as far as possible, the DSM and ICD classifications. A detailed discussion is included in the introductory section of how the use of corresponding codes should be managed, in terms of timing, in the transition from the ICD version in use at the time to ICD-11, which was due for publication two years later.

A significant change in the structure of DSM-5 is the abandonment of the multiaxial documentation of diagnosis. In discussing this, the manual refers back to its discussion of the multiaxial approach in DSM-IV and notes that, whilst it was widely adopted, use of the system was not essential at the time in order to make a diagnosis. The decision to no longer use the multiaxial system of documentation was consistent, it was argued, with the statement in DSM-IV that the axis did not represent a conceptual difference in type of disorder and the disuse of it presented as a logical development from that point. Clinicians are still encouraged to note all disorders that are of relevance to the management of a patient's mental disorder. In considering environmental factors, and assessment of functioning, that would previously have been included in axes four and five, where the clinician wishes to assess these they are directed to relevant areas of the ICD and its recommended tools (APA 2013). As has been seen in previous editions, changes are framed as developments that, in hindsight, are logical and sequential, with the APA needing to maintain a discourse of progressive development rather than arbitrary change.

For delirium, the description and diagnostic criteria in DSM-5 are essentially unchanged, though there were significant developments in the organisation of the section. Having eschewed the DSM-III section title of 'Organic Brain Disorders' for a section title indicating specific disorders, 'Delirium, Dementia and Amnestic and Other Cognitive Disorders', in DSM-IV, DSM-5 returns to a broader section title of 'Neurocognitive Disorders' (NCD). In the development of DSM-5 the APA addressed, in the clearest terms, its acknowledgement of the tension caused by the dualistic notions embedded in its discourse. In an update from the Neurocognitive Disorders Working Group in 2011, discussing the new name that had been decided upon for the section, it was stated that, 'thankfully psychiatry has rejected false disconnects between structure and function and recognised that the brain is the basis of all disorders' (Gonguli et al 2011: 205). The most significant developments for delirium

in this edition are in the subsections on the prevalence and the development and course of the disorder. In DSM-5, two key factors are identified for the first time: the very high prevalence of delirium in Intensive Care patients and the high mortality rate associated with the presence of delirium. It was within this edition, 61 years after the first edition was published, that delirium was finally defined in a nomenclature that explicitly acknowledged the brain as the seat of mental disorder and ICU as the setting in which patients were most at risk of it.

With the 5th edition of the DSM, the APA changed how the editions were numbered from using roman numerals to Arabic numerals. Whilst at first sight this could be taken as a simple presentation change, the reasoning behind it signals the most significant change of direction for the manual since DSM-III, and an acknowledgement of the inherent tensions that the previous discursive formations could no longer support. The APA have stated that the change to Arabic numerals is to allow for a rolling and continuous program of update. This will allow for specific, discrete areas of the manual to be updated when it becomes appropriate, and sufficient evidence is available. When this occurs, the manual will be numbered 5.1, 5.2 etc. to indicate that a section has been updated, as is commonly seen with software updates. This will be the process of updating 'until a new edition is required' (APA 2020). With this change, the APA has indicated that the DSM will no longer be automatically periodically update in its entirety. Within this is the implicit recognition that the manual's core discursive formations, that allowed it to maintain credibility and legitimacy through previous editions, the emphasised inclusion of experts in the field and current best evidence, could no longer justify further routine and wholesale updates. A growing resistance had become evident from within the profession of psychiatry, with the DSM again being criticised for including constructs of classifications that are not objectively derived from scientific knowledge. An example of this is the combining of what had previously been recognised as different types of depression into one disorder called 'major depression' from DSM-III onwards (Shorter 2013). Others have stated that there is a structural crisis in the DSM categorical system that is widely recognised but that DSM-5 did not address (Aragana 2014).

The APA have not ruled out a DSM-6, saying that that this may be required if there are such advancements in knowledge around neuroscience/molecular genetics that the whole manual needs to be revised again. However, for now, a DSM-6 is not planned (First et al 2017). The 'Updates to DSM-5 criteria and text' page of the APA website currently has posted 18 links to approved changes to specific aspects of DSM-5, none of which relate to delirium (APA 2020). The page for viewing and

commenting on proposed changes currently has one proposed change posted, relating to the potential addition of a 'prolonged grief disorder' to the manual. The News page, DSM history and DSM Frequently Asked Questions pages show no update in relation to potential future editions from that discussed by First in 2017 (APA 2020). Some authors doubt if this will occur at all (Shorter 2013). The APA, at the stage of DSM-5, would seem to have been 'hoisted by their own petard'. Since its founding, the APA has been able to build an authority and legitimacy through the continuing power-knowledge driven discourse associated with its standing as the expert body in the field of psychiatry. Undoubtedly, over the years since the publication of DSM-I, the power of the APA and its manual has been a productive one, driving the development of knowledge through research and increasing the focus of attention on psychiatry as a key area of biopolitics. Though some may question the emphasis of certain directions of focus within psychiatry, such as in relation to the exponential rise of psychopharmacology, the normalising and productive power of its discourse remains profound. However, the status and power of expertise comes from the implicit expectation of knowledge. With DSM-5, a point has now been reached that while, undoubtedly, knowledge of relevance to the field of psychiatry has been generated and is held by the experts involved, a fundamental area of knowledge is now too obviously missing. As mentioned, it has been argued that DSM-5, has failed to address classification issues with core psychiatric diagnoses, such as depression and psychoses, where several diseases that would appear to be clinically very different are classified as one illness. This, it is argued, is purely as a result of the historical continuation of an influential theorist's concept but that 'conceptual power is not the same thing as verification' (Shorter 2013, online). However, the verification sought would require the understanding of what mental disorders actually are and how they can be explained in terms of their biological basis in brain function, and this is still missing.

7.5 Chapter summary

In summary, this chapter has presented a Foucauldian genealogical analysis of the evolution of the definition of delirium in the Diagnostic and Statistical Manual (DSM), produced by the American Psychiatric Association (APA) from 1952-2013. It has been shown that this highly influential nomenclature of mental disorder has evolved as a product of the psychiatric profession within America striving to be taken seriously as a medical speciality, from a base of limited knowledge of its subject matter and within a changing sociological context.

Delirium only appeared as a named disorder in 1980 and could be argued to have been a beneficiary of the APA's desire to demonstrate, both nationally and internationally, that American psychiatry was a logical, well-structured and evidence-based medical speciality, like any other. The significance of the ICU environment in relation to delirium was only acknowledged with the publication of the most recent edition of the DSM, in 2013. The currently widely used definition of delirium sits within a psychiatric classification manual whose development has a history of being challenged and criticised for a lack of objective underpinning rationale for its structure. This inclusion of delirium in a field associated with uncertainty may have had a negative effect on how seriously it has been taken by professionals within the wider medical world.

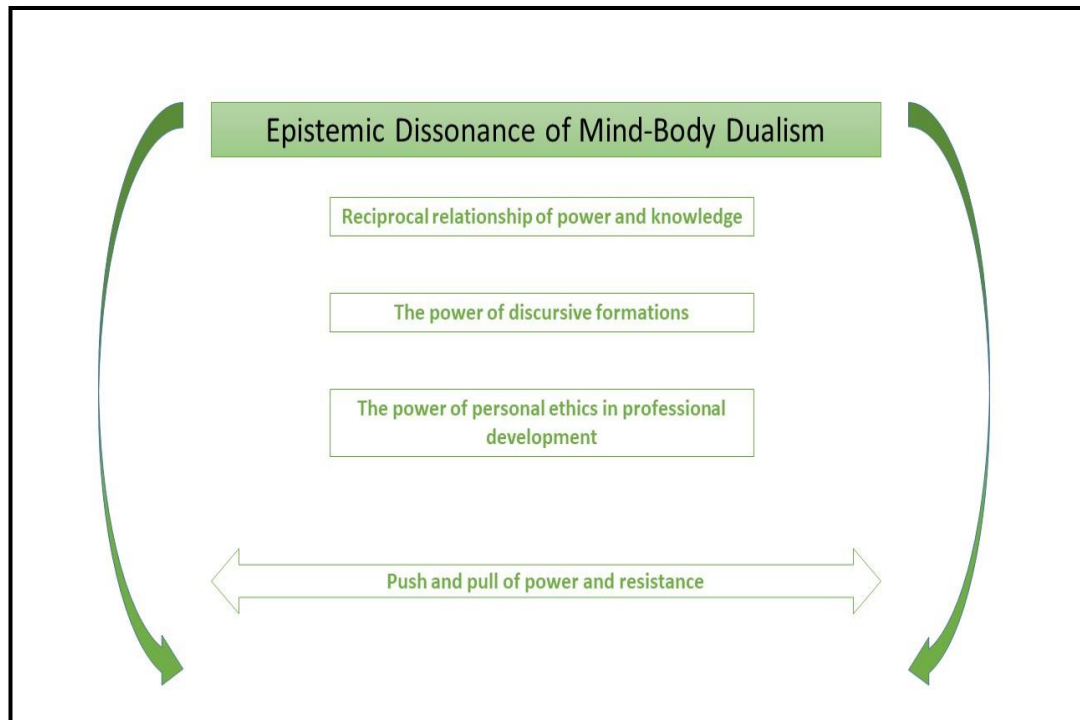
Chapter Eight: Discussion

8.1 Introduction

The two previous chapters have presented the findings from the survey of UK ICU nurses and doctors, and the genealogical analysis of the DSM classification of delirium. This chapter will now discuss the findings of both, in the context of the wider literature, focusing on the fourth objective of the study to ‘Synthesise the study findings with the Foucauldian genealogical lens, to provide a unique insight into potential influencing factors on ICU staff’s thinking about delirium’. Consideration of the study’s findings, via a Foucauldian lens, reveals a picture of power dynamics which, it is proposed, operate within the context of an epistemic dissonance resulting from the influence of mind-body dualism. This over-arching epistemic dissonance provides the context in which both the DSM definition of delirium developed in the 20th and 21st centuries, and in which current ICU staff are practising today.

Within this context, a number of power formations operating can be identified: the reciprocal nature of power and knowledge; the power of discursive formations; and, the power of personal ethics in professional development. For each of the power formations, there are also examples of resistance that accompany and oppose the expression of power. From the findings of the survey, tensions were surfaced in ICU staff members’ knowledge and attitudes to delirium and its assessment. These tensions were underpinned by binary oppositions that interacted with, and reinforced, the normalising effect of the power formations identified. These formations can be seen to be operating in an intertwined manner within the fabric of the dissonant episteme and, as such, do not operate in isolation from each other. A graphical representation of this relationship is provided in figure 8. For ease and clarity of discussion, however, these power formations will be considered in turn before a discussion of the over-arching context of the epistemic dissonance of mind/body dualism.

Figure 8: Power formations operating within the context of the Epistemic Dissonance of Mind-body dualism



8.2 The reciprocal relationship of power and knowledge

The relationship between power and knowledge is a fundamental one that can be understood in evolutionary terms; having a knowledge and understanding of its environment will confer a survival benefit on any organism. Humans, as with other animals, can therefore be considered to be 'hard-wired' to seek out knowledge of any situation in which they find themselves. Beyond this very basic, inherent need to understand, more complex reciprocal relationships between knowledge and power can be seen to be at play within the fabric of human society (Foucault 2002). An awareness and knowledge of delirium in ICU is essential to enable nurses and doctors to effectively care for patients within their units. Factors affecting this are, therefore, highly relevant to consider.

In the genealogical analysis of the evolution of the DSM and its definition of delirium, the reciprocal relationship of power and knowledge was evident. The assumption of power by the APA, from positioning itself as the authority in the developing area of American psychiatry, allowed it to direct and create accepted knowledge in the field. With the development, or apparent development, of greater knowledge came a reinforcement of power, and so this continued. Establishing itself in a position of

power, the APA was then able to direct knowledge formation in American psychiatry. It used the assumed reciprocal relationship to secure its legitimacy as the organisation that said what knowledge was legitimate, in relation to mental disorders. The scale of the influence of the DSM has been such as to determine psychiatric knowledge beyond the USA (Kawa and Giordano 2012). However, it has become apparent that the promise of greater knowledge and understanding of the aetiology of mental illness has not come to fruition (Harrington 2019). Ultimately, the lack of ability to extend knowledge and understanding has fuelled resistance to its authority and dictated the projected plan for the DSM, at least at the current time.

Assessment of current knowledge of ICU delirium, in the survey, demonstrated that participants were aware of delirium and knew whether their units used a validated assessment tool. Overall, the level of knowledge in relation to delirium could be described as mixed, depending on the aspect being addressed. A very good knowledge of the defining features was shown. Of significance when considering motivation for clinical action, there was a clear awareness of the serious implications of ICU delirium for patients' outcomes. That participants rated nearly all of the potential complications asked about as ones that were related to delirium, is suggestive that participants had an overall perception of delirium as a serious issue. This finding was in agreement with previous literature that found that staff do recognise the seriousness of delirium as a disorder. Ely et al (2004) found, in a study of 912 ICU healthcare professionals in America, that 92% rated delirium as a significant or very serious problem. Similarly, in a large UK-based survey of consultant intensivists, 82% agreed that delirium was a problem that required active treatment and most participants were able to identify serious outcomes related to delirium, such as increased hospital mortality and length of stay (MacSweeney et al 2010). This is a pattern that is reflected in the literature over many years, that staff in ICU demonstrate that they are aware of the seriousness of ICU delirium and its potential implications for outcomes (Patel et al 2009, Gong et al 2009, Ozsaban and Acaroglu 2015, Cole and Stark 2016). The findings of the current survey fit with this pattern. They would appear to reinforce the position that tensions around adequate assessment cannot be explained by a lack of appreciation of the potential seriousness of delirium amongst ICU staff.

There was, however, a concerning lack of knowledge around the prevalence of the different sub-types of delirium, with less than half of participants being aware that hypoactive is the most common form and over a quarter thinking that hyperactive was the most common type. This is a similar finding to that of Elliott (2014), in a small

survey of ICU nurses in three units in Scotland, who found that 38% of respondents knew that hypoactive delirium was the most common form. Authors have stated previously that hypoactive delirium is the least recognised subtype and that hyperactive prevalence tends to be overestimated (Leutz et al 2010). This was further reinforced by a recent survey of 917 ICU nurses and doctors in China that found that only 12.4% thought hypoactive delirium was the most common type, whereas 51.3% thought that hyperactive was the most common type.

This would suggest that hypoactive may be the least recognised because staff too often are not looking for it, as they are expecting to see the more obvious behaviour patterns of the hyperactive sub-type. Of particular concern was the majority of participants feeling confident or very confident in assessing delirium without the use of a screening tool, despite published evidence that large numbers of cases of ICU delirium are missed if staff try to use their own clinical judgement to assess rather than a validated screening tool. That the level of confidence increased with greater length of service appears to identify an interaction of the binary oppositions relating to experience, as a driving force in the reciprocal relation of knowledge and power. In clinical practice, the binary opposition of experienced versus novice is likely to favour experience, due to its association with favoured secondary level binaries such as being knowledgeable (versus uninformed) and confident (versus diffident). This absorbed association between length of experience and desired characteristics in practice may explain an over confidence of experienced staff in their own practice.

This finding, of a seeming misplaced confidence in personal clinical assessment, was in agreement with other recent studies, such as Rowley-Conwy (2017) who, in a survey of 31 nurses in an ICU in Wales, found that the same number of participants (39%) used clinical observation to detect delirium as used the CAM-ICU assessment tool. Similarly, in a practice improvement project carried out in a burns ICU in the USA, a pre- and post- survey of 27 nurses found that, even post-intervention, the majority of respondents (67%) were either neutral or positive about staff assessing for delirium without the use of a tool (Powell et al 2019). The over estimation of the prevalence of hyperactive cases may feed into this, with staff expecting that they will be able to detect delirium by unsettled (hyperactive) behaviour. This is further discussed in relation to discursive formations (8.3).

Consistent with previous literature, there were some misunderstandings around screening tools. This was noted both in the free text responses and in a surprisingly low number of participants appearing to have confidence in the screening tools,

specifically the CAM-ICU, as this was the tool that nearly all participants regularly used. This would suggest participants were unaware of the 93% and 98% sensitivity and specificity of the CAM-ICU (Ely et al 2001). Considering the relatively quick and straightforward nature of the CAM-ICU, it was surprising that less than two-thirds of participants rated it as almost always easy to use. Given the pressure that staff in ICU may feel to be confident in their own knowledge and practice (Evans et al 2010), a lack of knowledge and confidence in the use of delirium assessment tools may incline staff to subconsciously discredit the tool and rely on their own evaluation of their patients. This relationship, of a lack of knowledge about and confidence in assessment tools, is echoed in wider literature. A review focusing on barriers to delirium assessment in the ICU, carried out by Rowley-Conwy (2018), considered data from five relevant studies and found that a lack of confidence in the assessment tools and their perceived complexity were cited as barriers in a number of studies. This author notes that the reason for this is unclear, given that the tools in question (CAM-ICU and ICDSC) have been evaluated and found to be quick and easy to use. Misunderstanding about the tools' appropriateness for use in intubated patients was also discussed in relation to two studies, showing a lack of awareness or understanding that the tool (CAM-ICU) has been widely validated in intubated patients (Rowley-Conwy 2018).

In a number of questions assessing knowledge of delirium, nurses demonstrated a lower number of correct responses than doctors. When considering potential reasons for this, one point to be acknowledged is that although the two professional groups were similar in terms of overall years of experience, they were very different in terms of seniority of role. For nurses, 33% were a band 5 and only 12% were a band 8, whereas, for doctors, 73% were consultants. There may have been a greater degree of similarity on percentages of correct answers if 73% of the nurses had been at band 8. This difference in seniority of role would have implications for both expected and supported study. Nurses were more likely to have received bedside teaching when asked about the type of education they had received in relation to delirium, compared to doctors, with bedside teaching being the most common education for nurses to have received. The type most nurses wanted was the organised study day.

Bedside teaching was seen to be associated with fewer correct answers when compared to other types of education received. It is not possible to know if the relationship between education type received and knowledge, for both professions, is a causative one, but it may be a factor alongside the educational expectations of the level of role. Conferences were mentioned by many doctors but none of the

nurses. Conferences are events where emerging areas of knowledge and current debates are shared. This raises the question as to whether a professional difference in who attends is reflective of the power dynamic of who is expected to/supported to attend conferences. The difference may also indicate a motivation on behalf of doctors to seek out these sources of new knowledge, in an acknowledgement that their position of power, as autonomous decision makers in patient care, carries with it a responsibility to maintain current knowledge.

Survey responses suggested that education had had a positive effect on knowledge, with those who had recently received education in relation to delirium more likely to correctly answer knowledge questions compared to those who had not. This was particularly the case compared to those who had never had any education on the topic. Bedside teaching generally seemed to be less effective than other types of education received. The positive effect of education on knowledge is reflective of previous literature. In the study by Gesin et al (2012), the educational intervention resulted in a significant increase in knowledge scores. It was also noted that the percentage of nurses that perceived delirium as difficult to assess decreased and the percentages of those that felt the use of an assessment tool made delirium easier to assess increased, suggesting that an increased level of knowledge had helped the nurses to feel more empowered in their delirium assessments.

Whilst the majority of participants were positive about the idea of receiving further education on ICU delirium, there was some resistance to the idea of education on the topic with over a quarter of participants saying 'no'. Whilst it might be expected that those who said 'no' to the option of further education would demonstrate a very good level of knowledge, and therefore did not require further education on the topic, this was not the case. Of those that expressed that they did not want any further education about delirium, less than half were able to correctly identify hypoactive as the most common type of delirium but more than half said that they felt comfortable in assessing for delirium without the use of an assessment tool. The large majority of these participants being doctors with over 10 years' experience, further suggests a potential role for the association with favoured binaries in related binary oppositions. Both the professional role and length of experience would carry the favoured statuses of being senior and experienced, with further associations to be knowledgeable and confident. Operating through the mechanism of binary oppositions, this may be a demonstration of an implicitly absorbed relation between power and knowledge, so that being in a position of relative power gives the participant more confidence in their own knowledge (even if not always warranted).

8.3 The power of Discursive Formations

The findings of the survey would suggest that a disconnect still exists between the recognition of the severity of delirium as a condition and the related assessment activity. This was evident in the very high level of recognition of both the seriousness of potential outcomes complications and the fluctuating nature of ICU delirium, alongside the sizeable proportion of participants not assessing every day or throughout the 24-hour period. By discussing the role of the discursive formations around what would now be recognised as ICU delirium, and how this has been previously discussed in the Critical Care literature, the influence that the language used may have had on how this condition is perceived by nurses and doctors can be considered.

Within the ICU setting, whilst delirium as an entity has undoubtedly always existed, it has been spoken of within the Critical Care literature in different terms. It has commonly been referred to as 'ICU syndrome', a title which implies this is something normal, or at least to be expected, given the environment the patient is being cared for in. An example of this can be seen in a paper from 1999 titled 'Acute confusion and unreal experiences in intensive care patients in relation to the ICU syndrome' (Granberg et al 1999). In this article, published within an ICU nursing journal, delirium is mentioned as something that might occur as part of the ICU syndrome, which may include 'delirium, confusion, crazy dreams and unreal experiences'. A clear definition of delirium is not provided when it is used, but the authors note its use usually implies the presence of more severe symptoms, such as hallucinations or paranoid behaviour.

The thrust of the article is that this is something that occurs because of the nature of the environment, that the fear patients experience causes them to have unreal experiences, which in turn further increases fear. The study identifies that care from nurses and visitors may reassure the patient, lessen the fear and thereby the confusion and unreal experiences brought about by the environment (Granberg et al 1999). The focus on prevention or minimising of fear in ICU patients is clearly a laudable one in itself. However, there is no sense from the article that the presence of delirium has any physiological basis and is of any concern beyond the patient's immediate experience, such as in relation to mortality or length of stay. It is worth noting that this article was published five years after the publication of the DSM-IV (APA 1994), the delirium definition that would later come to be used in the NICE guidance on delirium, but there is no mention of this or recognition that delirium is an

internationally recognised and defined condition. These discursive statements work to set the boundaries of concern, the category of urgency to which they should be mentally allocated.

Concerns around the language used when discussing ICU delirium in the Critical Care literature have been voiced since as far back as 2000, with McGuire et al arguing that the commonly used term, Intensive Care Unit Syndrome, was a 'dangerous misnomer'. They argued that the term, which had been used in the literature for the previous 30 years, was unhelpful and misleading, and that it implied that it was a result of the setting rather than an organic cause. This, they argued, was potentially dangerous, as it could discourage the proper investigation of the indicative signs and symptoms in patients. They concluded that what had been discussed over the years as 'ICU syndrome' was delirium and should be termed as such (McGuire et al 2000). These discursive formations within the Critical Care literature appear to reflect an erroneous opposition between the concepts of safety and comfort. The inference being that staff can either prioritise keeping a patient safe or keeping them comfortable. In this opposition, the patient's safety is always going to be the absolute priority. The implication of this erroneous binary opposition is the potential for all care measures, perceived as being to maintain patient comfort, being devalued. Whilst there will be times within the ICU environment of absolute emergency, such as if the patient has gone into a life-threatening cardiac arrhythmia, where only measures to try and ensure the patient's safety can be prioritised, it can be argued that this is unlikely to be the situation most of the time. Whilst patient safety always has to be a priority, with the exception of emergency situations, over the course of a shift both care that maintains safety and that which focuses on patient comfort should be possible and planned, without a binary choice being necessary. The current survey findings suggest that staff did recognise the seriousness of delirium and its potential implications for patient outcomes, in which case it may be expected that care related to assessment and prevention would be prioritised as a risk to patient safety. However, as the implications of delirium are for relatively longer-term outcomes, such as length of stay in ICU and mortality rates, as opposed to immediate threats to life, such as a blocked airway or plummeting blood pressure, assessment for it may not be perceived to fall into the 'care to maintain safety' side, where this opposition is perceived.

In the 20 years since this paper, an increasing use of the term 'delirium' has been apparent in the relevant academic literature. In 2013, Egerod noted that a Medline search for the term 'ICU or Intensive Care delirium' in 2012 resulted in only 12 hits

but that this had risen to 178 by 2012. By 2020 this has risen to 946. The use, over many years, of the term 'ICU syndrome' highlights the tendency within the speciality to look for a term specific to itself; that identifying it as an already defined mental disorder, manifesting in the ICU environment, has not been the automatic approach. By discussing delirium in these terms, it has been presented as something which is part and parcel of a patient being admitted to ICU and whilst good nursing care would involve reassuring the patient when they seem distressed, it does not give the impression of being a clinical development that has serious implications for outcome and that needs to be actively assessed for.

As well as implying that delirium is just an occurrence which is 'par for the course' in the ICU, the language used in professional journals may also have influenced the perception of delirium toward the characteristics of the hyperactive subtype. The survey findings suggest a bias in staff perception toward expectation of a hyperactive presentation. This was apparent from both the overestimation of the prevalence of the hyperactive type and the identification in free-text responses of patient behaviours that would be looked for in clinical assessment, such as agitated and aggressive behaviour, which are associated with hyperactive delirium. In a survey of 124 ICU and cardiovascular ward nurses in Turkey, Korkmaz et al (2015) investigated levels of knowledge of delirium. Answers to the study questions demonstrated a profound misunderstanding as to how a delirious patient was likely to present, with participants incorrectly answering that: psychomotor activity is constantly high in delirium (85%); patients in delirium are energetic (90%); and, patients with delirium are always aggressive (65%). The authors also noted that 78% of participants reported not having received education on delirium (Korkmaz et al 2015). This would suggest that, without education to the contrary, nurses default expectation is that a delirious patient will present a hyperactive pattern of behaviour. A possible explanation for the perseverance of expectation of hyperactive presentation may lie with implicitly absorbed associations as to what the word delirious means. Being delirious has associations with being 'out of one's mind' and with the idea of 'madness'. Madness in turn has associations with wild and erratic behaviour, or restlessness and agitation, as opposed to with being quiet and apparently calm (Skull 2015) Through the wider discursive formations of what 'madness' looks like, staff may have a default expectation of a hyperactive presentation, which then may have been reinforced by the professional discourse.

A qualitative study by Oosterhouse et al (2016) involved 30 ICU nurses who were given four patient vignettes to consider, all of whom had delirium. They were then

asked questions in relation to the vignettes and their beliefs around delirium. Of the four vignettes, three patients were older adults and one patient was a young person. The hypoactive and hyperactive vignette were both older patients. There were then two patients with mixed delirium, who differed only in their age, other clinical details were equivalent. Key findings were that nurses mostly did not use the term 'delirium' but used synonyms such as 'acute confusion' and 'ICU psychosis', or euphemisms such as 'sundowners' (p384). When participants ranked the patients in order of priority for care, the patient with hypoactive delirium was not seen as a priority, being ranked fourth by each participant. The interaction of discourse and prioritisation suggesting the unsettled behaviour resulting from delirium was the concern, rather than the delirium itself.

By 2008, ICU delirium was increasingly appearing in the academic literature but recognition/transparency across disciplines discussing delirium was not apparent at this stage. In a 2008 issue of the *Journal of Psychosomatic Research*, featuring articles about delirium, none were in the context of the ICU. The authors of the editorial noted that delirium is the most prevalent psychiatric disorder across healthcare settings, and that the elderly, terminally ill and those with pre-existing cognitive impairment show higher rates, but there was no mention of ICU, despite it having the highest noted prevalence (Leetjens 2008). This is reflective of the lack of recognition within the international definition, high prevalence in ICU being mentioned in the DSM for the first time in DSM-5 in 2013.

The variety of terminology used when discussing ICU delirium was acknowledged and investigated in a paper by Morandi et al (2008), who contacted 24 authors from 13 countries that use Romanic languages to identify terminology use around delirium and other acute brain dysfunction. The authors argued that whilst this is a rapidly developing area of knowledge, a variety of terms in international usage can form a barrier to collaborative work. A search of the literature, performed as part of the study, identified the following terms used in place of delirium: Intensive Care Unit syndrome, acute brain dysfunction, acute brain failure, psychosis, confusion, and encephalopathy. In contacting the group of international authors, the study sought to establish the terms used for the following in each country: coma, delirium, confusion, delusion and delirium tremens. It was found that there was 100% consistency around the use of the term 'coma' (spelled either 'coma' or 'koma') and for 'delirium tremens'. However, only 54% used the term 'delirium' to indicate the disorder, as defined by the DSM-IV, as an acute change in mental status, inattention, disorganised thinking and altered level of consciousness (Morandi et al 2008). This relative inconsistency in the

discursive formations is reflective of the fractured nature of the discourse around delirium in the context of critical care.

The fundamental importance of names and terminology was highlighted by the APA in a paper published by the DSM-5 working group for Neurocognitive disorders, discussing their work in progress. In this paper, a whole section was devoted to explaining the name that had been chosen for it

'We initially considered labelling this group of disorders 'Cognitive Disorders'... we are still considering the shorter term but note several advantages to 'neurocognitive'. First, we note that cognitive impairments are present in all mental disorders including, for example, schizophrenia, bipolar disorder, and autism. Given our initial mandate, we focused on those disorders where the cognitive deficit is the primary one, and attributable to known structural or metabolic brain disease; hence the designation 'neurocognitive'. (Ganguli 2011: 2).

The discussion of, and perceived need to justify, the specific words chosen for this section of the DSM demonstrate not just the tension that the APA was clearly experiencing at this time in developing the new DSM, but also an acknowledgement of the power of language use in directing understanding.

8.4 The power of personal ethics in professional development

When personal ethics are applied to the context of the professional self, this would describe the sort of professional the individual would want to see themselves as, and to be seen as. As with other areas of life, the individual will self-govern their professional practice to fit with internalised professional and societal ideals and norms (Foucault 2000). Thus, through the personal ethics of their professional self they become, alongside others, an agent of normative power in clinical practice. If this internalised image of the self as practitioner is in conflict with an aspect of clinical practice, it will potentially cause a cognitive dissonance. Cognitive dissonance, a concept first introduced by Leon Festinger in 1957, describes a psychological discomfort brought about by conflicting beliefs and/or behaviours. The individual is then driven to modify their beliefs or behaviours in some way, to reduce this discomfort (Mcleod 2018).

The previously discussed disconnection, seen in the survey findings between recognition of seriousness and regular assessment, could also be viewed via the lens of personal ethics in professional development, to provide a further insight as to possible influences on staff's perceptions of delirium. It is part of the nursing role to care for and advocate for patients, acting in their best interests. If nurses feel that carrying out the delirium assessment is disliked by patients, and potentially disliked and disapproved of by some family members, whilst at the same time believing that the assessment may not be accurate in detecting delirium, and the doctor may not want to be interested anyway, then they may question whether carrying it out is in the best interests of the patient. However, being aware that delirium is a condition with a number of serious outcomes associated with it, is likely to cause a state of professional dissonance. In the previously mentioned study by Oosterhouse et al (2016), when interviewed and asked about carrying out delirium assessment, a number of nurses reported that a lot of the time families do not want their loved one to be assessed. They disapproved of the assessment because they seemed to be 'bugging' the patient when the family felt there was 'nothing wrong with them'. Some nurses also felt that patients themselves often disapproved of the assessment and became agitated because they felt they were being talked down to.

It is clear that this might lead to the discomfort described above in relation to carrying out the assessment, but it also raises the question as to how the rationale for the assessment had been communicated to the patient and their family. The nurses also noted that some other nursing staff were not always supportive of assessments being carried out and did not see the need for this. They felt that it would have been helpful to have a protocol that mandated the inclusion of an assessment (Oosterhouse 2016). This is reflective of the potential positive use of power to influence practice, and support staff in doing so.

Within the current study, findings from the survey indicated that over a quarter of nursing participants did not carry out delirium assessment at night, even though this was defined as the 12-hour period from 8pm to 8am. At first consideration, this would not be the finding expected if staff are aware of the seriousness of delirium and of its fluctuating nature. However, when the relevant binary oppositions are considered in the context of personal, professional ethics, a different perspective is allowed and a tension in professional practice is surfaced. Regardless of the specific time of the shift, a binary opposition exists between day shift and night shift. These shifts will carry with them associations with secondary, reinforcing oppositions. For example, night is associated with sleeping, and sleep is associated with rest and recovery.

Allowing the patient to rest, and not disturbing them, being associated with care. Although within a 12-hour night shift there would very likely be opportunity to assess the patient for delirium, at least on a couple of occasions, whilst also leaving a significant period of time for sleep, these binary associations could lead to a cognitive short-cut from night-shift to not assessing the patient's responses in a delirium assessment. A further interaction with personal professional ethics, the binary opposition of day- and night-shift, and the previously discussed associations, all may make practitioners more likely to expect delirium to manifest in the hyperactive type. Whilst the hyperactive and agitated patient may be the expected image of a delirious patient, the hypoactive patient may equally be judged by the association of secondary binary oppositions. The association of being still rather than agitated, meaning that the patient is calm rather than distressed, may serve to exaggerate the inclination to allow the 'calm', potentially hypoactively delirious patient rest. Ironically, the desire to provide good nursing care may unintentionally lead to a failure to detect a patient who is internally, silently, incredibly distressed.

Similar concerns relating to delirium assessment, and the nurse's role as caregiver, were uncovered in a focus group study carried out by Oxenboll-Collet et al (2016) in Denmark that included five focus groups of nurses and four focus groups of doctors from four mixed medical and surgical ICUs. The study found that nurses felt that doing the CAM-ICU moved them from the role of 'ally' to that of 'interrogator', and they felt uncomfortable performing it in front of the patient's family. When the CAM-ICU finding conflicted with their professional judgement, nurses mistrusted the tool. Nurses felt the tool was too long and difficult which, as noted previously, is surprising given that the CAM-ICU has been noted to be quick and easy to carry out.

The tension between the ideal personal professional role and perceived ability to carry that out for doctors in ICU was apparent in a 2015 focus group study. It included seven focus groups of nurses and doctors (some single profession, some mixed), from five ICUs, and was carried out by Palacios-Cena et al in Spain. A finding from one of the medical focus groups was that doctors can feel the pressure from nursing staff for solutions, in the management of a delirious patient that they do not have. One doctor admitted that sometimes they avoid the nurses' station because they do not know what to say, and they have no quick solution to offer.

The professional cognitive dissonance experienced may result in a resistance from nurses to following the recommendations for regular delirium assessment. Nurses may deal with the discomfort of this dissonance by subconsciously looking for

reasoning that lessens the apparent conflict between beliefs about delirium and discomfort with assessment. Equally, it is part of the role of the doctor to respond to reports on the patient's condition and prescribe appropriate intervention. Frustrated by a lack of clear understanding of the relevant pathophysiology and evidence-based treatment interventions, doctors may feel that this hampers their ability to respond as they would want to be able to. This in turn may lead to a dissonance for doctors, knowing that delirium has serious implications for an ICU patient but not necessarily wanting to engage with the nursing staff because of a perceived impotence in ability to respond.

At various points in the evolution of the DSM, resistance was apparent from psychiatrists themselves to the discourse around mental illness and how this represented their profession. The research highlighting diagnostic differences between American and British psychiatrists (Kendell et al 1971), and the implication that the profession lacked credibility and did not really know what it was doing, would clearly have clashed within any personal, internalised ideal of what a good psychiatrist is and, therefore, the practitioner they wanted to be, this then being one of the driving forces for change in the DSM evolution. More recently, in response to the publication of DSM-5, criticism has come from within the profession, with some psychiatrists distancing themselves from the approach taken because of a perceived lack of internal validity, which causes a tension, or dissonance, when it clashes with the individual psychiatrist's personal, professional ethics.

The link between personal ethics, professional cognitive dissonance and practice affords an optimistic outlook. Education to increase knowledge and understanding of: why delirium matters; the risks of missing hypoactive delirium without a tool; the validity of the tool in the ICU population; and, why detection is important, could improve practice by introducing or increasing a dissonance, so that not acting as per guidance on delirium becomes perceived as bad practice. Education needs to overcome the resistance previously discussed so that the balance becomes such that the dissonance caused by inaction in relation to ICU delirium is greater than the resistance to action. The appropriate action to deal with the mental discomfort of cognitive dissonance would then become to rationalise why it is for the best to assess the patient, even if it feels like it is disturbing them sometimes, rather than rationalising why it is okay to not assess because the tool might not be accurate and it will probably show if they are delirious.

8.5 The Epistemic dissonance of mind/body dualism

Data from the current survey has shown some improvement in knowledge of assessment tools, and employment of these, when compared considered against previous literature. However, the disconnect between recognition of severity, and assessment practice and knowledge, remains consistent with previous literature suggesting that ICU delirium has not been fully embraced by nursing and medical staff in ICU. Nearly 20 years after the CAM-ICU was published as a validated tool, that could quickly and easily detect delirium in intubated ICU patients, demonstrating a sensitivity and specificity of >93% and 98% respectively (Ely et al 2001), the current survey shows there is still a lack of understanding and confidence related to the tool. This finding is reflective of other recent evidence. In a single centre study involving a group of 27 nurses at a burns ICU, Powell et al (2019), carried out a survey pre- and post- an educational intervention on ICU delirium. In both pre- and post- surveys, participants agreed that nursing interventions were important in preventing delirium. However, even after the educational intervention, 26% still believed a tool was not necessary to identify delirium. This would appear to suggest that, while an educational intervention providing factual information about delirium can help, it is not always sufficient. Twenty years after McGuire et al (2000) published their article warning of the dangers of using misleading euphemisms rather than the term 'delirium', wider evidence would suggest that this is still occurring.

This is demonstrated in a study by Bohart et al in 2019, who carried out a qualitative study, interviewing 11 relatives of patients who had been ICU to find out their experience of how delirium was communicated about and managed. The study was set in a Danish ICU where routine care included use of a delirium prevention bundle, twice daily assessment with CAM-ICU, maintenance of circadian rhythm and early mobilisation, suggesting that the unit was up to date with and employing current recommendations for delirium prevention. However, the relatives reported that the staff did not use the term delirium. They were more likely to use synonyms such as 'confusion', 'having fatigue' or being 'sad' or 'restless'. Relatives reported that delirium (as they now understood it to be), seemed to be of secondary importance to staff on the unit and they had, therefore, themselves perceived it as not being important. They also reported that delirium had been presented as something normal in ICU, a temporary situation that was not serious. Having taken part in the study and found out more about delirium, relatives would have liked to have more information given to them about it at the time, whilst their relative was in ICU. Although the study is relying on the relatives' perspectives on how staff seemed to think about ICU delirium, it

suggests that, even in units which appear to be following recommended practice, there may still be gaps in how serious delirium is perceived to be.

The three previous sections have each illustrated the way that the operation of different power formations may have influenced both the evolution of the DSM definition, and criteria for delirium, and the perceptions of study currently working in ICU to delirium. A final and overarching theme is proposed that acts as the context within which each of the other power formations operates and applies to both the current time and the period of DSM evolution analysed in the genealogy. This is the Epistemic Dissonance of Mind-Body Dualism. As discussed in chapter four, epistemes were proposed by Foucault as periods during which there was a commonality or an order to modes of thinking and what was knowable (Foucault 1970). A view of the mind developed in the Classical episteme, that became so pervasive and interwoven in the fabric of what was 'known' that it has continued on into the scientific and evidence-based approach of the Modern episteme, causing a dissonance that can be seen when the findings of the current study are considered.

The origin of mind-body dualism, the assertion that the mind is an entity qualitatively separate from the body, is generally attributed to Rene Descartes, predominantly in his text 'Mediations on First Philosophy', published in 1641. This concept was not presented in the form of testable and verifiable theory, as would be expected in the modern era. It was the result of Descartes' 'meditations', what made sense to him after a sustained period of consideration. Descartes' assertion that the mind was a separate entity became accepted into common understanding and the philosophical discussions around the nature of the mind continued on and was reinforced by philosophers across the centuries ever since (Mehta 2011). During the classical period, authors of mental disorders recognised that the brain was relevant to them, whilst still considering the mind to be separate. This was not such an issue in the classical era as the requirement for testable theories and scientific evidence to back up the claims of theories was not yet expected, so authors did not have to worry about explaining how mind-body dualism actually worked

By the time society moved into the modern episteme the discourse of mind-body dualism had become so interwoven with the fabric of society as to become unquestioned and 'known', that the mind is something separate to the body. However, the modern episteme is characterised by the scientific approach, of testable theories and explanations of mechanisms of effect. This entrenched idea of mind-body dualism, from a previous episteme, now causes a dissonance as it exerts its influence

in an episteme that requires causal explanations, which it cannot provide. The DSM, by definition, had to provide knowledge on disorders of something that could not really be fully explained as to what it (the mind) actually was. At the time of its inception, in the absence of any evidence, knowledge and understanding was provided by psychoanalysis, as an attempt to fill what may be considered an 'epistemological awkward silence' in knowledge of mental disorder. However, the lack of scientifically testable theory for the approach limited its lifespan in the modern era. The mind-body issue was at the root of a tension which eventually resulted in an end to the periodic wholesale review of the DSM, as it had accepted the brain as the basis of all mental disorder but did not have the knowledge on this to develop any further.

Delirium as a medical condition has been discussed since antiquity, with the ancient Greeks employing the terms 'frenzy' and 'lethargy' to denote delirious states. Celsus using the term 'De Lira' (raving) in the 2nd century A.D (Francis 1999). In more recent times, the text 'A Treatise on Phrensy', was written by Frings in 1746 and noted, 'The Phrensy, according to the opinion of the Galenists, is an inflammation of the brain and its membranes, attended with a constant delirium and acute fever, occasioned by the heat of the spirits' (p4). It indicates here a clear recognition of the association between delirium and the brain that significantly pre-dates the DSM. However, at the time of its inception, the need for explanation was being accommodated by psychoanalysis, which did not seem to have much to say about delirium, as its primary interest was the influence of personality.

Mind-body dualism has the effect of making anything related to mental disorder (as defined), 'other' in the context of general medical care. Within nursing, there are professional dividing lines that separate initial training between adult, mental health, child and learning disability pathways. This makes mental health nursing 'other' in relation to adult nursing, which covers care for adults with any health disorder except for mental health. This raises the question that if considered to be disorders of the brain, as acknowledged by the APA, should this area of practice be any more 'other' than cardiac nursing or renal nursing, for which there is not a separate branch of nursing. It may be argued that mental disorders are more than pure anatomical disorders of the brain. However, the same could be said in relation to diseases such as type two diabetes and acute coronary syndrome (ACS), where physiology and environmental factors are recognised to play a joint role, but they are not seen as 'other'. Mental disorders categorised as a type of (physical) disorder does not preclude the influence of external, non-physical factors.

The categorising of mental health and disorder in healthcare as something separate to other physical disorders has existed for decades, before any practitioner currently working in the health service, and is, therefore, probably not even noticed, much less questioned. By making mental disorders 'other' through the dualism of the mind-body approach, the resistance from professionals may be increased due to an inherent sense of disconnectedness. Delirium, a classified mental disorder, may seem to ICU staff different somehow to all the other issues that a critically ill patient may be experiencing, without them even being aware of why, of this 'otherness' of its categorisation.

The effect in practice of this 'otherness' was illustrated in a focus group study carried in the UK by Zamoscik et al (2017). Five years after the CAM-ICU assessment had been introduced to a medical-surgical ICU as standard practice, two focus groups, involving 12 ICU nurses, were held to explore nurses' perceptions of screening and managing delirious patients. One of the themes emerging from the study was delirium as a secondary matter. Under this theme, authors reported that whilst part of the patient's overall assessment, it was not considered a priority, that 'prioritising care of other organs prevented nurses focusing on the patients' psychological needs', and that 'training focuses on the physical aspects of managing patients, whereas delirium receives little attention and is 'always the last to call' (Zamoscik et al 2017: 96). Both of these statements imply that prevention/management of delirium is not care of a dysfunctioning organ, in the same way, because it is a psychological problem, and that it is not a physical aspect of a patient to be managed. This study suggests that rather than being seen as a physical problem of acute brain failure, delirium is seen as something else, a psychological problem, 'other' to the main areas of concern.

This tension caused by the Epistemic Dissonance of Mind-Body dualism is a phenomenon that education and dissemination of evidence in relation to ICU delirium has to overcome, and could offer an explanation for the time that has been taken to achieve progress within this area.

8.6 Chapter summary

This chapter has discussed the synthesis of study findings via a Foucauldian genealogical lens. In doing so, a unique perspective into the potential influencing factors on ICU staff's thinking about delirium has been presented. Mechanisms by which power formations may drive both historical and contemporary influences on ICU staff's thinking about delirium have been discussed. An over-arching framework

of an epistemic dissonance is proposed, which identifies a possible new contributing factor to the apparent ongoing disconnection between recognition of delirium severity and clinical response. The final chapter presents the study conclusions and recommendations.

Chapter Nine: Conclusion and recommendations

9.1 Introduction

This concluding chapter will begin with an overview of the thesis. It will then identify the key findings and conclusions drawn from the study and the original contribution to knowledge. The strengths and limitations of the research process, and the personal development as a researcher, will be reflected upon, before concluding with recommendations for future research and implications for practice.

9.2 Overview of the thesis

Following an initial introduction to the study, the background chapter provided an overview of delirium in the ICU. It was highlighted that ICU delirium is a prevalent condition that has serious implications for patient outcomes and can be very distressing for patients to experience. Despite this, the implementation of routine assessment is recognised to have been slow in clinical practice. The review of literature identified a range of international studies investigating ICU staff's knowledge and attitudes toward delirium and assessment for it. Foucauldian genealogy as a theoretical framework was then identified, and its relationship and fit with the study design discussed. This was followed by description of the study process. The findings from the survey of UK ICU nursing and medical staff were then presented, followed by the findings for the genealogical analysis of the evolution of the DSM delirium definition. Following this, the discussion presented a synthesis of the two strands of data collection via the use of a Foucauldian lens, to surface the tensions within. A model was proposed in which power formations operate within the context of an epistemic dissonance resulting from mind-body dualism

9.3 Conclusions from the thesis

The aim of this study was to: 'provide an insight into the factors that may influence how ICU staff think about delirium in their patients; taking into account the historical context as well as current perspectives'. To address this aim, five specific objectives were identified, key findings and conclusions from the study will presented grouped under the relevant objective.

9.3.1 Objective One

'Critique the current literature on how ICU staff think about delirium, including their knowledge of delirium and their knowledge and attitudes toward delirium assessment'.

A systemised review identified that an international literature base exists that evaluates ICU staff's thinking on delirium. However, there a paucity of research within the UK was identified. This was particularly notable for nurses in England, who had only been included in one small focus group study. None of the survey studies, that had assessed delirium knowledge and attitudes, had included this group.

Three clear themes emerged from the review of 37 studies from 14 countries. These were: 'the recognition – action disconnect', 'barriers to delirium assessment' and 'educational interventions'. The literature consistently identified gaps in knowledge relating to delirium screening and presentation, however, overall, staff do recognise the seriousness of delirium. A disconnect was seen between this recognition of the potential severity of ICU delirium for patient outcomes and the performance of routine delirium assessment. ICU staff did not generally have a good understanding of the prevalence of the different types of delirium occurring in the ICU and misunderstandings were shown to exist in relation to delirium screening tools. It was identified that research with an educational basis has been undertaken, aiming to improve staff's knowledge of delirium and these have demonstrated the potential positive effect of educational interventions. The findings have been diminished, however, by small sample sizes and a lack of methodological clarity.

9.3.2 Objective Two

'Carry out a survey of ICU nurses and doctors in the UK investigating their knowledge of and attitudes towards delirium and its assessment'.

Conclusions from the survey of 650 UK ICU nurses and doctors showed a number of consistencies with the international literature base discussed for outcome one. UK ICU staff were seen to recognise the seriousness of delirium with a strong awareness of the potential complications. There was, however, a poor level of awareness of the prevalence of different delirium types in ICU. This appeared to lead to an over-confidence in the efficacy of using clinical judgement to assess for delirium, without the use of a validated assessment tool. Potentially related to this, some significant knowledge gaps were noted in relation to delirium assessment tools, particularly around their validity for use in ventilated patients. Findings also demonstrated that

there is some evidence of routine screening for delirium in UK ICUs but significant gaps in practice exist. A finding not seen in the previous literature reviewed relating to education around ICU delirium, was the suggestion that bedside teaching may be less effective than other methods of education or training.

9.3.3 Objective Three

'Carry out a Foucauldian genealogical analysis of the evolution of the definition of delirium in the Diagnostic and Statistical Manual (DSM) produced by the American Psychiatric Association (APA) from 1952-2013'.

The Foucauldian genealogical analysis of the DSM nomenclature revealed that it was born into an era where understanding of the nature and mechanism of mental illness was minimal and it has evolved in a fractured manner. Its evolution was driven by professional and political forces, having been left vulnerable by a lack of underpinning subject knowledge to being buffeted by societal norms. Whilst it was found that delirium could be fitted to descriptions of disorders in previous editions, it had only been recognised within the DSM as a specific disorder since 1980, and the significance of the ICU environment to delirium since 2013. Despite a relatively short history in the DSM, the recognised definition of delirium was found to sit within a classification with a long history of having its validity questioned, and perceptions of delirium may therefore be affected by association with this.

9.3.4 Objective Four

'Synthesise the study findings with the Foucauldian genealogical lens, to provide a unique insight into potential influencing factors on ICU staff's thinking about delirium'.

Application of a Foucauldian genealogical lens to synthesise both strands of the study findings revealed normalising power formations that can be seen as potential drivers of both historical and contemporary influences on staff's perception of delirium in ICU. Three specific formations were identified: 'the reciprocal nature of power and knowledge', 'the power of discursive formations' and 'the power of personal ethics in professional development'. Examples of resistance were seen in relation to the operation of these power formations. Binary oppositions were shown to operate within these power formations, surfacing tensions in staff's knowledge and attitudes to ICU delirium and its assessment.

An over-arching context of epistemic dissonance resulting from mind-body dualism was apparent and offers a new perspective as a potential contributing factor for the ongoing recognition-action disconnect.

9.3.5 Objective Five

'Disseminate the insights that emerge and recommendations from these to the Critical Care practice community and Critical Care nursing course students and education policy makers'

The key findings and conclusions presented above for the first four objectives have identified new knowledge and insights of relevance for dissemination to the wider Critical Care audience. This new knowledge forms the basis of a dissemination plan which is built into the recommendations that follow.

9.4 Original contribution to knowledge

Of the previous research identified and discussed in chapter three, a minimal amount had been carried out in the UK. Of the research that had been carried out in the UK, three previous surveys had been carried out but none had included nurses in England. The one previous study on the topic to include ICU nurses from England was a single-centre focus group with 12 participants. The current study included 245 ICU nurses in England, a previously unrepresented group, whilst also adding to the small numbers of UK staff previously represented from other UK countries. The key findings and conclusions presented above for objective two therefore represent new knowledge in this population.

Previous research identified had looked at staff's thinking about ICU delirium by either surveying their knowledge and attitudes about it, or asking them in person via interviews or focus groups. No previous research was found that had sought to investigate this topic by researching potential influences on staff thinking beyond that which they were consciously aware of. The key findings and conclusions presented for objective three, therefore, add a unique perspective on potential historical influences on staff's thinking about ICU delirium.

In addressing objective four, a genealogical lens was applied to the picture of potential influences on staff's thinking on ICU delirium by the study findings as a whole. This synthesis has provided a unique perspective and, with this, new insights into the mechanisms by which staff's thinking about ICU delirium may be influenced.

9.5 Reflections on the research process

9.5.1 Strengths and limitations of the study

The choice of an observational quantitative approach in the form of a survey, for the focus on contemporary influences, has the limitation that it does not allow for the

same depth of analysis of individual responses as would be possible in a qualitative approach, such as interviews or focus groups. However, this approach has enabled the study to involve a large number of participants from a group who have been very under-represented in UK research. The study approach to participant recruitment carried the limitation that the number of potential participants the survey reached was not known and therefore a percentage response rate could not be calculated. When considering the method of distribution this limitation was balanced against the strength of being able to reach a large amount of potential participants from diverse areas of the UK, rather than limiting this to one ICU or to several ICUs in one area. Given the paucity of UK studies in this area involving UK nurses, particularly nurses in England, this limitation was accepted in order to obtain a wider reach of participants. This enabled the recruitment of 650 participants that were nearly equally balanced between nurses and doctors.

The anonymous nature of the online survey may have led participants to feel more comfortable to be honest in answers, both for questions answered by a tick box and the free-text answers, which can be considered a strength of the survey. The potential for social desirability effects to influence responses of participants is recognised as a potential design limitation. That the survey was distributed by the ICS and from lead nurses within the Critical Care Network would indicate to potential participants that these senior figures from within the speciality recognised the need for, and importance of, research in this area. It is also acknowledged that staff with an existing interest in the subject of delirium may have been more likely to respond to the survey. Given these potential influences it would seem likely that any identification of deficits in knowledge and practice are likely to be conservative estimates in context of the wider UK ICU staff population.

Four questions in the survey included a free text box where participants could provide extra information relating to their answer. The additional information obtained through these enriched the picture of responses provided and were very valuable when applying the genealogical lens to this arm of the data. If the survey were to be used again, additional free text boxes would be included. The application of a Foucauldian lens to the interpretation and discussion of the study findings has resulted in a unique perspective and is a strength of the study approach.

9.5.2 Reflections on becoming a researcher

Throughout the process of completing the doctorate I have occupied two roles; that of a lecturer in Critical Care nursing and that of a researcher, albeit a novice one. At

the start of the doctorate I already comfortably inhabited the role of lecturer in Critical Care nursing, this was a role I was used to fulfilling. I felt I had an 'insider' perspective in both sub-cultures of the role, as a Critical Care nurse and as an educator. This was not the case for the role of the researcher, however. Whilst the role of researcher was one I was keen to embrace, that operated within a culture that I found very interesting, it was with an 'outsiders' perspective that I first felt myself occupying the role. This was not specifically in relation to any aspect of the current study but simply as a person doing some research, my perspective felt like that of an interested outsider looking in at the culture of 'real researchers', trying to learn as much as I could. This perspective on the occupation of roles has developed and shifted over the course of the doctorate.

This development has resulted from the confidence gained through increasing knowledge, understanding and practice within the culture of research. Prior to commencing the doctorate I had no awareness of Michel Foucault or post-modern approaches to research. I immediately found these approaches of great interest, in particular the work of Michel Foucault; which I have embraced as the theoretical framework for the current study, and I know will remain a life-long interest. The broadening of my knowledge of approaches to research has, over the course of the doctorate, developed my thinking in relation to the application of these different approaches. I have developed an understanding that the broad variety of research methodologies available are best considered lenses through which a given research question can be viewed. This perspective on research has sat well with my natural tendency to pragmatism and allowed me to comfortably develop a position of seeing different research methodologies for the potential they offer to address various research questions. Rather than siloed templates to be applied to data, to which research questions must be made to fit.

Alongside the increasing knowledge and development in thinking discussed above; the process of carrying out a Foucauldian genealogical analysis has in itself helped in developing my position in the role of researcher. Immersing myself in theory that discussed the role of normalising power formations, has enabled me to reflect on how absorbing the discursive and non-discursive formations, that state what a nurse 'is' and what a nurse 'does', over a period of 30 years, may have affected my perception of myself as a researcher. This combination of learning and development over the course of the doctorate has shifted how I feel I relate to the role of researcher. Whilst the completion of a doctorate is but the start of the journey as a researcher, it is now a role which I feel I can occupy and embrace.

9.6 Recommendations

The insights that have emerged from the study have implications for both future research and for clinical and educational practice, which are outlined below.

9.6.1 Future research

- Further research is recommended into the identified potential influence of the dissonance caused by mind-body dualism into how staff think about and respond to delirium. It is also recommended for future research to broaden the scope of focus and consider the potential effect of this dissonance on other aspects of care which may be impacted by such categorisation, such as elements of care defined as being psychosocial.
- Research is recommended to strengthen the evidence base relating to the efficacy of different approaches to education and training. It is recommended that research in this area also seeks to obtain detailed data on the views of staff, as to their preferences of education mode and the reasons for these preferences. Alongside this, it is recommended that research seeks the views of educators in the practice setting as to the challenges of delivering education on this topic

9.6.2 Clinical and educational practice

There is a need for a wider discussion within the Critical Care professional community about the potential impact of mind-body dualism, with the aim of raising awareness amongst ICU professionals that this issue may be affecting how they think about delirium. The recommendations for clinical and education practice are identified below.

- It is recommended that education of ICU staff, both within the practice environment and the academic setting, incorporates a specific focus on areas of knowledge deficit identified in the current study and wider review of literature. In particular, greater focus is recommended around delirium types and their prevalence, and the use of validated delirium assessment tools.
- It is recommended that education within the practice environment and academic settings builds in discussion with staff around the potential influence of the dissonance of mind-body dualism. By encouraging discussion, it is hoped that this will prompt staff to consider whether they may think about delirium differently to other aspects of care as a result of this categorisation.

- In order to address the identified recommendation for a wider discussion within the critical care community, around the insights that have emerged from this study, a dissemination plan will be adopted. The dissemination plan will incorporate: submissions for potential publication to Critical Care focused peer reviewed journals; submission for presentation at Critical Care focused conferences; and, liaison with Critical Care education policy makers to share study findings.

9.7 Chapter summary

This chapter has presented the conclusions and recommendations from the study. Following an overview of the thesis, the key findings and conclusions have been presented and the contribution to knowledge has been identified. Reflections on the research process have then been considered, including strengths and limitations of the study, and personal development as a researcher. Following from this, recommendations for future research and practice recommendations have been identified.

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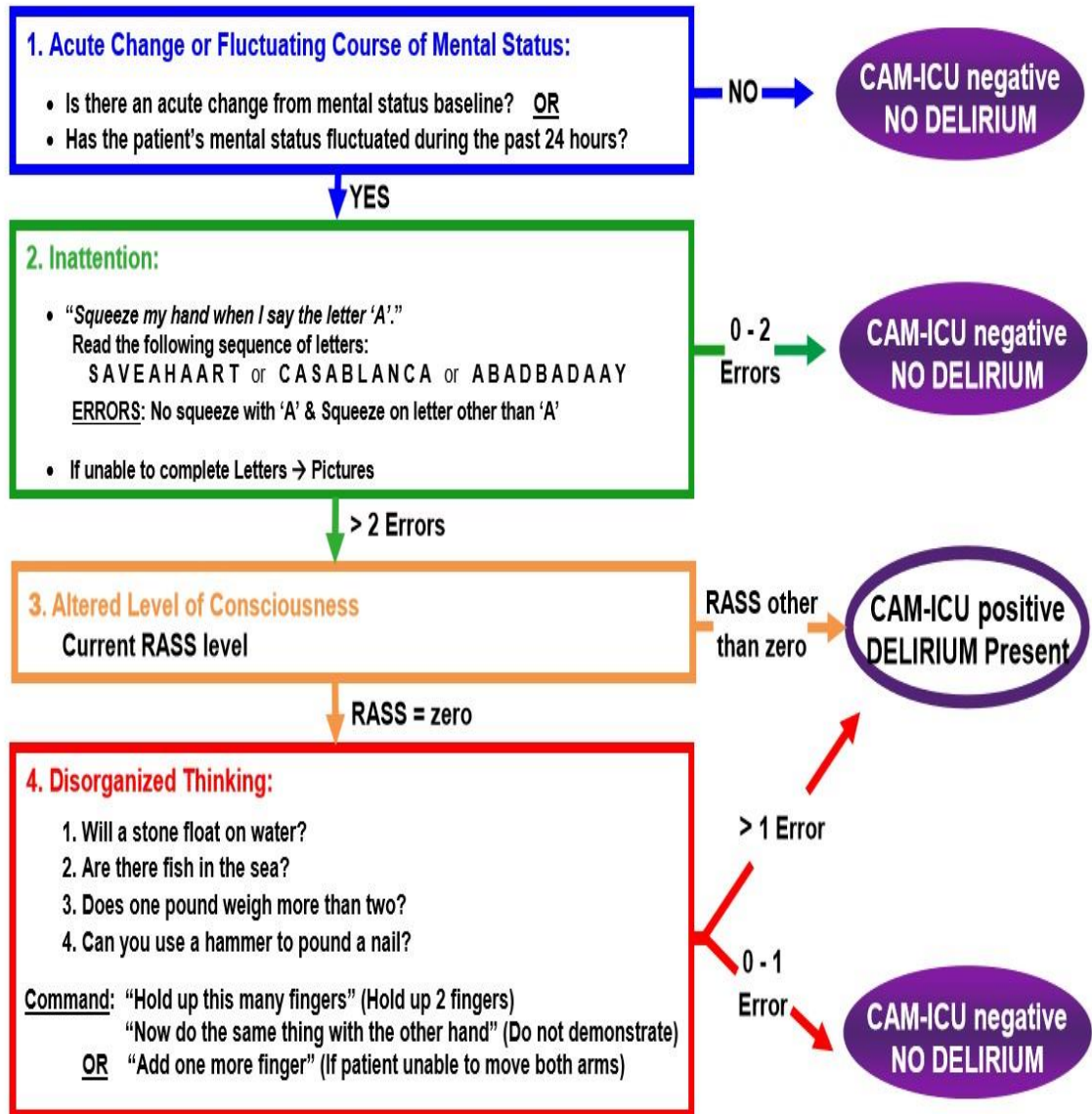
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Appendices

Appendix One: CAM-ICU Flowchart (Ely et al 2002)



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Appendix Two: Nursing bandings and Medical grades

Nursing bands and roles on Agenda for Change pay structure

Band on Agenda For Change structure	Nursing role
Band 5	Staff Nurse
Band 6	Junior Sister / Charge Nurse
Band 7	Senior Sister / Charge Nurse
Band 8 (divided into a, b, c & d)	Senior roles: Matron, Assistant Director of Nursing

*Ref HSTEvents (2019)

Medical Training Grades

Other terms	Doctors on the official training pathway	Pre-2005 terms* (applicable to both training and non-training jobs)	Doctors not in training	General terms
Foundation doctor	FY1, F1	PRHO, house officer		Junior doctor
	FY2, F2		Junior clinical fellow, F3+	
Trainee	CT1, CT2, ST1, ST2	SHO	Senior clinical fellow	
	ST3-ST9	SpR, Registrar		
	Clinical fellow (Post-CCT)			Senior doctor
			SAS (Staff grade, Associate specialist, Specialty doctor) Middle grade	
	GP, Consultant			

Appendix Three: Survey Participant Introduction Page

Thank you for considering taking part in this research project, before you decide please read the following information which explains the nature of the study.

I am a lecturer with a clinical background in ICU nursing and am carrying out this research for my doctoral thesis as part of a Doctorate in Advanced Healthcare Practice at Cardiff University. I am seeking nurses and doctors working in UK Intensive Care / Critical Care Units to take part in a survey that asks questions about knowledge and practice in relation to delirium in the ICU, with a particular focus on delirium assessment. If you decide to take part it will involve completing a number of question which are mostly answered by ticking the chosen answer. Completion of the survey should take approximately 5 minutes to complete.

You will not be asked for your name and all information will be anonymous. The results of the research will be written up into a paper submitted for potential publication in a relevant academic journal. As all data will be treated anonymously any direct quotes used from comments provided will not be traceable to individual participants and pseudonyms will be used. Thank you for reading this information sheet, if you have any questions please feel free to email me at the address below. If you decide not to take part then no further action is required.

Thank you,

Kate Deacon, email: DeaconKS@Cardiff.ac.uk

Appendix Four: Survey questions as presented in Survey Monkey, from Elliot (2014)

1. Profession

- Nurse
- Doctor

2. For nurses, please tick your band

- Band 5
- Band 6
- Band 6 sister
- Band 7
- Band 8

3. For doctors, please tick your grade

- FY1
- FY2
- ST1
- ST2
- ST3
- ST4
- ST5
- ST6
- ST7
- Consultant

4. ICU years of experience

- Less than 1 year
- 1-5 years
- 6-10 years
- More than 10 years

Appendix Four: Survey questions as presented in Survey Monkey, from Elliot (2014)

5. Whereabouts within the UK do you work?

- England
- Scotland
- Wales
- Northern Ireland

6. When did you last receive education / training on ICU delirium?

- Less than 6 months ago
- 6-12 months ago
- More than a year ago
- Never

7. Please tick which kind of education / training you received

- Bedside teaching
- Internet
- Organised course
- Organised study day
- Tutorial
- University lecture
- Other (please specify)

Appendix Four: Survey questions as presented in Survey Monkey, from Elliot (2014)

8. For each of the statements below tick True, False or Don't Know. Please answer honestly and do not guess.

	True	False	Don't know
Delirium is an acute condition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Patients with ICU delirium are always physically and / or verbally aggressive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ICU delirium can be characterised by fluctuating mental status	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ICU delirium develops over a short period of time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inattention is a symptom of delirium	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Please rank how commonly occurring you think the different types of delirium are

	Most common type	Second most common type	Least common type	Don't know
Hyperactive delirium	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hypoactive delirium	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mixed delirium (both)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Please indicate whether or not you consider each of the following to be a risk factor associated with ICU delirium. Please answer honestly and do not guess

	Is a risk factor	Is NOT a risk factor	Don't know
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diabetes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Female	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
High APACHE II score	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Hypoxia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mechanical Ventilation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Obesity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychoactive medication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sepsis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix Four: Survey questions as presented in Survey Monkey, from Elliot (2014)

14. Please indicate whether you not aware / aware of the following screening tools:

	Not aware of	Aware of
Confusion Assessment Method for the Intensive Care Unit (CAM-ICU)	<input type="radio"/>	<input type="radio"/>
Intensive Care Delirium Screening Checklist (ICDSC)	<input type="radio"/>	<input type="radio"/>
Neelon and Champagne Confusion Scale (NEECHAM)	<input type="radio"/>	<input type="radio"/>
Nursing Delirium Screening Scale (Nu-DESC)	<input type="radio"/>	<input type="radio"/>
Delirium Detection Score (DDS)	<input type="radio"/>	<input type="radio"/>

15. Please indicate how often you use each of the screening tools below

	Never	Rarely (< once per 6 months)	Occasionally (once per month)	Frequently (weekly)	Very frequently (daily)
CAM-ICU	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ICDSC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NEECHAM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nu-DESC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
DDS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix Four: Survey questions as presented in Survey Monkey, from Elliot (2014)

16. Consider the screening tools identified below, do you find the screening tools easy to use?

	Not used	Never	Rarely	Sometimes	Almost always
CAM-ICU	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ICDSC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NEECHAM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nu-DESC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
DDS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. Do you find using the ICU Delirium screening tool time consuming?

- Yes
 No

18. On average, how often do you screen for ICU Delirium?

- Once per shift
 Twice per shift
 Three times per shift
 Change in patient's mental status
 Not applicable
 Other (please specify)

19. If there is fluctuation in the patient's mental status would you perform additional screening?

- Yes
 No

20. Please enter when you would normally screen for ICU Delirium

- Day time (0800-2000)
 Night time (out of daytime hours)
 Both
 Not applicable

21. How confident are you at:

	Very confident	Confident	Unconfident	Very unconfident
Explaining what ICU delirium is	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identifying the risk factors of ICU delirium?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Detecting ICU delirium without the use of a screening tool?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix Four: Survey questions as presented in Survey Monkey, from Elliot (2014)

22. How often do you think applying a validated screening tool correctly detects ICU delirium?

- Always
- Very often
- Sometimes
- Rarely
- Never
- Not-applicable

23. Would you like additional education / training on ICU delirium?

- Yes
- No

24. If yes, which type of education / training would you prefer?

- Bedside teaching
- Internet
- Organised course
- Organised study day
- Tutorial
- University lecture
- Other (please specify)

