Lessons to be learnt:
Evaluating aspects of patient safety culture and quality improvement within an intensive care unit

Stacey J Panozzo
B.Sc. Hons

Submitted for the award of
Doctor of Philosophy
in the School of Psychology
University of Adelaide

November 2007
Table of Contents

Abstract ........................................................................................................................................ xiv
Declaration ..................................................................................................................................... xvi

CHAPTER 1 .................................................................................................................................... 1
Introduction ..................................................................................................................................... 1

CHAPTER 2 .................................................................................................................................... 7
Safety culture in healthcare: A review of the literature concerning the need for, management of, and resistance to, change in healthcare ................................................................. 7
Overview ......................................................................................................................................... 7
Patient safety and the significance of medical errors and adverse events ............................... 8
Understanding the occurrence of medical error and adverse events ...................................... 10
A systems approach to medical error and incident reporting .................................................... 11
Healthcare systems as safety cultures ......................................................................................... 13
Organisational culture ................................................................................................................. 14
Measurement of organisational culture ...................................................................................... 15
Subcultures within the healthcare setting ................................................................................. 16
Safety culture ................................................................................................................................... 19
Factors affecting a culture of safety .............................................................................................. 20
Supervisor/management expectations, actions and support ....................................................... 20
Organisational learning and continuous improvement ............................................................. 21
Teamwork ...................................................................................................................................... 22
Communication openness ........................................................................................................... 22
Medical error, event reporting and response to reporting of errors ......................................... 23
Staffing .......................................................................................................................................... 24
Handovers and transitions ........................................................................................................... 25
Safety culture assessment in healthcare ...................................................................................... 25
Organisational change management .......................................................................................... 27
A need for change ......................................................................................................................... 27
Approaches to organisational change management in healthcare ............................................. 28
Total Quality Management (TQM) and Continuous Quality Improvement (CQI) ................. 29
Evaluation of change in healthcare ............................................................................................. 31
Barriers to TQM/CQI ................................................................................................................... 34
Important factors in organisational change ................................................................................. 34
Leadership ..................................................................................................................................... 35
Organisational culture and the context of change ..................................................................... 38
An assessment of patient safety culture within an adult intensive care unit

3.1 Introduction

Overview
The importance of safety culture
Safety Culture Assessment
Hospital Survey on Patient Safety Culture (HSPSC)
Summary and aim of the study

3.2 Method
Setting
Participants
Measures
Hospital Survey on Patient Safety Culture (HSPSC)
Reliability and construct validity analysis
Qualitative open-ended questions
Demographic details
Ethical considerations
Procedure
HSPSC pilot
Data analysis ....................................................................................................................... 71
Quantitative analysis ........................................................................................................... 71
Qualitative analysis ............................................................................................................. 73

3.3 Results......................................................................................................................... 75
Overview ............................................................................................................................ 75
Reliability and validity analyses for the Hospital Survey on Patient Safety Culture........ 76
Composite-level results ..................................................................................................... 78
  Total ICU respondents .................................................................................................... 79
  Consultant respondents .................................................................................................. 80
  Registrar respondents .................................................................................................... 80
  Nurse respondents ......................................................................................................... 81
  Similarities and differences between groups ................................................................. 81
Item-level results ................................................................................................................ 82
  Overall item-level patient safety culture ...................................................................... 82
  Item-level frequencies .................................................................................................. 83
  Overall item-level patient safety culture strengths and areas with potential for improvement ........................................................................................................... 95
  Overall item-level similarities and differences between groups .................................. 97
  Patient safety grade ...................................................................................................... 98
  Number of events reported ............................................................................................ 99
Composite-level comparative results .............................................................................. 100
  Comparative results of ICU patient safety grade ......................................................... 102
  Comparative results of ICU number of events reported .............................................. 103
Content analysis of open-ended responses ..................................................................... 105

3.4 Discussion ................................................................................................................... 108
Overview ............................................................................................................................ 108
Validity of the survey instrument and response rates ...................................................... 108
Hospital survey on patient safety culture (HSPSC) .......................................................... 108
  Safety culture strengths .............................................................................................. 108
  Areas with potential for improvement ......................................................................... 110
  Comparative results ..................................................................................................... 111
  Qualitative results ........................................................................................................ 112
Challenges ......................................................................................................................... 112
Limitations ........................................................................................................................ 113
Theoretical and practical implications ............................................................................. 114
Future research .................................................................................................................. 115
Summary ............................................................................................................................ 115
CHAPTER 4 ...................................................................................................................... 118

Handover communication in an adult intensive care unit: The impact of a Patient Management Plan & Progress document........................................................................ 118

4.1 Overview ................................................................................................................... 118
   Introduction ................................................................................................................... 118
   The importance of handover ........................................................................................ 119
   Factors and critical problems affecting handover ....................................................... 120
      Shift patterns .............................................................................................................. 120
      Communication difficulties and adverse events ....................................................... 121
      Interdisciplinary communication ............................................................................ 123
      Need for structure and guidelines ........................................................................... 124
      Organisational culture factors ............................................................................... 124
   Attempts to improve handover .................................................................................... 125
   Recommendations from the literature on improving handover .................................. 127
   The present study ........................................................................................................ 128
      The intensive care unit (ICU) .................................................................................. 129
      The ICU handover process ...................................................................................... 129
      A description of the Patient Management Plan and Progress MR 42.1 (PMPP) document and reason for change .............................................................. 131
   Aim of the study ........................................................................................................... 133

4.2 Method .................................................................................................................... 134
   Setting ......................................................................................................................... 134
   Participants .................................................................................................................. 134
      Consultants ............................................................................................................... 134
      Registrars ................................................................................................................. 134
      Critical Care Registered Nurses (CCRN) .................................................................. 135
   Measures ..................................................................................................................... 137
   Demographic details ................................................................................................. 137
   Quantitative ................................................................................................................ 137
   Reliability and construct validity analyses ................................................................... 138
   Qualitative open-ended questions ............................................................................. 138
   Procedure .................................................................................................................... 140
      Stage 1 ..................................................................................................................... 140
      Stage 2 ..................................................................................................................... 141
      Stage 3 ..................................................................................................................... 142
      Stage 4 ..................................................................................................................... 143
      Stage 5 ..................................................................................................................... 144
4.3 Results ............................................................................................................... 149

Quantitative analyses ................................................................................................... 149
Reliability analyses for the PMPP survey ................................................................. 149
Repeated measures results .......................................................................................... 149
Consultants .................................................................................................................. 150
Registrars ..................................................................................................................... 150
Critical Care Registered Nurses .............................................................................. 150
All repeated measures results ..................................................................................... 150
Differences in mean scores between groups before- and after- introduction .......... 151
Qualitative analyses ..................................................................................................... 154
Before-introduction: Themes expressed by consultants and registrars ................. 155
Overall before-introduction response ........................................................................ 156
Factors of handover process ...................................................................................... 157
Suggestions for improving handover ........................................................................ 159
Before-introduction: Themes expressed by nurses .................................................... 160
Overall before-introduction response ........................................................................ 162
Factors relevant to the handover process ................................................................... 162
Perceived need for change ....................................................................................... 163
Changes needed and potential outcomes ................................................................... 163
After-introduction: Themes expressed by consultants, registrars and nurses .......... 165
Education and introduction ....................................................................................... 169
Perceptions of the new PMPP document ................................................................. 170
Perceived improvement of ICU handover ................................................................. 172
Aspects improved by PMPP document ...................................................................... 173
Aspects not improved by PMPP document .............................................................. 173
Most important change resulting from the PMPP document ................................... 175
Interdisciplinary communication .............................................................................. 176
Suggestions for improvement ................................................................................... 178
Additional themes identified .................................................................................. 180

4.4 Discussion ............................................................................................................. 183

Overview .................................................................................................................... 183
Validity of the survey instrument................................................................. 183
PMPP document was not successful............................................................ 184
Reasons why the PMPP document was not successful.......................... 186
The issue of collective experience and organisational culture as a factor in change... 187
Respondents’ suggestions for improvement............................................... 188
Limitations ................................................................................................. 189
Theoretical and practical implications ....................................................... 190
Future research ......................................................................................... 192
Summary ................................................................................................. 193

Chapter 5 .................................................................................................... 194

Withdrawal of Treatment in an Adult Intensive Care Unit: The Impact of an Advance Care Plan Document ................................. 194

5.1 Overview ............................................................................................ 194

Introduction ............................................................................................. 194
The importance of withdrawal of treatment and documentation of the process .... 195
Withdrawal of treatment definition and description .................................. 195
Advance Care Planning (ACP) .................................................................... 197
Factors and critical problems affecting the documentation of the withdrawal process..... 197
Evidence of poor documentation ............................................................... 198
Importance of and need for interdisciplinary communication ................. 200
Palliative care .......................................................................................... 202
Variability in the process of withdrawal of treatment ............................... 202
Attempts to improve documentation of the withdrawal process ............. 204
The present study .................................................................................... 205
ICU initiative to hospital-wide initiative ................................................... 206
Previous history and experience ............................................................... 207
A description of the Advance Care Plan document .................................. 208
Aim of the study ...................................................................................... 210

5.2 Method 1: Medical Record Audit ......................................................... 212

Medical record audit ............................................................................... 212
Medical record audit before the ACP document was introduced .......... 212
Advance Care Plan .................................................................................. 212
Medical record audit after the ACP document was introduced .............. 212
Procedure ............................................................................................... 213
Data Analysis .......................................................................................... 214
Measures ............................................................................................... 214
5.3 Method II: Interviews with ICU staff members ................................................. 218

Participants .................................................................................................................. 218
ICU consultants and senior registrars ................................................................. 218
Critical Care Registered Nurses (CCRN) .............................................................. 218
Interview protocol ..................................................................................................... 219
Ethical considerations .............................................................................................. 222
Procedure .................................................................................................................. 223
Sampling .................................................................................................................. 223
Outside observation ................................................................................................. 223
Data Analysis ........................................................................................................... 224
Quantitative analysis ............................................................................................... 224
Qualitative analysis: Coding of the interview data and the development of a comprehensive codebook ......................................................... 224
Reliability and validity ............................................................................................. 227

5.4 Results I: Medical Record Audit ...................................................................... 228
Before and after the introduction of the ACP document ...................................... 228
A comparison of patient characteristics ............................................................... 228
Use of the Advance Care Plan document ............................................................... 230
Before: Documentation of medical decision and consensus .................................. 231
After: Documentation of medical decision and consensus ..................................... 233
Comparison: Documentation of medical decision-making and consensus .......... 234
ICU medical staff consensus .................................................................................. 234
Registrar involvement ............................................................................................ 235
No documented consensus .................................................................................... 236
Parent clinic representative consensus .................................................................. 236
Both ICU medical staff and parent clinic representative consensus .................. 236
Comparison: Documented reason(s) for withdrawal of treatment ...................... 238
Comparison: Medical documentation of family conference ................................. 238
Medical documentation of ICU registered nurse involvement .......................... 240
Medical documentation of family members spoken to ....................................... 240
Patient decision to withdraw treatment ............................................................... 240
Comparison: Content analysis of medical documentation of family conference .... 241
Comparison: Nurse documentation of family conference .................................... 243
Summary .................................................................................................................. 245
5.5 Results II: Interviews with ICU staff members ......................................................... 247
   Content analysis of ICU staff interviews ................................................................. 247
   Process and the old documentation of the process .................................................... 248
      Process of withdrawal: Description and understanding ........................................ 248
      Attitudes to process ............................................................................................. 251
   Old documentation of the process: Description and understanding ....................... 259
   Attitudes to old documentation of process ............................................................ 262
   Summary .................................................................................................................. 264
   Change process ........................................................................................................ 264
      Issue of collective experience ........................................................................... 265
      Attitudes toward impending change .................................................................. 265
   Summary .................................................................................................................. 267
   New Advance Care Plan (ACP) document .............................................................. 267
      New ACP document development and implementation ....................................... 268
      New ACP document ............................................................................................ 270
      Suggestions for improvement ............................................................................ 275
   Summary .................................................................................................................. 278

5.6 Discussion ............................................................................................................ 279
   Introduction .............................................................................................................. 279
   Discussion I: Medical Record Audit ......................................................................... 280
      Overview ............................................................................................................... 280
      Advance Care Plan (ACP) document .................................................................. 280
      Documentation of medical decision and consensus ............................................. 282
      Reasons for withdrawal of treatment .................................................................. 284
      Medical documentation of patient/family conference ......................................... 285
      Content analysis of the medical documentation of the family conference ........... 286
      Nurse documentation of patient/family conference ............................................. 287
   Summary of medical record audit findings ............................................................. 288
   Discussion II: Interviews with ICU staff members ................................................ 290
      Overview ............................................................................................................... 290
      Interview respondents’ descriptions of, and attitudes towards, the withdrawal process... 291
         Withdrawal of treatment is a consultant duty and privilege .............................. 291
         The role of the ICU nurse ............................................................................... 291
         Involvement and consultation with other clinical services .................................. 292
         Withdrawal of treatment as a legal “grey area” ............................................. 293
         Variability of the withdrawal process ................................................................ 293
ACP document was not successful................................................................. 294
Reasons why the ACP document was not successful....................................... 296
  Previous experience and history ................................................................. 296
  Clear preference for documentation in the patient’s medical records ............ 298
  Disagreement with requirement of signatures ............................................. 299
Respondent suggestions for improvement ...................................................... 301
Summary of interviews with ICU staff members............................................. 302

5.7 Overall summary of Discussion I and II.................................................. 303
  Methodology .............................................................................................. 303
  Limitations of the study ............................................................................ 304
  Theoretical and practical implications ....................................................... 305
  Future research directions ....................................................................... 308
  Summary .................................................................................................... 309

Chapter 6 .................................................................................................... 312
Summary and Conclusions .......................................................................... 312
References .................................................................................................. 320
Appendices ............................................................................................... 345
List of Tables

Table 3.1 Patient safety culture composites and definitions.......................................................... 59
Table 3.2 Characteristics of ICU respondents ........................................................................... 64
Table 3.3 Filters employed for the frequency analysis of ICU responses and the number of participants for each sub sample .............................................................................................................. 72
Table 3.5 Composite-level total percentage of positive responses for the total ICU respondents, consultant, registrar and nursing staff respondent sub-groups ......................... 79
Table 3.6 Overall item-level patient safety culture results .......................................................... 83
Table 3.7 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Frequency of event reporting” ................................................................. 83
Table 3.8 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Overall perceptions of safety” ............................................................................ 84
Table 3.9 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Supervisor/manager expectations and actions promoting patient safety” ...... 85
Table 3.10 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Organisational learning – Continuous improvement” ........................................ 86
Table 3.11 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Teamwork within units” ................................................................. 87
Table 3.12 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Communication openness” .............................................................................. 88
Table 3.13 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Feedback and communication about error” ................................................................. 89
Table 3.14 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Nonpunitive response to error” ................................................................. 90
Table 3.15 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Staffing” .............................................................................................................. 91
Table 3.16 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Hospital management support for patient safety” ............................................ 92
Table 3.17 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Teamwork across hospital units” ................................................................. 93
Table 3.18 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Hospital handoffs and transitions” ................................................................. 94
Table 3.19 Composite-level comparative results ...................................................................... 101
Table 4.1 Demographic characteristics for consultants, registrars, and critical care registered nurses (CCRN): before-only, both the before and after, and after-only .......... 136
Table 4.2 Overall participant numbers ...................................................................................... 149
Table 4.3 Mean satisfaction scores for both before- and after-introduction................................. 151
Table 4.4 Mean confidence scores for both before- and after-introduction consultants, registrars and CCRNs .............................................................................................................. 152
Table 4.5 Mean satisfaction scores before-only or after-only introduction for registrars and CCRNs ......................................................................................................................... 154
Table 4.6 Mean confidence scores before-only or after-only introduction for registrars and CCRNs

Table 4.7 Themes identified in the before-introduction assessment for consultants and registrars regarding the intensive care handover process

Table 4.8 Themes identified in the before-introduction assessment for CCRNs (N= 33)

Table 4.9 Themes identified in the after-introduction responses to the open-ended questions for consultant (n= 8) and registrar (n= 18) staff

Table 5.1 Inter-rater reliability: The basis for Kappa Calculation

Table 5.2 Inter-rater reliability: Basis of Kappa calculations

Table 5.3 Before- and after- introduction (n= 46 and 26 respectively) demographic characteristics and intensive care unit characteristics of the patients who had withdrawal of treatment

Table 5.4 After-introduction: Use of the Advance Care Plan document (n= 26)

Table 5.5 Before-introduction documentation of medical decision-making: The documented details of who was involved in the medical decision to withdraw patient treatment in the adult intensive care unit (n= 46) *

Table 5.6 After-introduction documentation of medical decision-making: The documented details of ‘who’ was involved in the medical decision to withdraw patient treatment in the adult intensive care unit (n= 26)*

Table 5.7 Before- and after-introduction: Documented reason(s) for the withdrawal of aspects of patient treatment

Table 5.8 Before- and after- introduction content analysis of medical documentation of family conference
List of Figures

Figure 3.1 Distribution of ICU patient safety grades .............................................................. 99
Figure 3.2 Distribution of numbers of events reported in past 12 months ......................... 100
Figure 3.3 Comparative results of distribution of ICU patient safety grades .................... 103
Figure 3.4 Comparative results of distribution of the numbers of events reported in past 12 months ................................................................................................................................... 104
Figure 4.1 Before- and after-introduction mean satisfaction scores for consultants, registrars and CCRNs ........................................................................................................................................ 152
Figure 4.2 Before- and after-introduction mean confidence scores for consultants, registrars and CCRNs ........................................................................................................................................ 153
Figure 5.1 Before- and after-introduction documentation of medical decision-making and consensus ......................................................................................................................................... 235
Figure 5.2 Before- and after-introduction documentation of family conference and staff involvement ......................................................................................................................................... 239
Figure 5.3 Before- and after-introduction ICU registered nurse documentation of family conference and staff involvement ........................................................................................................ 244
Figure 5.4 Flow chart of the process of withdrawal of patient treatment in the adult ICU .... 249
Abstract

Patient safety is of particular importance within intensive care units (ICUs), where critically ill, vulnerable patients receive complex multidisciplinary care. Prior research has indicated that improving patient safety and reducing errors within healthcare requires a focus on systems and organisational culture issues. This thesis was concerned with three studies. One focused on assessing the patient safety culture and two on quality improvement initiatives within an intensive care unit (ICU) of a large teaching hospital.

The first study involved a survey of ICU consultant, registrar and nursing staff regarding aspects of safety culture. This was conducted using an existing Hospital Survey on Patient Safety Culture. Of the twelve patient safety culture composites assessed, eight had scores lower than 50%, highlighting these as areas for improvement. Overall, while the survey results revealed that teamwork within the ICU was considered a strength, event reporting and patient care handovers and transitions were both considered areas with potential for improvement.

The second study focused on the evaluation of a change initiative designed to improve the handover of patient clinical information in the ICU. This study involved a survey and interviews with consultant, registrar and nursing staff before and after the introduction of a Patient Management, Plan and Progress (PMPP) document. Examination of the survey responses involved both quantitative and qualitative analysis; respondent interview transcripts were analysed using thematic analysis. The results of this study revealed resistance to, and criticisms of, the introduction of the PMPP document; the initiative failed and use of the document was discontinued.

The second initiative concerned an evaluation of the impact of a hospital-wide document on improving documentation of withdrawal of patient treatment within the ICU. This involved both quantitative and qualitative analysis, with a patient medical record audit of decisions to withdraw patient treatment within the ICU before and after the introduction of an Advance Care Plan (ACP) document. ICU consultant, registrar and nursing staff were interviewed regarding the process of withdrawal of patient treatment within the ICU. Interview transcripts were analysed using a
modified grounded theory approach. Results revealed that the attempt to improve the
documentation of withdrawal of treatment within the ICU failed, with the ACP
document remaining unused in 89% of cases and incomplete in the remaining 11%. Also, documentation of decision-making and of the process within the medical records did not improve. Before-introduction findings revealed that only 26% of medical records met the pre-existing requirements for treatment withdrawal in the ICU, and after-introduction findings revealed that only 19% of medical records audited met the requirements of the ACP document. After-audit findings also revealed significant and inappropriate increases in the involvement of an ICU registrar both as primary and secondary decision-makers. In spite of an increased awareness of ICU staff concerning the importance of improving documentation, the medical record audit revealed less compliance with the standards required for documentation. Possible reasons for the document remaining essentially unused, as revealed from interviews with staff, included: previous criticisms by the coroner when they failed to complete a similar formalised document properly; perceived logistical issues associated with obtaining required staff signatures; disagreement concerning who should be involved in documenting the withdrawal of treatment process; and the existence of an ICU subculture of practice that, in one particular aspect of documentation, was not consistent with established hospital and ICU protocol and documentation requirements.

The final chapter of this thesis considered implications of the results of the studies for the planning, development, implementation and evaluation of improvement programs within the ICU setting. The results were considered within the context of organisational change management theory and research, including factors that have been found to be critical in the success or failure of change programs, such as resistance to change, the involvement of key stakeholders in the change process, leadership, communication and organisational culture. It is suggested that management consultants with organisational change expertise in the planning, development, implementation and evaluation of such programs should be involved in future quality improvement initiatives.
This thesis contains no material which has been accepted for the award of any other degree or diploma in any university of other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give my consent to this copy of my thesis, when deposited in the University Library, being available for loan and photocopying.

Signed: __________________________________________

Dated: ___________________________________________
Acknowledgements

First, I would like to thank my supervisors, Dr Neil Kirby, Professor Bill Runciman and Professor Helen Winefield, for sharing their expertise, offering encouragement and providing meticulous feedback. A special thank you to Neil for his theoretical and practical guidance every step of the way and to Bill for the opportunity to conduct my research within the intensive care unit (ICU), providing funding for travel and his quirky sense of humour.

I am also grateful to Dr Arthas Flabouris for his time and expertise, spending hours assisting me in the audit of medical records and ensuring that my conference papers were rather more concise than I could achieve by my own means. Thank you to Dr Linley Denson for her support in the analysis and writing of Chapter 5 and to Bob Willson for statistical advice.

I would like to acknowledge the ICU nurse management staff, in particular Deb Herewane, Ian Blight and Stephanie Creed for their support and willingness to assist with this research project. A special thank you to all the ICU consultant, registrar and nursing staff who gave their time and shared their attitudes and perceptions concerning their work and experiences in the ICU.

Thank you to my friends for putting up with my highs and lows and listening to me talk about my thesis, particularly in the final year, when I knew nothing else! Thank you to Dr Alex, Jess, Charlotte, Jade, Bec, Donna, Kath, Zac and Caroline for their support and encouragement. Love and thanks to Sally, Chelsea, Karissa, Tamara, and my family at Morphett Vale – I feel blessed to know you all. And to Dr Shona and Kate for being such incredibly supportive flatmates.

Also, my thanks and deepest respect to Dr Trinh for always being a phone call away if ever I needed advice, a whinge, a cry or a laugh.

I would especially like to express my love, gratitude and affection to my family. To my Mum and Dad who have always been there for me, selfless in their support, encouragement and belief in me. To my brothers and sister, Mathew, Lili and Heath for keeping me on track and reminding me of what really matters. And finally thank you to a God that I can trust.
CHAPTER 1

Introduction

The quality of healthcare is an extremely important issue, particularly within intensive care units (ICUs) where patients are critically ill and being cared for by a multidisciplinary team. Researchers have highlighted safety concerns in healthcare and the need to improve processes and procedures in the face of progressively increasing demand for intensive care services and an ageing population (Dobb, 1998; Shortell et al., 1994). It is important to promote continuous quality improvement and improve the safety culture as priorities in further improving patient care.

Australian research has highlighted the prevalence of medical errors and patient injury in the Australian healthcare system (Wilson et al., 1995), with a total of 16.6% of a total 14,179 admissions found to be associated with an adverse event. The financial cost of adverse events in Australia has been estimated to range from $483 million and $900 million per annum (Rigby, Clark, & Runciman, 1999; Wilson et al., 1995). Ineffective communication or communication failures have been found to contribute to a large percentage of these adverse events (Vincent, 1997; Vincent, Taylor-Adams, & Stanhope, 1998; Wilson et al., 1995). This awareness of adverse events and preventable errors in healthcare emphasizes the need for improved patient care and an increase in patient safety within healthcare. It has been argued that improving patient safety requires a systems approach to error and an organisational focus to develop a culture of safety, rather than a culture of individual blame for errors (Leape, 1994).

Despite the fact that creating and maintaining a culture of safety has long been seen as important in other high-risk organisations, such as aviation, its importance within healthcare has only more recently become a focus of concern. Given the prevalence and consequences of medical errors, an understanding of the existing patient safety culture within healthcare is important in order to change the culture to be more consistent with quality improvements in patient safety. In an
attempt to address this limitation, the current research project involved an
assessment of the patient safety culture within an ICU. In evaluating the patient
safety culture, areas of strength and areas with potential for improvement were
identified for the overall ICU and separately for ICU consultant, registrar and
nursing staff, in order to better understand how the patient safety culture might be
enhanced.

Research suggests that the challenge of improving patient safety is not
only clinical but also organisational (Ramanujam, Keyser, & Sirio, 2005).
Attempts to improve patient safety need to focus on quality improvement
initiatives that address identified areas of harm and unsafe practices. In order to
facilitate change, the principles of Total Quality Management (TQM) and
Continuous Quality Improvement (CQI) (TQM/CQI) have recently become
accepted within healthcare organisations. In general, TQM/CQI involves a
patient-centred focus, an understanding of the process and systems, and of the
importance of leadership and involvement and empowerment of staff in the
process of quality improvement (Berwick, 1989; Dawson & Palmer, 1995; Grol,
Bosch, Hulscher, Eccles, & Wensing, 2007; Plsek, Solberg, & Grol, 2004;
Shortell et al., 1995). Leadership, communication, culture, participation and
involvement of staff are all seen as important factors in the organisational change
process (Kotter & Schlesinger, 1979). An iterative process of change is advocated,
with a cyclic approach to planning, implementing and evaluating quality
improvement attempts. In this way, an evaluation of change provides information,
increases an understanding of the change process, and offers a learning
opportunity for both clinical staff and management (Harvey & Wensing, 2003).

It is also important to recognise that there is an opportunity to learn from
all change experiences, not just the successful ones (Dawson, 2003), as there have
been many failed efforts to improve patient safety in healthcare, although these
attempts tend not to be published. Therefore, because staff scepticism and
resistance to change can impede progress it is important to have an awareness and
understanding of staff resistance to change (Gollop, Whitby, Buchanan, & Ketley,
Potential reasons for resistance may include: aspects of organisational power and politics; the impact of organisational culture and previous experience; professional subcultures and autonomy; and misunderstanding and fear through a lack of communication (Buchanan & Badham, 1999; Johnson & Scholes, 2002; Schein, 1985a, 1985b).

This research project, comprising three studies, was conducted within an adult ICU of the Royal Adelaide Hospital (RAH), a large public teaching and referral hospital in South Australia. The RAH ICU is a multidisciplinary unit divided into three sections (A, B, C-ends) including a complement of 24 ICU (A-end and B-end) and 10 high dependency unit (HDU) beds (C-end). The ICU has an annual admission of more than 1500 ICU and 1300 HDU patients.

This thesis sought to evaluate two specific change initiatives attempted within the ICU setting. The first change initiative involved an attempt to address the communication and documentation involved in the handover of patient clinical information at ICU handover times. Handover of patient clinical information has been identified in the literature as an area in need of further research and improvement within healthcare (ACSQHC, 2005b, 2005c;AMA, 2006; BMA, 2004). With an increase in shift work resulting in a number of different individuals responsible for the care of a single patient, good quality communication and documentation at handover is imperative to ensure continuity of patient care (AMA, 2006; BMA, 2004; Currie, 2002).

The second change initiative involved an attempt to improve the documentation of end-of-life care decisions. Research indicates that the majority of patient deaths within the ICU occur after a decision to withdraw or withhold treatment has been made (Prendergast, 2000). There is a dearth of literature focusing on the medical record documentation of the process of withdrawal of patient treatment in the ICU (Carlet et al., 2004; Melltorp & Nilstun, 1996). What literature there is highlights the extreme importance of documentation of end-of-life care and Australian and international recommendations have been made for the need for a clearly documented record of proceedings as a reference and to
enable greater transparency and accountability in patient care (Butler, Pooviah, Cunningham, & Hasan, 2003; Carlet et al., 2004; NSW Health, 2005).

These examples within healthcare support the relevance of organisational change management theory to the planning, development, implementation and evaluation of the quality improvement initiatives that do occur within healthcare. With the need for change to improve patient safety, the challenge is not only clinical but also organisational. The difference between successful change and failure to change is often attributable to ineffective change management strategies at an organisational level (Ramanujam et al., 2005).

To address the limitations in the current body of literature regarding handover of patient care and documentation of end-of-life care and withdrawal of treatment, the final two studies (Chapters 4 and 5) in the present research project investigated the impact of two separate change initiatives undertaken within the ICU setting, through examination of ICU staff perceptions and experiences of the change. Findings were examined in relation to organisational change management theory.

**Overview of the thesis**

The aim of this research project was to conduct an assessment of the patient safety culture within an ICU and to evaluate the impact of two separate quality improvement initiatives, with consideration of the relevant organisational change management theory for effective quality improvement and change within healthcare, and more specifically the ICU. This thesis has six chapters. Chapter 1 provides a brief summary of and introduction to the research thesis and the studies involved.

Chapter 2 provides a review of the literature concerning patient safety and medical error within healthcare, the importance of creating and maintaining a culture of safety, and factors affecting and methods of assessing a culture of safety within the healthcare setting. The subsequent sections contain a review of the literature on organisational change management theory, important factors in
organisational change and quality improvement within healthcare, and the barriers and resistance to change and how these might be managed. The chapter then provides a discussion of the research methodology in this area of research and presents an outline of the research questions and aims of the thesis.

The first study is described in Chapter 3. It involved the assessment of patient safety culture within the ICU, using a newly established safety culture assessment tool, the Hospital Survey on Patient Safety Culture (HSPSC) (Sorra & Nieva, 2004). The first section of the Chapter provides a brief literature overview of the importance of safety culture, factors associated with patient safety and the assessment of safety culture within the healthcare setting. The subsequent section describes the study design and method of assessment of safety culture undertaken in the present research project. Findings are then presented and discussed in relation to existing literature and compared with United States comparative database results (Sorra, Nieva, Famolaro, & Dyer, 2007). The final section of this chapter provides an overall discussion of the findings, identified patient safety culture strengths and areas with potential for improvement within the ICU. It also discusses the implications of the results for the assessment of patient safety culture within the wider healthcare system.

Chapter 4 presents a before and after study designed to evaluate the impact of a quality improvement initiative, the introduction of the Patient Management Plan and Progress MR 42.1 (PMPP) document, designed to improve handover of patient care within the ICU. Chapter 4 begins with a detailed review of the literature specific to handover of patient clinical information in healthcare and, in particular, within the ICU setting, and highlights the increasing need for improvement in the handover and transition of patient care. The next section of the Chapter provides a description of the before and after study design, using a mixed-methods approach to data collection and analysis, involving both quantitative and qualitative methods. The findings are then presented and discussed with an examination of the findings in relation to organisational change management theory and their implications for the practice of change and quality improvement within healthcare.
A further before and after study design is reported in Chapter 5, involving an evaluation of the impact of a quality improvement initiative, the introduction of the Advance Care Plan (ACP) document, which was designed to improve and standardise the documentation of end-of-life decisions when aspects of patient treatment are withdrawn or withheld within the ICU. This chapter begins with a detailed review of the literature specific to the documentation of end-of-life care decisions and the withdrawal of patient treatment within the ICU. A description of the before and after study design is then provided. The study involved a mixed-methods approach to data collection and analysis, involving both quantitative and qualitative methods. The methods section of Chapter 5 is reported in two separate sections. Method I (Medical record audit) provides a description of the patient medical record audit conducted before and after the introduction of the ACP document. Method II (Interviews with ICU staff members) provides a description of the interviews conducted with ICU consultant, registrar and nursing staff. The next section of the Chapter provides two separate discussions (Discussion I: Medical record audit and Discussion II: Interviews with staff members), reviewing the findings and implications of the medical record audit and ICU staff interviews separately, before providing an overall summary of both discussions. The implications for the theory and practice of change and the improvement of the quality of documentation about the decision to withdraw patient treatment within ICU are further discussed.

The final Chapter (6) in this thesis integrates the findings of the patient safety culture survey and the before and after evaluations of the impact of the two separate quality improvement initiatives within the ICU. The conclusions for each of these studies, and their implications for the theory, practice, and policy are indicated together with suggestions for future research.
CHAPTER 2

Safety culture in healthcare: A review of the literature concerning the need for, management of, and resistance to, change in healthcare

Overview

The quality of healthcare is an extremely important issue for healthcare professionals and individual consumers of healthcare, yet evidence indicates that healthcare is not as safe as it could be (IOM, 2001; Kohn, Corrigan, & Donaldson, 2000). Research indicates that this constitutes a significant problem within the Australian and other healthcare systems, with studies indicating that communication difficulties and failures within the healthcare setting contribute to increased patient length of stay, increased resource use, staff dissatisfaction, and a large percentage of patient adverse events (ACSQHC, 2005a; BMA, 2004; Pronovost et al., 2003; Runciman & Moller, 2001; Wilson et al., 1995). More recently, research on improving patient safety, systems design and healthcare quality has largely focused on the systems and cultural issues in healthcare (ACSQHC, 2003). Professional, social, organisational, and economic contexts at different levels of healthcare need to be considered when seeking to improve patient care (Ferlie & Shortell, 2001; Grol et al., 2007). An integrated system-wide view of how these inter-relate is provided by Healy and Braithwaite (2006). Self-regulation, a hallmark of the professional, may need to be reconsidered in the overall context of responsive-regulation (Healy & Braithwaite, 2006).

Given the increased awareness of the need for organisational improvements to increase patient safety within healthcare, this research project attempts to investigate safety culture, management of change and impact of quality improvement initiatives within the ICU setting of a large public teaching hospital. The purpose of the current chapter is to review the literature and research exploring the issues concerning the development of a safety culture, quality improvement, change management and resistance to change within healthcare. In this review of the literature, the reference databases PsychInfo, PubMed, Cochrane Library, ISI Web of Science, Expanded Academic Index, Academic Search Elite, and Health Source Nursing, were searched for journal articles.
published up to and including January 2007. In addition, national and international government and other organisation websites were searched for relevant articles, reports, guidelines and recommendations (e.g. Australian Patient Safety Foundation, Australian Commission on Safety and Quality in Health Care, and Institute for Healthcare Improvement).

This chapter begins with a discussion of patient safety and the occurrence of adverse events in healthcare, and then addresses organisational culture theories and the importance of a safety culture to improve patient safety and quality within healthcare (Please refer to Appendix 2.1 for a brief glossary of patient safety terms and a clear definition of the use of the term ‘physician’ throughout this thesis). Theories of organisational change management are discussed, together with factors important in organisational change which are relevant to the implementation and evaluation of quality improvement within healthcare. Barriers and resistance to change are then examined, with consideration of their management. Finally, the chapter addresses the research questions and aims of the studies in the current research project.

**Patient safety and the significance of medical errors and adverse events**

The Institute of Medicine (IOM) highlighted the matter of medical error as an urgent and widespread issue in 1999, reporting that between 44,000 and 98,000 people die in hospitals annually as a result of medical errors in the United States (US) (Kohn et al., 2000). The authors called for change, with a focus on improving patient safety as the paramount issue. Patient safety has been defined as ‘the avoidance and prevention of patient injuries or adverse events resulting from the processes of healthcare delivery’ (Sorra & Nieva, 2004).

A study in the United States reported rates of injury to patients in hospitals, indicating that adverse events occurred in 3.7% of patient admissions, based on a review of the medical records of 30,121 patient’s admitted to 51 hospitals in the state of New York (Brennan et al., 1991). Similarly, the Quality in Australian Health Care Study highlighted the prevalence of patient injury in the Australian healthcare system (Wilson et al., 1995) based on a review of the
medical records of 14,179 admissions to 28 different hospitals in New South Wales and South Australia from the year 1992. A total of 16.6% of admissions were found to have been associated with an adverse event, resulting in permanent disability in 13.7% of patients and death in 4.9%. With re-analysis this figure was revised down to 10.6%, but remained considerable (Thomas et al., 2000). Of the adverse events identified, a total of 51% were considered to be preventable, with twice as many errors of omission (i.e. failure to act) than errors of commission (i.e. incorrect action, such as wrong drug to wrong patient). The cost of adverse events has also been estimated at approximately $4700 per preventable adverse event in one US hospital (Bates, Spell, Cullen, Burdick, & Leape, 1997). Within Australia the financial cost of adverse events has been estimated to range from $483 million and $900 million per annum (Rigby et al., 1999; Wilson et al., 1995).

In an environment such as intensive care, the severity and diversity of critically ill patients and the fast-paced multidisciplinary care of such patients pose unique challenges for patient safety (Cook, Montori, McMullin, Finfer, & Rocker, 2004). Medical errors and adverse events within intensive care units (ICUs) have been found to be common and potentially life-threatening (Rothschild et al., 2005). A study of adverse events in ICUs found errors during the ordering or implementation of treatments (61%; 170/277) and failures such as slips and lapses (53%; 148/277) (Rothschild et al., 2005). A patient safety focus and an emphasis on quality improvement to ensure ongoing safe patient care is therefore of paramount importance within the ICU setting.

Since the healthcare system has the responsibility for providing healing and care for patients, it is simply unacceptable for these very organisations to be causing harm to patients (Kohn et al., 2000). Efforts have now been focused on reducing iatrogenic harm. This has resulted in a demand from the healthcare community for systematic, organisational improvements to address unsafe practices (Tucker & Edmondson, 2003).
Understanding the occurrence of medical error and adverse events

Medical errors are ubiquitous in all healthcare systems (Senders, 1994; Weingart, Wilson, Gibberd, & Harrison, 2000). The natural limitations of human cognitive function (Reason, 1990) mean that there are numerous opportunities for errors due to variable workloads, rotating shifts, patient handovers, multiple staff caring for the same patient and the patient’s family, distractions, interruptions and multitasking aggravated by several levels of communication within healthcare in general and within hospital systems. Leape (1994) suggests that attention should be focused on psychological and human factors in the nature, mechanisms and causes of errors.

Previous literature identifies several sources of error in healthcare settings, including: inadequate knowledge and skills; failure to comply with policies and procedures; failure in communication; and individual and systems issues (Fuqua & Stevens, 1988). For example, cognitive functions such as short term memory and computational capacity are known to be particularly limited, and therefore an appropriate means of improving the system may be to reduce reliance on memory, with wider provision and use of checklists, protocols, and computerized physician decision support systems (Leape, 1994). Leape (1994) also highlights the importance of improved access to information, and displaying information in a form that allows easy access (e.g. structured medical records).

The human factors approach of Reason (1990) defines error according to two types of failures: active and latent failures (Reason, 1990), with adverse events at times involving a combination of the two. Active failures are defined as unsafe acts (i.e. errors and violations) committed by those at the human-system interface (Reason, 1995). Staff actions at the ‘sharp end’ of patient care may involve slips (e.g. picking up the wrong syringe), cognitive failures (e.g. memory lapses or misreading of information) and violations (deviations from standard procedures or processes) (Reason, 1990, 1995; Vincent, Taylor-Adams et al., 1998). Latent failures stem from decisions, essentially made by management and more senior clinicians within the healthcare setting, which provide conditions in which unsafe acts occur (e.g. inadequate systems of communication; poor
rostering of staff; inadequate supervision; understaffing) and also weaknesses in
defences (e.g. unworkable procedures) (Reason, 1990, 1995, 2000; Vincent,
Taylor-Adams et al., 1998). In sum, active failures largely involve the correct
action not proceeding as intended (an error of execution), and latent failures the
original intended action not being correct (an error in planning), although errors of
both types may contribute at any stage (Reason, 1990). The IOM report indicates
a need to focus less on ‘active’ failures and more on ‘latent’ failures (Hoff,

A systems approach to medical error and incident reporting

It has been argued that safety within healthcare is primarily a systems
problem (Kohn et al., 2000; Leape, Berwick, & Bates, 2002; Reason, 1995) and
therefore warrants a systems approach to organisational error. Researchers argue
that the challenge of patient safety is not only clinical, but also organisational
(Ramanujam et al., 2005). At a broader level of concern, the importance of an
organisation-wide culture that embraces values concerning patient safety is also
important (HRC, 2005). Estimates from other high risk industries indicate that
80% to 90% of safety problems are based at the system level and only 10% to
20% the individual level (ACSQHC, 2005a). A systems approach in these
industries, including an understanding of human factors, has achieved high
reliability in processes and procedures, and success in identifying system defences
needed as safeguards to fallible human nature. The layers of defence include
people such as critical care nurses, intensive care consultants, as well as clinical
and management procedures and processes to protect against error and minimise
harm (Reason, 2000).

Reporting systems and other methods of gathering data to inform system
changes have become a focus for patient safety initiatives (Barach & Small,
2000). An essential aspect of achieving a culture of safety is encouraging the
reporting of errors and near misses (Weeks & Bagian, 2000). Reason (Reason,
1997) indicates that the rationale for such reporting systems lies in gaining
information about local and organisational factors that may be promoting adverse
events and near misses and that this is far more beneficial than simply assigning blame to individuals.

Understanding the context and causes of errors constitutes a form of information about a system (Cook & Woods, 1994). Reporting of incidents should include both those causing harm to the patients (adverse events) and also those near misses that do not result in harm (Kohn et al., 2000). It is imperative that ‘near misses’ be reported, that is, those events that are caught and corrected before affecting the patient, as these errors or events represent valuable information and provide early warning signs of potential failures within the system (Kohn et al., 2000).

Leape (1994) highlighted that many incidents go unreported by healthcare professionals. In order to make progress in reducing harm and barriers to incident reporting to further improve quality in healthcare, the most essential change needed is cultural, and, in particular, from a “blame culture” to a “safety culture” (Leape, 1994). Traditionally hospitals and healthcare systems have a pervading culture of blame with incidents viewed as single individuals’ errors rather than deficiencies in the overall system and its organisation (Helmreich & Merritt, 1998a; Runciman, Merry, & Walton, 2007).

There are many complex processes in healthcare that occur within a culture that emphasizes this level of individual accountability (Ramanujam et al., 2005). There is an increasing awareness of the need for a systemic and organisational focus to develop a culture of safety, which shifts thinking to the system level and “bigger picture” rather than focusing on individual blame. The culture of blame that is said to exist in healthcare resides in a “person approach” with the attribution of error focused on blaming individuals as careless, inattentive, forgetful, and/or negligent (Reason, 2000). A systems approach to error and adverse events in healthcare assumes that “we cannot change the human condition, but we can change the conditions under which humans work” (Reason, 2000). This can only be achieved when errors are accepted as inevitable within a complex system such as healthcare (Leape, 1994).
A barrier to reporting may include the staff perception that reporting of errors or incidents can lead to punishment by supervisors, resulting in a serious disincentive for individuals that is counterproductive to a systems improvement approach to patient safety (Bates, 1999). In addition, barriers to staff reporting incidents may include fear of being shunned by peers, humiliation, or even loss of employment (HRC, 2005). This stems from a cultural notion within the medical field, developed during medical training, that mistakes should not be made (Kohn et al., 2000). Leape and others (Leape et al., 1998) acknowledge that traditionally the investigation of errors has focused on people as unreliable components within the organisation, with the treatment of errors as a personal and professional failures of the healthcare provider. A punitive person-focused response to error fails to acknowledge that “systems of which humans are a part call forth errors from humans” (Reason, 1990). Australian hospital systems allow anonymous reporting of incidents through the introduction of the Australian Incident Monitoring System (AIMS) (Runciman & Moller, 2001; Runciman et al., 1993), with the disincentive of fear being reduced. Providing feedback of information about reported incidents during meetings within a unit or organisation has been highlighted as important (Reason, 1997), and may provide incentive for staff to further report if changes or outcomes based on such reports are fed back to staff.

A nonpunitive culture provides an incentive for healthcare professionals to increase reporting of incidents and therefore obtain a more comprehensive database to provide the necessary insight to devise corrective strategies. There is also a need for provision of constructive feedback to staff regarding how this information is used and any resulting changes that have been made (HRC, 2005).

Healthcare systems as safety cultures

Health system changes have focused on structural changes; for example, the development and implementation of error reporting systems such as the Australian Incident Monitoring System (AIMS) (Runciman et al., 1993), new technologies such as computerized physician order entry systems (Bates et al., 1999a), and the establishment of the Australian Council for Safety and Quality in
Health Care (ACSQHC) for leading systemic improvements in the safety and quality of healthcare in Australia (ACSQHC, 2003). In more recent years aspects of organisational culture and, in particular, the need for a safety culture within healthcare, have become a priority as researchers realise that structural change must also be accompanied by cultural and behavioural changes in order to improve patient safety (Carroll & Quijada, 2004; Leape, 1994; Nieva & Sorra, 2003).

An understanding of safety culture within a healthcare setting through the use of safety culture assessment provides a means of gaining information for improving patient safety (Nieva & Sorra, 2003). Gaucher (1993) has argued that managers and directors of healthcare organisations and the subunits within them must understand the existing organisational culture if they are to achieve their goals, including quality improvement and improved patient safety. Gaucher and Coffey (1993) emphasize the importance of having an organisational culture where adaptation to change and flexibility are key skills.

**Organisational culture**

The concept of organisational culture has been defined as the values, beliefs and expectations that members come to share (Van Maanen & Schein, 1979). Cooke and Rousseau (Cooke & Rousseau, 1988) provide a further definition of culture as “the ways of thinking, behaving, and believing that members of a social unit have in common”. The concept of an organisational culture is also defined by Schein (1985) as “a pattern of basic assumptions – invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration – that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems” (Schein, 1985b).

Schein’s (Schein, 1985b) three level model of culture begins with the visible artefacts, the technology, office/unit layout, public documents and visible
or audible behaviour. The second level of Schein’s model of culture is the organisation’s values that govern behaviour, obtained through interviewing key members of the organisation or conducting a content analysis of documents or other artefacts (Martin & Siehl, 1983; Schein, 1985b). The third level of culture is the basic assumptions of nature, humanity, relationships, truth, activity, and time that tend to be taken for granted and strongly influence how members of an organisation perceive, think and feel (Schein, 1985b).

Martin (1995; 2002) highlights that culture can be studied in different ways and provides three separate perspectives as potential means of researching organisational culture. The first is the integrationist perspective that considers cultures in terms of shared values, with consistent and homogenous cultural characteristics organisation-wide (Braithwaite, Westbrook, Iedema, Mallock, Forsyth & Zhang, 2005; Martin, 1995; Martin, 2002;). This perspective tends to dismiss conflicting meanings and subcultures as not being a part of the culture (Martin, 1995). The differentiationist perspective focuses on inconsistencies, with overlapping and obvious subcultures having different values and behavioural patterns that exist within and between different organisational subgroups (Braithwaite, Westbrook, Iedema, Mallock, Forsyth & Zhang, 2005; Martin, 1995; Martin, 2002). For example, differences in medical and nursing staff perceptions and practices may be examined and defined. Whereas the fragmentationist perspective suggests that culture is ambiguous and inconsistent. For the purposes of this research, a differentiationist perspective is taken, with medical and nursing subcultures considered and their differences in perception, attitudes, values and clinical practices examined.

**Measurement of organisational culture**

Organisational culture can be assessed using both quantitative (e.g. survey instruments) and qualitative (e.g. interviews, observation) methods. Approaches vary in their potential to explore the levels of culture according to Schein’s (1985) three level model of culture. The manner of assessment will be determined by the level of culture to be examined (Rousseau, 1990). For the purposes of the current research project the intention was to assess Schein’s (1985) second level of culture.
(i.e. values) within an ICU setting, and also a more surface level of assessment with quantitative assessment of culture through the use of a survey instrument (Chapter 3). There was no direct attempt to assess Schein’s (1985) third level of culture, i.e. the underlying and basic assumptions of how members of an organisation perceive, think and feel (Ashkanasy, Broadfoot, & Falkus, 2000; Ott, 1989; Rousseau, 1990; Schein, 1985a; Schein, 1990; Scott, Mannion, Davies, & Marshall, 2003b). However, it is important to note that throughout the duration of the three year research project, a considerable period of time was spent in the organisation setting, with extensive time present within the ICU, attending meetings and seminars, presenting at seminars, and conducting surveys and interviews with medical and nursing staff. Accordingly, this third level of culture was partly assessed through this length of exposure in the organisation setting. However, a more detailed analysis of this third level of culture would have required more qualitative assessment, with in depth interviews that were beyond the scope of this study.

It should be noted that organisational “culture”, rather than organisational “climate”, was investigated in this thesis. Although these terms are sometimes used synonymously, they refer to different organisational characteristics. The assessment of organisational “climate” generally seeks to measure only the more surface level perceptions and overt manifestations of individuals about their organisations, whereas an assessment of organisational “culture” also seeks to understand the deeper underlying norms and values of groups of people (Bochner, 2003; Trice & Beyer, 1993).

**Subcultures within the healthcare setting**

If an organisation consists of several different divisions or subunits, this will allow for multiple cultures within the larger organisation (Schein, 1984). Employees can develop strong subcultures when divided into departments for geographic, functional or product-based purposes (Trice, 1993). The overall corporate culture may be strong with stable membership due to the length and intensity of shared experiences (Schein, 1984), or these multiple cultures may exist in conflict with each other, with disparities between subcultures creating an
uneasy co-existence (Martin & Siehl, 1983). Possible tensions may also arise when an individual experiences dual loyalties towards the organisation and/or to one of its subcultures (Bloor, 1999).

An organisation’s cultural values and assumptions can stem from the professional or occupational backgrounds of the members of the organisation (Schein, 1984), and different professions can be viewed as having distinct subcultures within an organisation (Trice, 1993). A sharing of values, beliefs, ongoing experiences, educational backgrounds and practices between like-professionals validates the cultural repertoire of that professional subculture (Bloor & Dawson, 1994). Healthcare organisations are inherently ‘multicultural’, being comprised of a variety of professionals, divisions and teams in diverse and dynamic environments, with different specialized subunits of care (Ferlie & Shortell, 2001; Van Cott, 1994). These units include intensive care, anaesthesiology, emergency care, operating theatres, and many others, with medical staff, nurses, hospital administration and management, all working to effectively contribute to the overall organisation and the health and safety of patients. Each professional subgroup has its own dominant cultural values and beliefs infused during the education and training process, with these being maintained through the influence of professional bodies that exist outside of the employing organisation (e.g. the Australian and New Zealand Intensive Care Society, (ANZICS)) (Davies, 2002). Each subunit of care signifies a distinct organisational culture, with specific goals, values, and behavioural norms (Van Cott, 1994). In this way the organisational culture is said to be composed of interlocking subcultures (Martin & Siehl, 1983) and it is therefore important to assess within and between existing subcultures when assessing the culture of an organisation.

With these many and varied subcultures present within the healthcare setting it is important to understand how they may exist together within the context of an overall dominant culture. Martin and Siehl (1983) identify three different types of subcultures that may exist in an organisation: enhancing; orthogonal; and counter cultures. Individuals in the enhancing subculture more
closely follow the principal beliefs of the dominant culture than others in the
organisation (e.g. senior management). In the orthogonal subculture, individuals
follow the core beliefs of the dominant culture but also simultaneously accept
other values and beliefs that do not conflict with the dominant culture (e.g.
accountants). Conversely, individuals in a counter culture may directly challenge
and oppose the dominant culture within the organisation (e.g. supervisors may
oppose new management after a takeover of the organisation).

Hospitals have been referred to as professional bureaucracies, where
power and influence are a function of expertise, with power residing with the
medical staff (Cohen, Eustis, & Gribbins, 2003; Mintzberg, 1983). Healthcare has
a tradition of independent, self-regulated professional practice (ACSQHC, 2005a).
This differs from industrial organisations where power and influence largely
reside in the managerial hierarchy of an organisation (Cohen et al., 2003;
Mintzberg, 1983). The contrast in medical and managerial cultures within
healthcare can function as a deterrent to quality improvement, with the medical
culture focused on their responsibilities for patient care and professional
autonomy, whereas the managerial culture may also be focused on practice,
planning and population care (Ferlie & Shortell, 2001; Runciman et al., 2007).

There is a strong need within healthcare to overcome a culture that
reinforces “professional silos” that serve to strengthen specific professions and/or
disciplines and discourages effective communication and collaboration between
them (e.g. nurses and medical consultants, or acute care and palliative care)
(Curtis & Shannon, 2006a; Ramanujam et al., 2005). It is therefore important to
understand the perceptions of staff and differing professional subgroups in relation
to patient safety and culture both within their respective units and the overall
hospital.
Safety culture

Safety culture has been defined in the following way:

“The safety culture of an organisation is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation’s health and safety management. Organisations with a positive safety culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety, and by confidence in the efficacy of preventive measures” (ACSNI, 1993).

Safety culture can be more generally defined as the way people think and/or behave in relation to safety (Cooper, 2002). Although the risks of error and system failure are now known to be high within healthcare settings, the assessing and promoting of a culture of safety is still relatively low (Pizzi, Goldfarb, & Nash, 2001). It is important to develop an understanding of existing organisational and safety cultures in order to seek to improve upon the culture in question to improve patient safety.

Promoting a culture of safety has also been a priority for industries outside healthcare for a considerable time, particularly the aviation, nuclear power, shipping and manufacturing industries, with an emphasis in these high risk industries on the role of the organisation and systems in understanding organisational safety (Gaba, 2000b). More recently in the literature, key issues of safety and relevant concepts of quality improvement have been drawn from these industries, and although not directly related to healthcare, they offer valuable lessons for improving patient safety (Bogner, 1994; Reason, 1997). For example: having a systems approach and an understanding of the organisation; having a proactive approach to safety; creating and maintaining a safety culture; managing of risk and risk assessment, discovering and investigating identified problems; and auditing and reviewing processes and knowledge (Hudson, 2003).
Factors affecting a culture of safety

Several factors have been identified as important in affecting the development of a patient safety culture within healthcare (Sorra & Nieva, 2003, 2004), including: supervisor/manager expectations, actions and support; organisational learning and continuous improvement; teamwork, both within and between hospital units; communication openness; medical error, event reporting and response to reporting of errors; staffing; and handoffs (handovers) and transitions within and between units. Each of these factors will be considered in further detail in the following sections.

Supervisor/management expectations, actions and support

The role of the supervisor or manager in developing a culture of safety is very important, particularly their expectations and support of staff, their interest, and their commitment and actions in the area of patient safety and quality improvement. Leadership in ensuring safety involves enabling and reinforcing communication of ongoing processes of change and improvement (Geller, 2000). Managers must make an effort to be regularly available (Tucker & Edmondson, 2003) and engage in active listening in considering suggestions of staff for improving patient safety, in order to diagnose a situation before promoting or implementing change (Geller, 2000). Encouragement of staff to follow patient safety procedures and processes also involves the leader/manager fostering ownership and commitment to safety (Geller, 2000). In this way effective leadership is necessary within the context of change or quality improvement and can serve to promote, or potentially block if ineffective, a change or improvement initiative (Grol, Wensing, Hulscher, & Eccles, 2005). In their assessment of safety culture, Singer et al. (2003) identified a disparity between the attitudes and perceptions of senior management and staff involved in patient care, with senior management providing responses more consistent with a culture of safety than those of clinicians and nurses. Safety culture managers and leaders need to have a systems approach, as discussed previously, moving beyond blaming individuals for errors in terms of incompetence or lack of motivation, and instead, focusing on aspects of poorly designed systems as the cause of error (Geller, 2000; Senge, 1990).
Organisational learning and continuous improvement

Organisational learning has been defined as the “capacity of an organisation to stimulate continuous learning and information exchange at all levels of the organisation” (Grol, Wensing, Hulscher et al., 2005), with the organisation continuously aiming to improve knowledge and innovation within itself (Garside, 1998). Senge (2006) provides a suitable definition of organisational learning, in terms of ‘five disciplines’ that are important in building organisational learning capabilities. The five disciplines are: 1) ‘systems thinking’ and understanding the functioning of a dynamic and complex organisation and how it can be changed to function more effectively; 2) ‘personal mastery’, the personal vision and aspiration of the individual; 3) ‘mental models’ and reflection and inquiry; 4) ‘building a shared vision’ for the future and the importance of leadership in creating and communicating a shared vision for the future; and 5) ‘team learning’ and collective thinking and action to achieve goals (Carnall, 2007; Huczynski & Buchanan, 2001; Senge, 2006). A ‘learning organisation’ has a clear vision of what it wants to achieve, with employees being encouraged to detect errors or faults throughout the system, to attend educational programs, and to integrate their ideas and quality improvement initiatives (Garside, 1998, 1999).

Learning in the medical profession can be viewed simply as individually focused training and acquisition of knowledge and experience. However, organisational learning goes beyond this, requiring participation and leadership from many different organisational members (Carroll & Edmondson, 2002). Engaging key stakeholders and promoting and supporting teamwork and collaboration are important in order to enhance patient care (Botwinick, Bisognano, & Haraden, 2006). For example, the reporting of errors and hazardous conditions should be encouraged to provide a mechanism for feedback and learning from errors (Kohn et al., 2000; Vincent & Taylor-Adams, 2001). In this way, information regarding things that go wrong can be used to make changes, improve patient safety and evaluate the effectiveness of the changes implemented.
**Teamwork**

Teams play a major role in creating and maintaining safer patient care (Firth-Cozens, 2001), with a need for staff to support one another and treat each other with respect (Sorra et al., 2007). In particular, research has highlighted the significance of teamwork in ICU settings being associated with patient outcomes (Baggs, Ryan, Phelps, Richeson, & Johnson, 1992; Shortell et al., 1994). Team factors that may impact clinical practice and patient care include: verbal communication between senior and junior staff; communication within and between different professions; availability of adequate supervision; and also the quality of written communication, including the completeness and legibility of notes provided (Vincent & Taylor-Adams, 2001).

Interdisciplinary teamwork has been emphasized as important to ensure improvement initiatives are successful within an ICU (Curtis et al., 2006b). Interdisciplinary teamwork within healthcare is different from that in other organisations as team members have allegiances not only to their team but also to their professional group (Firth-Cozens, 2001). In this way authority and accountability in healthcare teams may be difficult to reconcile across the professional barriers that may exist (Firth-Cozens, 2001). Critical care physicians and nursing staff have been found to have discrepant attitudes regarding the teamwork they experience with each other (Sherwood, Thomas, Bennett, & Lewis, 2002; Thomas, Sexton, & Helmreich, 2003). In particular, physicians report higher levels of satisfaction with physician-nurse collaboration than do nurses. Nurses also report that it is difficult to speak up if they perceive a problem, that disagreements are not appropriately resolved, and that they want more input into decision making. It has also been found that nurse input was not well received within the unit (Thomas et al., 2003).

**Communication openness**

Communication has a vital role in patient care delivery (Wensing, Klazinga, Wollersheim, & Grol, 2005), with varied approaches to communication in hospitals, including face-to-face interaction, paging systems, telephones, fax, and email (Alvarez & Coiera, 2006). Ineffective communication and
Communication difficulties and failures have been found to contribute to a large percentage of adverse events and preventable problems within healthcare (Brennan et al., 1991; Kohn et al., 2000; Vincent, 1997; Vincent, Taylor-Adams et al., 1998; Wilson et al., 1995). Previous research has identified the need for clear and effective communication among healthcare providers in the ICU, in order to achieve improved patient outcomes (Baggs et al., 1999; Donchin et al., 1995; Ferrand et al., 2003; Leonard, Graham, & Bonacum, 2004; Pronovost et al., 2003; Zwarenstein & Reeves, 2002). Previous research concerned with teamwork and collaboration within the ICU setting revealed that only 33% of nurses (76/230) rated the quality of communication with physicians as high or very high (Thomas et al., 2003). This was compared with 73% of physicians (66/90) who rated their communication with nurses as high or very high, revealing a clear disparity between professional subgroups. More recent research in the United Kingdom (UK) examined ICU staff perceptions of interdisciplinary communication in the ICU (Reader, Flin, Mearns, & Cuthbertson, 2007). Results revealed that doctors and nurses had differing perceptions of interdisciplinary communication, with nurses reporting less communication openness than doctors.

As healthcare is reliant on effective interdisciplinary communication, between the many and varied subgroups or subcultures that exist together, there is a need for a culture in which communication flows freely regardless of the subcultures, hierarchy or authority gradient that may be present (Kohn et al., 2000; Sorra et al., 2007). In addition to the effect of hierarchy, researchers also indicate that communication is commonly situation- or personality- dependent within healthcare (Leonard et al., 2004). Furthermore, perceptions of interdisciplinary communication may also be affected by gender, differing patient care responsibilities, and differences in the training provided to medical and nursing staff (Thomas et al., 2003).

**Medical error, event reporting and response to reporting of errors**

An essential aspect of achieving a culture of safety is in encouraging the reporting of adverse events and near misses (Weeks & Bagian, 2000). However, as indicated previously in this Chapter, adverse events are underreported and near
misses are rarely examined in healthcare (Leape, 1994). Adverse events can be defined as incidents in which patients are unintentionally harmed by medical treatment (Vincent, Taylor-Adams et al., 1998). For the purposes of their Hospital Survey on Patient Safety Culture (HSPSC), the Agency for Healthcare Research and Quality (AHRQ) defined an ‘event’ as “any type of error, mistake, incident, accident or deviation, regardless of whether or not it results in patient harm” (Sorra & Nieva, 2004).

The culture of healthcare plays an important role in how well adverse events and near misses are detected and managed (Kohn et al., 2000). The culture of hierarchy, authority, and blame within healthcare provides an environment in which adverse events are treated as individual and professional failures (Leape et al., 1998). Reasons for non-reporting, as discussed previously in this Chapter, may include fear (e.g. fear of punishment, fear of being seen as incompetent) and a lack of belief that reporting will result in improvement. This is largely due to the reporting of events resulting in either a punitive response towards the individual(s) or no constructive response to reported incidents, in terms of feedback or corrective actions (Leape, 1998; Vincent, Stanhope, & Crowley-Murphy, 1998).

**Staffing**

Adequate staffing is an important aspect of creating and maintaining a culture of safety. Recent literature regarding safety and quality in healthcare indicates that staffing levels, skill mix and the experience of staff are important factors in influencing clinical practice and patient safety, particularly in an ICU setting (Pronovost, Nolan, Zeger, Miller, & Rubin, 2004; Vincent, Taylor-Adams et al., 1998). Research has shown that adequate nursing staff ratios directly impact on patient outcomes within hospitals (Blegen & Vaughn, 1998). Adequate rostering practices and ensuring safe work hours for staff are imperative for providing the best possible patient care.
**Handovers and transitions**

Important patient care information is handed over and transferred both within hospital units during shift changes (e.g. communication during nursing shift handovers or the transfer of patient care information between medical staff) and across hospital units (e.g. when transferring a patient from one unit to another). The efficient and effective transfer of patient care information from one hospital staff member to another is an essential element of a culture of safety (Bomba & Prakash, 2005). The increased shift pattern of work in healthcare has resulted in an increase in the number of people caring for each patient. A comprehensive handover of patient care information that is succinct and relevant, with an allowance of sufficient time to convey and receive the information, is therefore imperative (AMA, 2006; BMA, 2004). Handover of patient clinical information is important for patient care, with a lack of communication and/or communication breakdown at the time of handover potentially resulting in poor outcomes for the patient. Inaccurate and/or delayed information contribute to adverse events and near misses (Beach, Croskerry, & Shapiro, 2003; Coiera, Jayasuriya, Hardy, Bannan, & Thorpe, 2002; Donchin et al., 1995; Elbright, Urden, Patterson, & Chalko, 2004). A more detailed review of the literature concerning handover of patient care is included in Chapter 4.

**Safety culture assessment in healthcare**

A safety culture assessment provides a tool for improving patient safety (Nieva & Sorra, 2003). The measurement of safety culture within healthcare through the use of a survey instrument seeks to analyse the values and perceptions of healthcare staff (i.e. medical and nursing staff) regarding issues such as management, communication, teamwork and other factors relevant to patient safety. An understanding of the openness to and impact of, organisational change has become particularly important with increasing efforts at improving patient safety and the quality of healthcare (Scott et al., 2003b). An assessment of safety culture provides a baseline from which improvements can be measured and changes identified over time (Fleming, 2005).
Safety culture assessments have been conducted in other high risk organisations such as aviation (e.g. air traffic control, aircraft carrier maintenance) and offshore oil drilling (Guldenmund, 2000). However, the measurement of safety culture is relatively new within the healthcare setting. Recently, patient safety culture assessment tools have been developed specifically for healthcare that focus on aspects of leadership, staffing, communication, reporting and policies and procedures (Colla, Bracken, Kinney, & Weeks, 2005). Some of the patient safety culture assessment tools available include the Hospital Survey on Patient Safety Culture (HSPSC) (Sorra & Nieva, 2004), the Safety Attitudes Questionnaire (Sexton et al., 2006; Sexton et al., 2004), the Stanford instrument (Singer et al., 2003), and the Culture of Safety Survey (Weingart, Farbstein, Davis, & Phillips, 2004). Although the Safety Attitudes Questionnaire (Sexton et al., 2004) is a refined version of the previous Intensive Care Unit Management Attitudes Questionnaire (Sexton, Thomas, & Helmreich, 2000; Thomas et al., 2003), it is not designed to measure the deeper values and beliefs of safety culture but instead measures the more surface aspects of safety climate (Fleming, 2005).

The HSPSC survey instrument was chosen for the purposes of this research project, as it is one of few instruments with published and favourable psychometric properties (Colla et al., 2005). It was developed by AHRQ in the US, following an extensive review of the literature relating to safety, accidents, medical error, error reporting, safety climate and culture, and organisational climate and culture, including published and unpublished safety culture surveys (Sorra & Nieva, 2004). The survey was pilot tested with 1437 hospital employees from 21 hospitals across the US and psychometric analyses were conducted to establish 12 safety culture dimensions and 42 survey items (Sorra & Nieva, 2004).

The HSPSC instrument can be used to assess the safety culture of the whole hospital or of specific units within a hospital (Sorra et al., 2007; Sorra & Nieva, 2004). It has been used in 72 nursing homes in the US, based on the responses of 1579 nursing staff (Handler et al., 2006), and in a public acute care hospital in Hong Kong, with 699 respondents (Yeung & Lui, 2006). More recently, AHRQ published the “HSPSC: 2007 Comparative Database Report” providing safety culture benchmarks based on data provided by 382 US hospitals,
with a total of 108, 621 respondents (Sorra et al., 2007). The HSPSC instrument can therefore be used to assess changes in patient safety over time and to evaluate the impact of patient safety interventions (Sorra & Nieva, 2004). Further details regarding the HSPSC instrument are provided in the introduction section of Chapter 3.

**Organisational change management**

*A need for change*

An awareness of near misses and adverse events in healthcare emphasizes the need for an increased focus on improving patient safety by reducing incidents and creating and maintaining a culture of safety (HRC, 2005; Kohn et al., 2000; Leape, 1994). The challenge of improving patient safety is not only clinical but also organisational, with the difference between successful change and failure to change often dependent on effective change management strategies; the “challenge of patient safety is inextricably linked, almost indistinguishable, from the challenge of organisational change” (Ramanujam et al., 2005). Addressing this challenge is critical for the success of initiatives aimed at removing hazards and unsafe practices (Kohn et al., 2000; Tucker & Edmondson, 2003). The ICU as a unique setting, with patients suffering from very serious health problems and needing multidisciplinary care, poses a particular challenge to the implementation of such initiatives (Cook et al., 2004).

There are many organisational issues surrounding patient safety and the introduction of quality improvement initiatives, including aspects of the external environment (e.g. the malpractice legal environment, growing research on safety issues, the call for improvements in patient care, and examples of best practice), availability of resources (e.g. financial, personnel) and history (e.g. previous experience) (Ramanujam et al., 2005). For example, benchmarking from within the same organisation or from an external organisation can provide evidence of ‘best practice’ that demonstrates a disparity between an organisation’s present state and its future possibilities (Kanter, Stein, & Jick, 1992), and provides a valuable incentive for change. However, leaders of change must be aware not only
about what they’re changing to, but also what they are changing from, in order to understand how best to achieve change. Progress often is mistakenly determined by the destination, a common occurrence when focusing on the results of ‘benchmarking’ as a basis for change (Kanter et al., 1992).

Furthermore, researchers have indicated that a new approach to change is required, highlighting the potential for the involvement of external organisational development and management consultants (Edmonstone, 1995), to implement and evaluate change processes. A considerable body of literature exists concerning organisational change management, as the capacity to deal with change is an important aspect of most modern organisations. However, this thesis will primarily focus on organisational change management factors as they relate to healthcare organisations.

**Approaches to organisational change management in healthcare**

Healthcare is an example of a complex sociotechnical system (Grol, Wensing, & Eccles, 2005), with equipment and techniques, interacting with people, with their beliefs, attitudes, hierarchies and politics (Chrisholm & Ziegenfuss, 1986; Pasmore, 1988). Healthcare faces the demands of increasing patient expectations, an ageing population, increases in medical knowledge, and technological advances, along with changes in shift work and more multidisciplinary care, both resulting in a number of individuals being responsible for the care of a single patient (AMA, 2006; BMA, 2004; Dobb, 1998; Taylor & Cameron, 2002; Vinen, 2002). This highlights the increasing complexity of both the social and technical aspects of healthcare. With continual advances in the science and technology of medicine (Runciman et al., 2007) there is an ever-increasing need for appropriate management of organisational change.

There are numerous theories surrounding organisational change management that have been used in various industries. For example: Lewin’s three step model of change, involving unfreezing the status quo of the organisation, moving to the new desired state and then re-freezing and stabilising the organisation (Lewin, 1951); ‘organisational development’, encompassing a
collection of planned change interventions (Robbins, 2003); and ‘action research’, involving the systematic collection of data and the development of a change action program on the basis of these data (Robbins, 2003). Prochaska and DiClemente’s (1984) transtheoretical approach to individual behaviour change has also been applied to the organisational setting (Prochaska, Prochaska & Levesque, 2001). The stages-of-change dimension may be used to integrate processes of change and assist leaders in reducing staff resistance to change and increase participation and change progress among staff (Prochaska, Prochaska & Levesque, 2001). More recently, Total Quality Management (TQM) and Continuous Quality Improvement (CQI) concepts have been adapted from other organisational industries, such as aviation and manufacturing, for their use within healthcare (Plsek et al., 2004). For the purposes of this research, the following review of organisational change will focus on the concepts and tools of TQM and CQI as the model of change most relevant to, and increasingly used in, healthcare.

**Total Quality Management (TQM) and Continuous Quality Improvement (CQI)**

Authors have used the terms TQM and CQI interchangeably (Plsek et al., 2004; Shortell et al., 1995), and therefore for the purposes of this review the process will be referred to as TQM/CQI. The principles of TQM/CQI focus on a comprehensive, organisation-wide effort to pursue continuous improvement in quality, with: a patient- (or customer-) centred focus (a drive to better meet their needs and expectations); an understanding of processes and systems; employee participation, empowerment and involvement; and a key role for leadership (Berwick, 1989; Dawson & Palmer, 1995; Grol et al., 2007; Plsek et al., 2004; Shortell et al., 1995). The basic principles of TQM/CQI will now be discussed in more detail.

TQM/CQI involves an understanding of underlying processes and systems of work within an organisation in order to allow continuous redesign of processes to minimize the probability of ‘operator’ error from defects in systems design (Bates, 1999; Plsek et al., 2004; Shortell et al., 1995). In the healthcare system, this emphasises a shift away from individual blame for error and towards systemic change to improve patient care and safety (Blumenthal & Kilo, 1998; Shortell et
A patient- (customer-) centred focus emphasizes that processes and systems within healthcare exist to assist and provide for the needs of patients, their families and society (Grol, Wensing, Hulscher et al., 2005).

The principles of TQM/CQI further highlight the importance of understanding the reasons for the variations in outcomes produced by different processes and systems, in order to reduce unfavourable variation (Plsek et al., 2004). The primary aim of TQM/CQI is to seek continuous improvements in the levels of performance (Berwick, 1989). In order to do this, it is necessary to collect and manage data to build a knowledge base for continuous learning regarding the processes and systems to be changed (e.g. information provided by reported adverse events or evidence-based practice) (Leape, 1994; Plsek et al., 2004).

Instead of viewing people as the cause of problems and error, TQM/CQI advocates a positive view of people, and sees them as a source of information that is important for continuous improvement (Bates, 1999). Individuals within the system are seen as doing their best and TQM/CQI seeks to engage staff working at the ‘coalface’ in identifying and developing system changes to improve patient safety and achieve quality objectives (Bates, 1999; Dawson & Palmer, 1995; Plsek et al., 2004).

Finally, TQM/CQI emphasizes the key role of visionary leadership and the importance of the active involvement of leaders in initiating and supporting quality improvement programs (Berwick & Nolan, 1998). Researchers highlight the need for strong leadership to support continuous quality improvement and provide the necessary organisational infrastructure, without which improvement may not occur (Grol, Wensing, Hulscher et al., 2005; Plsek et al., 2004). Furthermore, with an emphasis on the involvement of staff in achieving quality objectives, it is important for leaders introducing TQM/CQI to have an understanding of the cultural dynamics of an organisation or department/unit, as TQM/CQI seeks to create a cultural shift in staff attitudes at all levels (Dawson & Palmer, 1995). The presence of different subcultures within an organisation or department/unit can pose challenges for the leader implementing change (Bloor,
Professional subcultures can affect the acceptance and successful implementation and utility of quality improvement initiatives (Bloor, 1999), with each professional subculture representing stakeholders with different interpretations of the quality improvement initiative and the changes it involves.

The principles of TQM/CQI include the use of Plan-Do-Study-Act cycles (PDSA) (Deming, 1986) as a tool to facilitate process change. The PDSA cycle or model of improvement consists of a sequence of four repetitive steps (Berwick & Nolan, 1998; Dawson & Palmer, 1995; Grol, Wensing, Hulscher et al., 2005):

- **Plan**: plan ahead for change, using information and data to inform what needs to be accomplished;
- **Do**: implement the planned changes, testing them first on a small scale and observing and noting any problems that may arise, before implementing them on a large scale;
- **Study**: study and evaluate the results, considering what can be learnt from the change and whether the change has resulted in improvement; and
- **Act**: once the change has been refined and evaluated action can be taken to further improve the process or by abandoning the change and commencing the cycle once again.

**Evaluation of change in healthcare**

Every quality improvement initiative is an experiment (Walshe & Freeman, 2002). It is therefore not surprising that not all quality improvement initiatives are successful, with many failed efforts to improve healthcare. The organisational change literature indicates that while there are successful quality improvement programs of various kinds, as many as 70 per cent of all change initiatives fail (Beer & Nohria, 2000; Bloor, 1999). However, it is important to note that it is possible to learn from all change experiences, not just the successful ones (Dawson, 2003), yet unfortunately failed quality improvement initiatives are not often published, due to a positive “reporting bias” (Plsek, 1999). Given the variability of the impact of quality improvement initiatives, evaluation of the quality improvement initiative is important to understand reasons for variation
(Plsek et al., 2004; Walshe & Freeman, 2002). Furthermore, it is important when evaluating change to understand how and why it works and by whom it is used (Walshe & Freeman, 2002).

The principles of TQM/CQI as a model for the facilitation of change within healthcare have been previously discussed. The ‘Study’ step of the PDSA cycle highlights the importance of the evaluation of change to assess the impact of any quality improvement initiative. Several researchers have discussed the benefits of evaluation of change (Eccles, Grimshaw, Campbell, & Ramsay, 2005; Harvey & Wensing, 2003).

Curtis et al. (2006b) emphasize the importance of motivation, teamwork and leadership within the initial steps involved in developing and initiating a quality improvement program within an ICU setting. They also emphasize the importance of conducting an environmental scan and establishing an understanding of the potential barriers that may exist to improvement. For example, an environmental scan may include assessing an ICU’s culture of safety (e.g. HSPSC (Sorra et al., 2007)), or qualitative studies may include interviews with staff to characterize behaviours and highlight any potential barriers to improvement (Curtis et al., 2006b). Recent literature concerning safety and quality in healthcare provides a framework of factors that may influence clinical practice, including: patient factors (e.g. complexity and seriousness of condition and/or language and communication); task factors (e.g. availability and use of protocols); provider/individual staff factors (e.g. knowledge, skills, competence, failure to follow established protocol); team factors (e.g. verbal or written communication during handover, supervision and seeking help, and team structure and leadership); ICU environment (e.g. staffing levels and skills mix); and the institutional environment (e.g. governance, financial resources) (Pronovost et al., 2004; Vincent, Taylor-Adams et al., 1998). Vincent, Taylor-Adams and Stanhope (1998) argue that simply relying on one level of intervention (e.g. improving protocols) and not adequately attending to other factors that may influence clinical practice is likely to result in limited impact when developing and implementing a quality improvement program.
Harvey and Wensing (2003) highlight the benefits of a formal evaluation of local, small scale quality improvement projects. The outcome of such evaluations can increase understanding of the change processes involved. Evaluation of change can assess the impact of change over time and provide a learning opportunity to identify issues both within the improvement initiative and regarding the implementation of quality improvement and change overall (Harvey & Wensing, 2003). Evaluations of small-scale improvement projects aim to assess a change in performance, using all care providers, in a monitoring or audit design with simple data collection methods, whereas evaluations of larger-scale implementation projects seek to determine if program goals have been achieved, using a sample of care providers and teams, and more complex design and data collection methods (Eccles et al., 2005). A ‘focused audit study’ is an example of an evaluation method designed to evaluate a quality improvement initiative and monitor the impact of implemented changes over time, using data collection methods such as medical record reviews, surveys among staff and patients, and/or observations of events (Harvey & Wensing, 2003). To evaluate and explore factors which can either help or hinder progress or quality improvement, such as leadership and organisational culture (discussed in the next section), the use of qualitative methods is recommended (Walshe & Freeman, 2002). The organisational context is crucial in determining effective change (Walshe & Freeman, 2002), and therefore the generalisability of the findings of small-scale quality improvement evaluations may be limited to the specific change evaluated and to the test-site. However they can nevertheless provide insights into more effective methods of change (Eccles et al., 2005; Harvey & Wensing, 2003).

The research described in the following chapters was conducted with the overall aim of investigating factors important to the development, maintenance and improvement of a safety culture and the planning, development, implementation and evaluation of quality improvement initiatives in an ICU setting.
**Barriers to TQM/CQI**

Although the TQM/CQI movement has become an important influence in healthcare and the principles of TQM/CQI are increasingly used, evidence of hospital-wide effects to support TQM/CQI is limited (Blumenthal & Kilo, 1998; Counte & Meurer, 2001; Shortell, Bennett, & Byck, 1998; Shortell et al., 1995). No organisation-wide successes through the use of TQM/CQI have been reported in healthcare (Blumenthal & Kilo, 1998). However, the research literature does demonstrate quality improvements resulting from the use of TQM/CQI principles within healthcare in areas such as coronary artery bypass graft surgery and critical care (ICU) (Griffin, Hampton, Switzer, & Daniels, 1996; Kollef et al., 1997; O'Connor et al., 1996; Shortell et al., 1998).

A potential barrier to the impact of TQM/CQI is a lack of physician involvement. Researchers have indicated that physicians remain sceptical of the principles of TQM/CQI (Berwick & Nolan, 1998). However, the success of quality improvement initiatives in healthcare will be limited without the understanding, participation and leadership of physicians, as physicians assist in shaping the processes of patient care (Berwick, 1989). Other potential barriers include: a lack of external force or drive for change; inadequate information systems; insufficient senior management leadership and support; and problems in translating the industry-based principles of TQM/CQI to the healthcare setting (Blumenthal & Kilo, 1998). However, researchers do emphasize that anecdotal, observational and before/after evidence of the effectiveness of TQM/CQI is ‘highly suggestive’ of success and that the concepts are relevant to healthcare (Plsek et al., 2004). Accordingly, researchers suggest that these principles continue to be used as tools for continuous improvement within healthcare (Blumenthal & Kilo, 1998).

**Important factors in organisational change**

It has been argued that the difference between successful change and failure to succeed comes down to effective change management strategies (Ramanujam et al., 2005). Planned changes are goal-oriented and seek change in staff behaviour (Robbins, 2003). Important factors in organisational change...
include leadership, communication and education, the existing culture of the organisation or unit, the participation and involvement of staff, facilitation and support, negotiation and agreement, and explicit and implicit coercion (Kotter & Schlesinger, 1979). Important factors for implementation of change within an organisational setting also include methods for overcoming resistance to change, such as Kotter and Schlesinger’s (1979) techniques for managing resistance (see below) (Geller, 2000; Kotter, 1995, 1996; Kotter & Schlesinger, 1979).

**Leadership**

Organisational change is not an easy process (Kotter, 1996). Effective change must be both led and managed (Garside, 1998). There is growing evidence that clear leadership is a prerequisite for achieving change (Grol & Wensing, 2005) and the role of the leader in the change process significantly impacts on the success of such change (Higgs & Rowland, 2005). In particular, the literature notes the role of the leader in initiating, supporting and sustaining improvement within healthcare (Ovretveit, 2004). Leaders within healthcare must seek to learn about patient safety and methods for improvement to achieve better patient safety (Botwinick et al., 2006; Braithwaite, Westbrook, & Lazarus, 1995; Ovretveit, 2004) and they must also develop competencies in effective leadership of change. The organisational literature indicates that the most effective leaders are those with the competency to understand the situation, adapt to situations, groups and individuals, and to effectively communicate what needs to be achieved (Hersey & Blanchard, 1977).

Kotter (1995 & 1996) provides an eight-stage process for creating and leading major organisational change. Each of the eight stages will be discussed in relation to leadership of change within the healthcare setting. Fundamental errors that can occur during the change process will also be discussed. The initial stage of change requires establishing a sense of urgency (Kotter, 1995). Leaders of change must seek to motivate groups and individuals to step out of their comfort zone. The second stage involves putting together a team to assist in guiding the change (Kotter, 1995). Leadership in the change process is also important, particularly by active participation and modelling of the desired changes in
behaviour required for the quality improvement initiative (Tucker & Edmondson, 2003). However, while senior management and leaders within the hospital or unit may be involved with the development of a quality improvement initiative, they are often quite removed from the change process at the “coalface” with patients. It is therefore recommended that individual stakeholders ‘on the floor’ should also be directly involved with the change process (Ramanujam et al., 2005), actively participating and modelling the desired change.

Stage three involves creating a vision in order to direct the change effort (Kotter, 1995). It is essential for leaders to establish a clear vision, with clarity of purpose and clear objectives for change and quality improvement (Ferlie & Shortell, 2001; Kirkpatrick, 1987). They must seek to share this vision and use it to convey and justify the proposed change(s) to others within the organisation (Bloor, 1999). A clear articulation of ‘why’ change is required is necessary in order to gather support from those who will be affected by the change (Cook et al., 2004). Establishing and communicating a clear vision is often lacking in change efforts (Kotter, 1995).

Stages four and five involve communicating the vision for change and empowering others to act on this vision (Kotter, 1995). Leaders disseminate information within and between professional groups and to individuals and seek to develop ownership among those expected to be impacted by the change (Geller, 2000). It is imperative for effective change leaders to be aware of the human side of the organisation and the importance of engaging staff through enabling and reinforcing communication and through promoting ownership of the change process (Geller, 2000; Mintzberg, 1998). They must seek to involve and empower individuals in the development and implementation of change in order to elicit commitment for the intended change (Eccles, 1996). In healthcare, engaging key stakeholders (healthcare professionals) is critical in creating and sustaining a patient safety culture and quality improvement. In particular, although physician involvement is important, it is most challenging to attain as physicians are trained to work independently and be autonomous (Botwinick et al., 2006).
Leaders of change must also seek to understand those individuals that will be affected by the change. Being an empathetic leader is important as emotions and attitudes will greatly impact on the outcome of the change process (Kirkpatrick, 1987). Leaders of improvement initiatives must be aware of the impact of staff scepticism and resistance to change and take into account ways that staff can become involved and positively engaged in the process of change (Gollop et al., 2004). Failure to communicate the vision for change will result in employee scepticism regarding the change efforts (Kotter, 1995).

Stage six involves establishing short term achievable goals and visibly recognising and rewarding those who contribute to achieving success in the change process (Geller, 2000; Kotter, 1995). Employees will quickly give up if there are no short term goals to meet and celebrate (Kotter, 1995). Stages seven and eight seek to consolidate improvements made and to move forward with further change and new approaches. However, leaders need to avoid declaring victory too soon (Kotter, 1995).

Leadership for improving quality and safety in healthcare may include both formal leaders and local informal opinions leaders (Ovretveit, 2004). Ovretveit’s (2004) extensive review of literature concerning the leader’s role in quality and safety in healthcare suggests a need to create a “leadership system for improvement”, consisting of a multilevel and multi-type of leadership, whereby both formal and informal leaders work with staff and staff are supported in, at times, different activities. As also previously indicated, improvement may very much depend on the leader’s ability to communicate the vision and actively seek to participate in, and model, the desired vision and/or change (Geller, 2000; Kotter, 1995; Ovretveit, 2004). Ovretveit’s (2004) review concludes that evidence generally supports the importance of leadership in quality and safety improvement efforts (Ovretveit, 2004).

In a multidisciplinary ICU setting, the initial motivations for quality improvement initiatives are often derived from local expertise and the interests of particular individuals on the ICU team (Curtis et al., 2006b). However, it is important to note that change requires clear commitment from all professionals
involved (Curtis et al., 2006b). Researchers have noted that the diversity of the ICU multidisciplinary team may lead to a lack of clear responsibility for the prevention of harm (Cook et al., 2004; Cook et al., 2000). For this reason, Ferlie and Shortell (2001) argue that it is a mistake to rely solely on a single individual as a source of leadership for change within healthcare. Change needs to occur through informal and formal leaders in terms of implementing new procedures and processes of clinical practice (Grol et al., 2007). An external change consultant may also be used to offer a different perspective to the organisation (Ivancevich, Konopaske, & Matteson, 2005; Jick, 1993). Healthcare literature advocates a team-based approach to leadership of change, with groups of physicians, nurses and management involved in planned change initiatives, reinforcing the existing multidisciplinary approach to healthcare (Ferlie & Shortell, 2001).

Just as leadership is an important factor in the process of change, so too is the culture of an organisation or unit setting. The next section of this literature review will discuss the importance of understanding organisational culture and subcultures within the organisational change process.

**Organisational culture and the context of change**

It is important to consider the culture and subcultures of an organisation and how they impact on the nature and success of organisational change programs (Garside, 1998; London, 2001; Ramanujam et al., 2005; Wallace, Freeman, Latham, Walshe, & Spurgeon, 2001). Researchers recommend the need for assessing culture within the organisation prior to change and the implementation of quality improvement initiative(s) (Gaucher & Coffey, 1993) in order to better understand staff values and assumptions. For change to be enduring and successful, the culture within an organisation must shift to be open and receptive to change and quality improvement (Carroll & Quijada, 2004; Ferlie & Shortell, 2001; Garside, 1998).

Organisational culture represents, at its most basic level, the taken-for-granted assumptions that have worked well within an organisation and are
considered valid by its members (Schein, 1985b). These taken-for-granted assumptions are shaped by an organisation’s ‘collective experience’ and past success or failure (Graetz, Rimmer, Lawrence, & Smith, 2002; Johnson & Scholes, 2002; Ramanujam et al., 2005). Past success or failure to change may therefore have important implications for staff acceptance of current or future change initiatives.

As indicated earlier (see ‘Subcultures within the healthcare setting’), healthcare organisations are multicultural, comprised of a number of subcultures, with professional subgroups, specialties, teams and units (Ferlie & Shortell, 2001; Van Cott, 1994). There is a potential for culture divides to exist between these subcultures (e.g. clinical and managerial subcultures) which may serve to hinder quality improvement and change (Ferlie & Shortell, 2001). For example, organisational change and quality improvement may be difficult, as the medical culture is more typically focused on individual responsibility and an expectation of perfection, regarding errors as incompetence and professional failure (Kohn et al., 2000; Leape et al., 1998).

**Education and communication**

Communication regarding any change process must be ongoing and consistent (Dawson, 2003). Education and communication are paramount, with managers and ‘change agents’ needing to communicate the rationale for change to staff, and inform and educate them regarding the change through presentations, discussions, memos, and/or reports, and the resolving of any misunderstandings (misinformation) that may arise (Kotter & Schlesinger, 1979). The successful implementation of change is complex and requires multiple strategies, so that simply disseminating information via memos and presenting it at meetings alone are considered narrow strategies for encouraging the utility and uptake of change by key stakeholders/staff members (Ramanujam et al., 2005).

There is a need to inform and develop understanding within the key stakeholder groups (medical and nursing staff and other healthcare staff within the ICU) regarding the problem(s) that exist and the need for quality improvement
(Curtis et al., 2006b). Staff may lack insight into gaps or inadequacies in their own performance or may simply reject that these gaps exist (Grol & Wensing, 2004). Previous research has also revealed that self-estimated compliance with processes and procedures is not a good proxy for actual performance (Saturno, Palmer, & Gascon, 1999).

Open communication channels for disseminating information relating to the proposed quality improvement initiative and change are imperative, helping individuals to see the need for change (Kotter & Schlesinger, 1979; Ramanujam et al., 2005). The literature also highlights the importance of informal, face-to-face communication in implementing change, in addition to more formal methods of communication (i.e. committees, staff meetings, presentations) (Garside, 1998). Open communication channels need to occur irrespective of issues regarding authority gradient (HRC, 2005).

Inadequate information, communication and consultation with staff may be potential reasons for staff resistance to change and an unsuccessful change initiative. Effective communication is important in overcoming barriers that may exist in the context of change. Barriers may relate to the sender or receiver of information, with possible barriers including: sender not aware of the receiver’s needs; sender has a negative attitude towards the receiver; the sender has poor communication skills, and may not provide adequate information; the sender is rushed and hurried; the receiver has a negative attitude toward the intended change; the receiver may not understand; the receiver does not like or respect the sender (Kirkpatrick, 1987). In addition, the use of training and education programs that expose staff members to examples of best practice intended by the proposed quality improvement initiative are also considered important (Ramanujam et al., 2005).

**Participation and involvement**

Participation and involvement of stakeholders and of staff members at the “coalface” who will be most affected by the change, are important in order to inform the change process, provide ownership and participation for staff, and to
decrease resistance and encourage commitment. This use of participative techniques has been long established as the best method of managing resistance to change (Coch & French Jr., 1948; Lawrence, 1969; Waddell & Sohal, 1998). Perceptions of staff are important as they more often experience change first hand and can provide insights into who benefits from the change and which interests are served by the change (Kanter et al., 1992). It is important to involve those most affected by the change. This will enable an understanding of possible sources of resistance to the change initiative, including such things as comparisons with alternatives that are preferred (Eccles, 1996). This is important as change can lead to conflict between the old and the new, as the intended change may challenge or undermine the status quo (Burnes & James, 1994). “Cognitive dissonance” describes a condition in which individuals try to be consistent in a particular situation and defend their attitudes and behaviours (Burnes & James, 1994). When individuals sense an inconsistency between attitudes and behaviours, they may experience cognitive dissonance with the situation (Burnes & James, 1994; Jones, 1990). Individuals may feel frustrated and uncomfortable with the situation of change and therefore may seek to stabilise this feeling, which can result in resistance to the intended change in order to maintain the status quo. It is therefore important to encourage participation and involvement in the change process wherever possible in an attempt to manage resistance to change in this manner.

It is important to elicit the commitment of staff directly involved in the delivery of patient care and who will be most affected by the quality improvement initiative and change and ensure that they perceive the change to be relevant to them (Ramanujam et al., 2005). Allowing staff to have some ownership of the change process and involving them in assisting in the management and implementation of change are significant factors in overcoming their resistance to change (Kirkpatrick, 1987; Ramanujam et al., 2005). If managers seek to impose change without such participation of staff they may face resistance that results in less effective change (Buchanan & Huczynski, 2004).

Staff resistance may also be reduced if the change initiative is kept open to staff feedback, depending on whether experience indicates that further changes or
adjustments may be desirable (Watson, 1966). Researchers have noted the importance of involving future users of the intervention in the design process of the quality improvement initiative from the beginning (van Bokhoven, Kok, & van der Weijden, 2003). Involvement of key stakeholders in the development, implementation and evaluation of the quality improvement initiative is important in optimising change outcomes and the sustainability of change (Ramanujam et al., 2005; van Bokhoven et al., 2003).

**Facilitation and support**

Resistance to change may also be overcome by providing staff with training in new skills or by actively listening and offering support to overcome fear and anxiety about the change (Kotter & Schlesinger, 1979). Previous literature highlights the importance of dedicated support structures and processes in managing change, to ensure that education, information, and active consultation with staff occur as part of the change initiative (Ramanujam et al., 2005).

**Negotiation and agreement**

Negotiation and agreement may be needed to meet the needs of staff and key stakeholders and to overcome resistance to change. This may involve offering incentives to those resisting the change initiative (Kotter & Schlesinger, 1979). Anticipating possible barriers and incorporating incentives to overcome them can be useful in the implementation of change (Garside, 1998).

Covert methods of influencing others may be necessary in the development and implementation of change, such as manipulation, cooptation, and explicit or implicit coercion (Kotter & Schlesinger, 1979). Manipulation of facts, provision of selective details or withholding of undesirable information may be needed by managers and ‘change agents’ to overcome resistance to change. Cooptation of key resistant individuals in the change decision-making process may also be used to overcome resistance to change. This may not necessarily ensure a better change decision but this method can gain their endorsement for the intended change. Finally, implicit and explicit coercion may be used by
management and ‘change agents’ when failed attempts to achieve consensus mean
that direct threats or force are needed to overcome resistance to change (Kotter &
Schlesinger, 1979). Although recommended by a respected authority, abandoning
the virtue of truthfulness is, from an ethical perspective, highly questionable.
Typically, this is done when major issues are at stake, such as in a war, but a
legacy of this behaviour is cynicism and sometimes long-lasting commitment to
ever trust lost.

**Barriers and resistance to change**

Resistance to change is ubiquitous within organisational life and is part of
the change management process. Individuals or groups of staff who believe that
they do not need to improve or change can be a major barrier to any quality
improvement initiative (Curtis et al., 2006b). Awareness of, and overcoming
resistance to, change is important, as staff often resist change (Kotter &
Schlesinger, 1979; Stanley et al., 2005) and staff scepticism and resistance to
change can impede progress (Gollop et al., 2004). Schein (1985) provides several
potential reasons concerning resistance to organisational change and failure to
change, including: organisational politics, the inappropriate use of power,
challenges to cultural norms and accepted institutionalised practices and
processes, staff lack of understanding, inopportune timing, inadequate resources
for the change process, incorrect information communicated, and staff suspicion
and/or scepticism of management intentions regarding the change. Other sources
of resistance to change include: organisational inertia, the change perceived as a
threat to existing staff expertise (e.g. specialist consultants or senior nursing staff),
and the change perceived as a threat to established power relationships (Katz &
Kahn, 1978).

The organisational change management literature indicates that scepticism
and resistance need not be entirely negative but can be a constructive tool for
change management, providing a focus on aspects of change that may be
inappropriate (Waddell & Sohal, 1998). In this way inertia to change may be
beneficial, as sceptics may challenge assumptions about the value of change by
prompting debate and drawing attention to potential pitfalls of the initiative (NHS,
Healthcare staff may also resist change because they believe that the change may not be beneficial to the patient and may not improve patient outcomes (NHS, 2002). This may be due to insufficient evidence for improved patient outcomes to justify the implementation of such change. However, even if strong evidence exists in support of change, it may not be in itself sufficient, because acceptance of change is just as much shaped by experience and peer comparison as it is by scientific evidence (Claridge, Parker, & Cook, 2006; Dopson, Fitzgerald, Ferlie, Gabbay, & Locock, 2002; Gollop et al., 2004). This reliance on experience, peer comparison and interaction has been referred to as a reliance on “mindlines”, collectively reinforced and constructed, tacit guidelines, rather than evidence based guidelines (Gabbay & le May, 2004). This is a mechanism whereby well-intentioned people can be party to a process of “normalisation of deviance”. Researchers have further indicated that resistance to change may also be influenced by the social context, the organisational context, and the economic and political context (Grol & Wensing, 2004). Regulation in healthcare is poorly developed and there are no real incentives or requirements for practice or healthcare facilities to conform to evidence based guidelines, even though these may be well established (Healy & Braithwaite, 2006). Further barriers and resistance to change that may be faced when introducing change within an organisation or unit are discussed in the following section.

**Impact of organisational culture and collective experience**

The ‘collective experience’ of an organisation, particularly failures to achieve desired outcomes from previous change initiatives, can impact on the success of future change initiatives (Johnson & Scholes, 2002). If change management is lacking or a mismanagement of change occurs, staff may develop scepticism toward the quality improvement initiative, the change process and any future change initiatives (Ramanujam et al., 2005).

The culture of an organisation may become a barrier to change when staff values do not align/agree with the intended change (Robbins, 2003). For example, staff may resist a change initiative because it may threaten the status quo with which staff are content (Buchanan & Huczynski, 2004; Graetz et al., 2002). The
change initiative may challenge parochial self interest and represent a loss of power, disturbing interactions and processes that may have taken considerable time and effort to establish (Garside, 1998; Kotter & Schlesinger, 1979). Staff resistance will be less if they feel that their autonomy and their security will not be threatened by the change initiative (Watson, 1966).

Power and politics of change

All organisations are political systems (Nadler & Tushman, 1989). Politics is part of organisational reality, with power, politics and change said to be inextricably linked (Buchanan & Badham, 1999; Nadler & Tushman, 1989). The speed and quantity of change will be determined, to a large extent, by the power struggles within an organisation (Robbins, 2003), as change can lead to ambiguity and uncertainty which heighten the intensity of politics within an organisation (Buchanan & Badham, 1999). Problems may arise when power is concentrated in areas or units of the organisation that do not support change (Hemman, 2002). The role of politics in the process and management of change within an organisation has become increasingly recognised, with a need for leaders to understand any organisational ‘pathology’ with respect to change and confront issues that may arise from it (Huczynski & Buchanan, 2001; Nadler & Tushman, 1989).

Resentment can develop towards particular people involved in leading the change process or towards the change initiative itself (Garside, 1998). Alternatively this resentment may already exist, with researchers indicating that history and “old agendas” may get in the way of change and serve to maintain a culture whereby resolution of issues and implementation of change are ‘merely exercises in passive-aggressive gamesmanship, blocking the tenets of teamwork’ (Sherwood et al., 2002). The change agent then invariably becomes involved in the exercise of power, politics and interpersonal influence in the organisational change process (Buchanan & Badham, 1999a).
Subcultures and professional autonomy

Change may provide challenges to the cultural norms and established practices within the organisational setting and within particular subcultures or professional groups. In particular, the concept of professional autonomy within healthcare, encouraging staff members to work independently, may be a barrier to change. Change that involves an interdisciplinary approach and increased teamwork may provide a challenge to well established professional autonomy within the healthcare setting. Quality improvement within the healthcare setting may also be difficult if staff do not believe that the proposed change and need for improvement is important (Bloor, 1999).

The status quo of professional roles within the healthcare setting can be challenging to the implementation of change, and there is a potential for physicians, in particular, to perceive proposed changes as inappropriate or unnecessary for improving patient safety (Ramanujam et al., 2005). Countercultures may exist in times of change, with the potential for different subgroups seeking to challenge and undermine the dominant culture promoting change (Davies, 2002). Tucker and Edmonson (2003) report ‘individual vigilance’ as an organisational dynamic that inhibits change. Individual vigilance encourages healthcare staff (i.e. medical and nursing staff) to take personal responsibility for problem solving and meeting the immediate needs of the patient. For example, clinical protocols reduce reliance on short term memory (Leape, 1994) and have been shown to improve ICU patient care through reduction of unnecessary variations in ICU practice (Meade & Ely, 2002). However, the literature indicates resistance among physicians toward the use of, or compliance with, clinical protocols and standardisation of practice, because they perceive clinical protocols as a threat to their professional autonomy and they therefore often avoid or opt-out of protocols (Grol, 1990; Lawton & Parker, 2002; Tunis et al., 1994; Wachter & Shojania, 2004).

Particular professional subcultures within healthcare may be more or less influential in the successful implementation of change. For example, research has emphasized the key role of medical staff (consultants) in influencing change
(Botwinick et al., 2006), with their opinions being considered important and their support of the change initiative vital (Gollop et al., 2004). The social context and individual professionals can act as barriers or incentives to change (Grol, 2005; Grol & Wensing, 2004), with the opinions of colleagues potentially influencing other staff.

**Misunderstanding and fear**

A misunderstanding and/or lack of understanding of the intended change, the reason for the change and the possible impact of the change process can occur as a result of poor communication and may lead to resistance (Buchanan & Huczynski, 2004; Garside, 1998). Research has shown that inadequate or problematic communication and withholding of information or the provision of inadequate information can lead to misunderstandings or resistance among people impacted by change (Kotter & Schlesinger, 1979; London, 2001). Uncertainty regarding change can trigger anxiety and fear in staff members (Dawson, 2003). Disclosure of all relevant information regarding change may not occur or there may be a distrust of management by staff with scepticism or suspicion of information regarding the proposed change (Buchanan & Huczynski, 2004). This psychological model of resistance suggests that fear of the unknown may be a source of resistance for individuals, with change creating uncertainty or insecurity. Staff may fear that the change will be threatening to their individual status, position and power (NHS, 2002). Uncertainty and resistance regarding intended change may also be greater if staff perceive the change initiative as increasing rather than decreasing their present workload (Watson, 1966).

**The management of resistance to change**

Staff scepticism and resistance to change are common within organisational life and are part of the change management process. An understanding of what interventions are effective for successful change is important. Systematic reviews of professional educational or quality assurance interventions to improve quality of care show that multifaceted interventions are more likely to be effective than single interventions in quality improvement and
change, although it is still difficult to determine which interventions are more effective (Grimshaw et al., 2001). Interventions need to be based on an assessment of potential barriers to change. Effective strategies have been found to include educational outreach and reminders to staff, and audit and feedback. The use of local opinion leaders has been variably effective; while passive dissemination of information, for example through mail, has been found to be generally ineffective (Grimshaw et al., 2001).

Several important factors in organisational change have been discussed in the previous section, including Kotter’s (1995; 1996) eight-stage process for creating and leading change. Further to this, Kotter and Schlesinger (1979) also provide six strategies for overcoming resistance to change: 1) leadership; 2) communication and education; 3) the existing culture of the organisation or unit, the participation and involvement of staff; 4) facilitation and support; 5) negotiation and agreement; and 6) explicit and implicit coercion (Kotter & Schlesinger, 1979). Researchers have long advocated the use of participative techniques as the best method of managing resistance to change (Coch & French Jr., 1948; Lawrence, 1969; Waddell & Sohal, 1998). Early researchers concluded that involvement and active participation in the process of change (i.e. planning, development, implementation and evaluation) of the stakeholders expected to be impacted by the change will positively influence commitment to, and lower resistance to, the change initiative (Coch & French Jr., 1948; Lawrence, 1969; Waddell & Sohal, 1998).

While leaders of change must be aware of the potential for scepticism and resistance that may manifest (Gollop et al., 2004), resistance to change may also be beneficial (NHS, 2002; Waddell & Sohal, 1998). It is therefore important that managers and leaders of change seek to fully understand the true nature of resistance through further inquiry (Lawrence, 1969; Waddell & Sohal, 1998).
Methodology of the current research project

Adult intensive care unit setting

The first intensive care unit (ICU) was established in Copenhagen in 1953 by the Danish anaesthesiologist, Bjorn Ibsen, only half a century ago (Berthelsen & Cronqvist, 2004). Thus, intensive care is a rather young specialty in healthcare. Patients in ICUs are generally critically ill and admissions can include general medical, general surgical, neurosurgical, cardiothoracic, trauma, spinal injury and burns cases (RAH, 2003a). In general, staff of a major ICU will include a director of ICU, intensive care consultant specialists, junior medical staff including registrars, nurse managers, nurse specialists, nurse educators, critical care registered nurses, registered nurses, and other allied health (e.g. social workers, dietiticians, physiotherapists), secretarial and support staff (Oh, 2003).

This research project was conducted within the adult ICU at the Royal Adelaide Hospital (RAH), Adelaide, South Australia. The Royal Adelaide Hospital is a 700 bed teaching hospital affiliated with the Faculty of Health Sciences at the University of Adelaide. The RAH ICU was commissioned in 1969 and is now a multidisciplinary unit, with three sections (A, B, and C-ends) including a complement of 24 ICU (Sections A-end and B-end) and 10 high dependency unit (HDU) beds (C-end). It receives approximately 1500 ICU and 1300 HDU admissions per year. Regarding overall size, previous literature suggests that ICU’s with more than 20 non-high dependency (i.e. ICU) beds may be difficult to manage (Oh, 2003).

The high dependency beds within the unit allow for the provision of care intermediate between intensive care and the general ward, with admission of patients directly from the wards or from ICU as a step-down prior to transfer to the wards (Bersten, Soni, & Oh, 2003). At the commencement of the study, the ICU had 249 nursing staff, 12 intensive care consultant specialists and approximately 25 registrars (numbers vary due to registrar rotation throughout hospital units). On a typical day within the adult ICU there are approximately 50 ICU staff members working (approximately 35 nursing staff and 15 consultant and/or registrar staff).
**Mixed methods research design**

Choosing a method of analysis appropriate to the research question is very important (Braun & Clarke, 2006). The integration of qualitative and quantitative methods is not new in organisational research (Faules, 1982) and has become quite common in health services research (Adamson, 2005). This research project has used a mixed methods approach, with the use of both qualitative and quantitative methods, offering a richer description (Adamson, 2005; O'Cathain & Thomas, 2006). The use of both methods within a single study can assist in offsetting the weakness of one method with the strength of the other method, and integration of the findings can occur at the interpretation phase of the research (Creswell, 2003), effectively ‘triangulating’ methods. Qualitative and quantitative methods can therefore be complementary (Malterud, 2001).

The use of qualitative research methods has become increasingly common in health research (Mays & Pope, 2000). The studies in this research project included a qualitative process of content analysis to examine ICU staff perceptions concerning patient safety culture and aspects of organisational change and quality improvement. Regarding qualitative research methods and content analysis, Boyatzis (1998) outlines three ways to develop a thematic code, including: theory driven, developing codes on the basis of existing theory; prior-research driven, development of codes using previous research and existing codes; and inductive or data-driven, the development of codes derived from the raw data. For the purposes of this study an inductive or data-driven thematic analysis approach was chosen for the analysis of open-ended survey items and interview responses.

Mays and Pope (2000) argue that it is important to evaluate the validity and relevance of qualitative research, and highlight the importance of a rigorous and systematic approach to data collection, interpretation and reporting. The authors suggest several methods for assessing qualitative research, including triangulation, respondent validation, reflexivity and clear exposition of methods of data collection and analysis (Mays & Pope, 2000). Further research literature
emphasizes the importance of applying and evaluating qualitative methods in a rigorous manner in order to obtain rich and meaningful information through such means as grounding the qualitative analysis in examples direct from the data, and applying credibility checks such as using multiple analysts and triangulation of methods where appropriate (Elliott, Fischer, & Rennie, 1999).

**Participant observation**

Buchanan, Boddy and McCalman (1988) argue for an opportunistic approach to fieldwork and research in organisations. This opportunistic approach involves establishing contacts within the organisational setting, so that researchers can gain access into an organisation through a formal role agreed to by the ‘insiders’ (those within the organisation) (Schein, 2000).

The purpose of the following studies was to examine the patient safety culture (Chapter 3) and evaluate the impact of two quality improvement initiatives within an adult ICU in a large teaching hospital (Chapters 4 and 5). One quality improvement initiative (Chapter 4) was driven by ‘change agents’ working within the ICU rather than being based on a specific theory of organisational change or planned by an external organisational consultant. Instead, the change was based on the research literature and reports of best practice and was driven by a consultant and senior nurses. The second quality improvement initiative (Chapter 5) was a hospital-wide initiative, and ICU consultant staff were involved in the planning and developing of the document implemented, although they resisted the change process. When conducting research within a unit of another organisation, it is important to be seen as a neutral outside observer (Buchanan, Boddy, & McCalman, 1988). Therefore, the role of the principal researcher for these two opportunistic evaluation studies was as a ‘neutral outside observer’. The principal researcher was not involved in the development or implementation of the quality improvement initiatives, nor did she guide the process or influence the outcomes. Nor was there any control by the principal researcher over the timing of the development and introduction of the two initiatives. There was also limited access to staff at specific points in the evaluation of the quality improvement initiatives and this impacted on the timing of data collection (for example, see Chapter 4,
‘Procedure’ section). For the purposes of these two “opportunistic studies” (Chapters 4 and 5) the principal researcher was invited by the ICU to be involved in the evaluation of the impact of the two initiatives by assessing staff perceptions. In this way the principal researcher engaged, in part, in the qualitative technique of participant observation.

This manner of involvement of the principal researcher as an ‘outside observer’ researching within an organisation involves gaining the trust of the organisation and unit staff over a length of time, as the involvement of the staff is obviously crucial. The issue of sustaining an effective relationship with staff and respondents within the organisation is important (Buchanan et al., 1988), particularly for data collection, but also for developing and reporting recommendations that are made as a consequence of the research. The studies (Chapters 4 and 5) involved sustained involvement in the ICU by the principal researcher, over a period of approximately three years. With this level and duration of involvement there is an in-principle risk to the objectivity of the principal researcher. However, this is countered by the benefits in access for surveying and interviewing key stakeholders and staff, and in direct feedback and reporting of the findings of the research. These can influence any resulting recommendations for the organisation in question, as well as ICUs in general.

**Implications for the current study**

This chapter has highlighted significant gaps in research to date concerning aspects of patient safety culture assessment within healthcare generally and more specifically within the adult ICU setting. To date, research concerning safety culture within healthcare has occurred largely in the United States and further research is required in Australia. Increased efforts to improve patient safety and quality also suggest the need to apply organisational change management theory and practice in the consultation, planning, development, implementation and evaluation of any new quality improvement initiative within healthcare.
Summary

The purpose of this chapter was to provide a review of the existing body of literature concerning safety culture, quality improvement and change management within the healthcare setting. In addition, it attempted to draw attention to relevant theories and highlight research gaps in these areas, with particular reference to the ICU setting. Discussions of the literature relating to the handover of patient clinical information and documentation of the process of withdrawal of patient treatment within the ICU will be presented in Chapters 4 and 5, respectively. The last section of this chapter describes the research questions and aims of the research.

Research questions and aims

The research project was based within the adult ICU of a large teaching hospital. Initially it focused primarily on investigating safety culture within an adult ICU. However, upon commencing the first study (Chapter 3) two opportunistic studies arose from quality improvement initiatives planned within the ICU at the time that this research was being conducted. The original intention for the research project was to further investigate deeper aspects of organisational culture and the underlying basic assumptions relating to work practices, through in-depth interviews with ICU staff and observation. Although not a direct outcome of the safety culture assessment in study one (Chapter 3), the opportunistic research reported in Chapters 4 and 5 became a part of the overall research. The opportunities arose from staff within the ICU extending an invitation to the principal researcher to evaluate the impact of two quality improvement initiatives. This provided a worthwhile opportunity to examine organisational change in process and also relate the findings of the safety culture assessment (Chapter 3) to the outcomes of the change processes evaluated.

The objective of the first study was to address the limitations in the current body of healthcare research relating to understanding and assessing safety culture, particularly in ICUs in Australia. This study involved the use of a newly established safety culture assessment tool, the Hospital Survey on Patient Safety Culture (HSPSC) (Sorra & Nieva, 2004) to assess ICU staff perceptions of safety
The goals were to gain an understanding of how the culture within an ICU may affect the provision of safe patient care, and to identify areas of strength and areas with potential for improvement, with respect to patient safety, while also raising awareness of these issues within the unit.

The quality improvement initiatives reported in Chapters 4 and 5 were informed and developed in response to local needs, based on existing literature and best practice. Each of the studies involved an evaluation of the impact of quality improvement initiatives through an assessment of ICU staff perceptions concerning the change process.

The objective of the second study (Chapter 4) was concerned with the extent to which the implementation of a Patient Management Plan and Progress MR 42.1 (PMPP) document improved the perceived process of handover of patient clinical information in the ICU. In particular, the study examined the perceptions of ICU consultants, registrars and nursing staff regarding this process before and after the introduction of the PMPP document on July 25, 2005. The overall aim of the study was to investigate the process and impact of the implementation of a quality improvement initiative within an ICU and examine the findings in relation to organisational change management theory.

The final study (Chapter 5) was concerned with the extent to which the implementation of an Advance Care Plan (ACP) document improved the documentation of the withdrawal of patient treatment process within the ICU. In particular, the study examined the perceptions of ICU consultants, registrars and nursing staff regarding the documentation of the process of the withdrawal of treatment in the adult ICU before and after the introduction of the ACP document on October 1, 2005. An audit of patient medical records was also undertaken before and after the introduction of the ACP document to investigate its impact on the documentation of the withdrawal of treatment process.
CHAPTER 3

An assessment of patient safety culture within an adult intensive care unit

3.1 Introduction

Overview

The Institute of Medicine report *To Err is Human* highlighted that as many as 98,000 patients die each year as a result of medical errors in the US (Kohn et al., 2000). The report also emphasized the need for a change in healthcare culture in order to achieve a safer healthcare system, a change from a culture of blaming individuals for errors to one of a patient safety culture with a systems approach to preventing harm and improving patient safety (Kohn et al., 2000). The interest in safety culture assessment within healthcare stems from previous safety culture research in other high risk organisations, such as nuclear power, railway and aviation (Guldenmund, 2000). Safety culture assessment can provide a tool for improving patient safety (Nieva & Sorra, 2003), by providing insight into strengths and areas in need of quality improvement.

The importance of safety culture

As highlighted in the literature review (Chapter 2), the importance of improving patient safety has been well established and to do this an understanding of the safety culture within a unit or organisation is considered paramount (Kohn et al., 2000; Nieva & Sorra, 2003). Safety culture can be more generally defined as the way people think and/or behave in relation to safety (Cooper, 2002). Some further definitions of safety culture have been provided Chapter 2 (p.18) and the factors associated with a safety culture have also been provided in Chapter 2 (p.19-24).

Safety Culture Assessment

Reviews of quantitative measures of safety culture (Guldenmund, 2000) and more recently, organisational culture within healthcare (Scott et al., 2003b), provide an evaluation of available survey instruments for potential use in
assessment of culture within healthcare. The assessment of safety culture has more commonly occurred in other industries including aviation, railway, and other dynamic and complex environments. More recently, quantitative measures of safety culture have been developed specifically for healthcare (Fleming, 2005), including the Safety attitudes questionnaire (Sexton et al., 2006; Sexton et al., 2004), the Stanford instrument (Sexton et al., 2006; Singer et al., 2003), and the Hospital Survey on Patient Safety Culture (HSPSC) (Sorra & Nieva, 2004). Findings from the use of these survey instruments will now be discussed, with particular focus on the HSPSC.

Using the Stanford instrument, Singer et al. (2003) investigated the attitudes of 6312 healthcare personnel towards patient safety culture across 15 hospitals in California, US. Regarding punishment for the reporting of a patient safety problem, findings indicated that only 11.3% of respondents strongly agreed/agreed with the statement ‘Reporting a patient safety problem will not result in negative repercussions for the person reporting it’, suggesting respondents were concerned with the potential of a punitive response to reporting. Regarding communication and seeking help, findings revealed that only 9.3% of respondents strongly agreed/agreed that “If I see a problem with the management of a patient, I would say something, even though it would make a senior person look bad’, suggesting a reluctance by staff to acknowledge or question when something doesn’t seem right regarding patient care involving a more senior person. Furthermore, only 15% of respondents strongly agreed/agreed that ‘Senior management provides a climate that promotes patient safety’.

Based on data from 10,843 healthcare respondents in 203 clinical areas in three countries, the Safety Attitudes Questionnaire provides a measure of factors relating to teamwork, safety, perceptions of management, job satisfaction, working conditions, and stress recognition (Sexton et al., 2006). Regarding teamwork, findings revealed that only 22% of respondents within the ICU felt it was difficult to speak up if there was a perceived problem with patient care. This differs from Singer et al.’s (2003) findings which revealed a reluctance to speak up or question when something didn’t seem right. However, Sexton’s (2006) findings are not reported separately by staff position type, and this response could
vary when considering medical and nursing staff separately. Furthermore, only 20% of Sexton’s (2006) respondents believed it was difficult to discuss errors within the ICU. However, 66% of respondents believed there was not enough staff to sufficiently handle the number of patients.

Hospital Survey on Patient Safety Culture (HSPSC)

The HSPSC was recently developed by the Agency for Healthcare Research and Quality (AHRQ) in the US, involving an extensive review of existing literature pertaining to safety, accidents, medical error, error reporting, safety climate and culture, and organisational climate and culture, including published and unpublished safety culture surveys (Sorra & Nieva, 2004). The survey was pilot tested with 1437 hospital employees from 21 hospitals across the United States (Sorra & Nieva, 2004). Psychometric analyses were conducted to establish the 12 safety culture dimensions comprising of 42 items (Sorra & Nieva, 2004). The self administered survey instrument became available to the public via the Agency for Healthcare Research and Quality (AHRQ) website in 2004. A complete version of the HSPSC was obtained for the purposes of the current study prior to its official release through personal correspondence with the authors and affiliated researchers (Dr’s Sorra, Bates and Kitch). This does not differ from the published version now available (Sorra & Nieva, 2004).

The 42 items of the HSPSC measure 12 safety culture dimensions and these are reported in Table 3.1, with definitions for each. The HSPSC instrument requests respondents to consider their own unit (i.e. ICU) in their responses to items, as it is expected that they would know the culture in their own unit better than the hospital as a whole. Patient safety culture is local and understanding and changing that culture begins with a focus at the local unit level (Pronovost & Sexton, 2005; Sexton et al., 2006). However, the HSPSC instrument also includes a section at the end of the survey (Section F) pertaining to hospital-wide safety issues. A quantitative assessment of culture through the use of a structured survey instrument provides the advantage of economically collecting input from members across all levels of a unit or organisation (Cooke & Rousseau, 1988).
Safety culture assessment enables a measure of the shared understanding of staff concerning what Deal and Kennedy (1982) refer to as “the way we do things around here”. For the purposes of this study the HSPSC was used to diagnose the safety culture of the ICU in order to identify strengths and areas for potential improvement, and to raise further awareness amongst the ICU staff regarding patient safety.
Table 3.1 Patient safety culture composites and definitions (Sorra et al., 2007; Sorra & Nieva, 2003)

<table>
<thead>
<tr>
<th>Patient Safety Culture Composites</th>
<th>Definition: <em>The extent to which…</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Overall perceptions of patient safety</td>
<td>Procedures and systems are good at preventing errors and there is a lack of patient safety problems</td>
</tr>
<tr>
<td>2. Frequency of events reported</td>
<td>Mistakes of the following types are reported: 1) mistakes caught and corrected before affecting the patient, 2) mistakes with no potential to harm the patient, and 3) mistakes that could harm the patient, but do not</td>
</tr>
<tr>
<td>3. Supervisor/manager expectations and actions promoting safety</td>
<td>Supervisors/managers consider staff suggestions for improving patient safety, praise staff for following patient safety procedures, and do not overlook patient safety problems</td>
</tr>
<tr>
<td>4. Organisational learning – continuous improvement</td>
<td>There is a learning culture in which mistakes lead to positive changes and changes are evaluated for effectiveness</td>
</tr>
<tr>
<td>5. Teamwork within units</td>
<td>Staff support one another, treat each other with respect, and work together as a team</td>
</tr>
<tr>
<td>6. Communication openness</td>
<td>Staff freely speak up if they see something that may negatively affect a patient, and feel free to question those with more authority</td>
</tr>
<tr>
<td>7. Feedback and communication about error</td>
<td>Staff are informed about errors that happen, given feedback about changes implemented, and discuss ways to prevent errors</td>
</tr>
<tr>
<td>8. Nonpunitive response to error</td>
<td>Staff feel that their mistakes and event reports are not held against them, and that mistakes are not kept in their personnel file</td>
</tr>
<tr>
<td>9. Staffing</td>
<td>There are enough staff to handle the work load and work hours are appropriate to provide the best care for patients</td>
</tr>
<tr>
<td>10. Hospital management support for patient safety</td>
<td>Hospital management provides a work climate that promotes patient safety and shows that patient safety is a top priority</td>
</tr>
<tr>
<td>11. Teamwork across hospital units</td>
<td>Hospital units cooperate and coordinate with one another to provide the best care for patients</td>
</tr>
<tr>
<td>12. Handoffs and transitions</td>
<td>Important patient care information is transferred across hospital units and during shift changes</td>
</tr>
</tbody>
</table>
The HSPSC instrument has been used to assess the safety culture of 72 US nursing homes, with results indicating a less well-developed safety culture as compared to benchmark hospital scores with all scores for each of the 12 patient safety culture composites being less than 50% (Handler et al., 2006). The patient safety culture composites receiving the lowest scores included the “Frequency of events reported” and “Staffing” composites, indicating these as areas of potential for improvement.

Results of the patient safety culture of a public acute care hospital in Hong Kong revealed that patient safety composites receiving the lowest scores included “Staffing” and “Communication openness” (Yeung & Lui, 2006). “Organisational learning – Continuous improvement” and “Feedback and communication about error” were the patient safety culture composites receiving the highest overall scores from the hospital respondents (Yeung & Lui, 2006).

AHRQ has established a new HSPSC Comparative Database to serve as a national repository in the US for data collected using the HSPSC (Sorra et al., 2007). As indicated earlier in the literature review (Chapter 2), AHRQ have recently published the “HSPSC: 2007 Comparative Database Report” (US Report) providing safety culture benchmarks from 382 participating US hospitals, and based on the responses of 108,621 hospital staff (Sorra et al., 2007). This database allows healthcare organisations to identify local strengths and weaknesses (Fleming, 2005; Sorra et al., 2007).

Findings of the US Report revealed that an area of strength for most hospitals included “Teamwork within units”, which was the patient safety culture composite with the highest average positive response (78%) (Sorra et al., 2007). The survey item with the highest average positive response (85%) was: “When a lot of work needs to be done quickly, we work together as a team to get the work done”. Furthermore, the majority of respondents within hospitals indicated a “Patient Safety Grade” (on a scale of “Excellent” through to “Failing”) for their work area or unit as either “Excellent” (22%) or “Very Good” (48%). Regarding areas with potential for improvement for most hospitals, the patient safety culture
composite “Nonpunitive response to error” received the lowest positive response (43%) (i.e. Strongly agree/Agree or Most of the time/Always), and the survey item with the lowest average positive response (35%) was: “Staff worry that mistakes they make are kept in their personnel file” (on average, only 35% strongly disagreed or disagreed with this item). In addition, a further area with potential for improvement included “The number of events reported” as the majority of respondents (53%) reported no events over the past 12 months, indicating potential underreporting for hospitals involved in the database (Sorra et al., 2007).

The HSPSC Comparative Database also included a summary of results specific to the ICU work areas, which included 5,992 respondents from 215 hospitals (Sorra et al., 2007). Findings were similar to the overall sample, revealing that “Teamwork within units” was the patient safety culture composite with the highest average positive response (80%), and the survey item with the highest average positive response (87%) was: “When a lot of work needs to be done quickly, we work together as a team to get the work done”. Both percentage values were slightly higher than for the overall sample. Furthermore, the majority of ICU respondents indicated a “Patient Safety Grade” for their work area or unit as either “Excellent” (15%) or “Very Good” (48%). For the ICU sample, the areas with potential for improvement included the patient safety culture composite “Nonpunitive response to error”, which received the lowest positive response (38%) (i.e. Strongly agree/Agree or Most of the time/Always), and the survey item with the lowest average positive response (30%) was: “Staff worry that mistakes they make are kept in their personnel file” (an average of only 30% strongly disagreed or disagreed with this item). A further area with potential for improvement included “The number of events reported” as the majority of respondents reported no events (31%) or 1 to 2 events (35%) over the past 12 months, indicating potential underreporting for the ICU work areas involved in the database (Sorra et al., 2007).
Summary and aim of the study

Relatively little research has been conducted regarding ICU staff perceptions of safety culture within healthcare. The present study used the HSPSC instrument to investigate patient safety culture within an ICU setting. The study was designed to investigate ICU staff perceptions of patient safety culture, including consultant, registrar and nursing staff, and to gain an understanding of patient safety culture specific to the ICU in this study. The HSPSC provided a safety culture assessment to conduct and diagnose safety culture within the ICU setting in order to identify patient safety areas of strength and areas with potential for improvement. This study aimed to contribute to the growing body of research regarding safety culture within healthcare.
3.2 Method

Setting

This study was conducted within the adult ICU at the Royal Adelaide Hospital (RAH), Adelaide, South Australia. For a full description of the ICU refer to Chapter 2 (“Methodology of the current research”). At the commencement of the study, the ICU had 249 nursing staff, 12 intensive care consultant specialists and approximately 25 registrars (numbers vary due to registrar rotation throughout hospital units). On a typical day within the adult ICU there are approximately 50 ICU staff members working; approximately 35 nursing staff and 15 consultant and/or registrar staff.

Participants

This study included 123 participants from an overall 283 consultant, registrar and nursing staff, indicating a study response rate of 44%. Of the 10 ICU consultants working within the unit, there were a total of 7 respondents, indicating a 70% response rate. Of the 24 registrars working within the ICU at the time of the study, a total of 14 responded to the survey, providing a 58% response rate. A total of 249 ICU nursing staff received a copy of the survey, with 102 respondents, indicating a 41% response rate.
<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Consultants</th>
<th>Registrars</th>
<th>Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>N</td>
<td>123 (7)</td>
<td>14 (14)</td>
<td>102 (100)</td>
<td>1 (0.8)</td>
</tr>
<tr>
<td>Hours per week</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 20 hours</td>
<td>7 (5.7)</td>
<td>0</td>
<td>0</td>
<td>7 (6.9)</td>
</tr>
<tr>
<td>20-39 hours</td>
<td>71 (57.7)</td>
<td>1 (14.3)</td>
<td>2 (14.3)</td>
<td>68 (66.7)</td>
</tr>
<tr>
<td>≥40 hours</td>
<td>44 (35.8)</td>
<td>6 (85.7)</td>
<td>12 (85.7)</td>
<td>26 (25.5)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (0.8)</td>
<td>0</td>
<td>0</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Contact with patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>120 (97.6)</td>
<td>7 (100)</td>
<td>14 (100)</td>
<td>99 (97.1)</td>
</tr>
<tr>
<td>No</td>
<td>2 (1.6)</td>
<td>0</td>
<td>0</td>
<td>2 (2.0)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (0.8)</td>
<td>0</td>
<td>0</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Contact with patients’</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>relatives/friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>119 (96.7)</td>
<td>7 (100)</td>
<td>14 (100)</td>
<td>98 (96.1)</td>
</tr>
<tr>
<td>No</td>
<td>3 (2.4)</td>
<td>0</td>
<td>0</td>
<td>3 (2.9)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (0.8)</td>
<td>0</td>
<td>0</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Years in current</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>profession</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td>4 (3.2)</td>
<td>0</td>
<td>0</td>
<td>4 (3.9)</td>
</tr>
<tr>
<td>1-5 years</td>
<td>38 (30.9)</td>
<td>0</td>
<td>10 (71.4)</td>
<td>28 (27.5)</td>
</tr>
<tr>
<td>6-10 years</td>
<td>24 (19.5)</td>
<td>0</td>
<td>4 (28.6)</td>
<td>20 (19.6)</td>
</tr>
<tr>
<td>11-15 years</td>
<td>22 (17.9)</td>
<td>2 (28.6)</td>
<td>0</td>
<td>20 (19.6)</td>
</tr>
<tr>
<td>16-20 years</td>
<td>12 (9.8)</td>
<td>2 (28.6)</td>
<td>0</td>
<td>10 (9.8)</td>
</tr>
<tr>
<td>≥ 21 years</td>
<td>22 (17.9)</td>
<td>3 (42.9)</td>
<td>0</td>
<td>19 (18.6)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (0.8)</td>
<td>0</td>
<td>0</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Years in current</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>specialty area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td>21 (17.1)</td>
<td>0</td>
<td>6 (42.9)</td>
<td>15 (14.7)</td>
</tr>
<tr>
<td>1-5 years</td>
<td>48 (39.0)</td>
<td>0</td>
<td>7 (50.0)</td>
<td>41 (40.2)</td>
</tr>
<tr>
<td>6-10 years</td>
<td>24 (19.5)</td>
<td>2 (28.6)</td>
<td>1 (7.1)</td>
<td>21 (20.6)</td>
</tr>
<tr>
<td>11-15 years</td>
<td>13 (10.6)</td>
<td>0</td>
<td>0</td>
<td>13 (12.7)</td>
</tr>
<tr>
<td>16-20 years</td>
<td>10 (8.1)</td>
<td>3 (42.9)</td>
<td>0</td>
<td>7 (6.9)</td>
</tr>
<tr>
<td>≥ 21 years</td>
<td>6 (4.9)</td>
<td>2 (28.6)</td>
<td>0</td>
<td>4 (3.9)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (0.8)</td>
<td>0</td>
<td>0</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Years in current</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>work area/unit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td>37 (30.0)</td>
<td>1 (14.3)</td>
<td>12 (85.7)</td>
<td>24 (23.5)</td>
</tr>
<tr>
<td>1-5 years</td>
<td>43 (35.0)</td>
<td>1 (14.3)</td>
<td>1 (7.1)</td>
<td>41 (40.2)</td>
</tr>
<tr>
<td>6-10 years</td>
<td>16 (13.0)</td>
<td>1 (14.3)</td>
<td>0</td>
<td>15 (14.7)</td>
</tr>
<tr>
<td>11-15 years</td>
<td>15 (12.2)</td>
<td>1 (14.3)</td>
<td>0</td>
<td>14 (13.7)</td>
</tr>
<tr>
<td>16-20 years</td>
<td>9 (7.3)</td>
<td>2 (28.6)</td>
<td>0</td>
<td>7 (6.9)</td>
</tr>
<tr>
<td>≥ 21 years</td>
<td>1 (0.8)</td>
<td>0</td>
<td>0</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Missing</td>
<td>2 (1.6)</td>
<td>1 (14.3)</td>
<td>1 (7.1)</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 3.2 shows the sample characteristics of the ICU respondents. It can be seen that of the overall number of respondents, 83% were nurses. Regarding years of experience working in their ICU, 30% of staff had less than 1 year of experience working within the ICU, 35% had 1 to 5 years experience, and 13% of respondents had 6 to 10 years of experience working in their ICU. Almost all ICU staff respondents (98%) performed direct patient care and had direct contact with the patients’ family/friends (97%).

**Measures**

The Hospital Survey on Patient Safety Culture (HSPSC) (Sorra & Nieva, 2004) instrument was administered for this study to assess staff-level perspectives on patient safety culture pertaining to their specific unit.

**Hospital Survey on Patient Safety Culture (HSPSC)**

To investigate ICU staff perceptions of patient safety culture, the 42 items of the HSPSC instrument developed by Sorra and Nieva (2004) were used (See Appendix 3.1). Section A of the HSPSC consists of 18 statements concerning the respondents’ unit and required the staff to indicated their agreement or disagreement for each of the statements on a 5-point Likert scale, where 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither*, 4 = *Agree*, 5 = *Strongly Agree*. Four statements regarding the respondents’ immediate supervisor/manager were included in Section B requiring the respondent to indicate their agreement or disagreement for each of the statements on a 5-point Likert scale (1 = *Strongly Disagree* through to 5 = *Strongly Agree*). Section C required the respondent to consider aspects of communication and indicate how often each of the six statements occurred within their unit on a 5-point Likert scale 1 = *Never*, 2 = *Rarely*, 3 = *Sometimes*, 4 = *Most of the time*, or 5 = *Always*. Five statements were included in Section D regarding how often events are reported when mistakes occur, each requiring the respondents to indicate their responses on a 5-points Likert scale (1 = *Never* through to 5 = *Always*). Section E required staff to provide an overall patient safety grade for their unit, with response categories A through to E, where A = *Excellent*, B = *Very Good*, C = *Acceptable*, D = *Poor*, E = *Failing*. 
Section F consisted of eleven statements relevant to the hospital, requiring the respondent to indicate their agreement or disagreement on a 5-point Likert scale (1 = Strongly Disagree through to 5 = Strongly Agree). Finally, Section G required the respondent to consider the number of events they had reported in the past 12 months (a = No event reports, b = 1-2 event reports, c = 3-5 event reports, d = 6-10 event reports, e = 11-20 event reports, or f = 21 event reports or more).

As items were both positively and negatively worded, the thirteen items within the HSPSC that were negatively worded were reverse coded prior to conducting analyses, to ensure that all higher scores indicated a more positive response. Negatively worded items are distinguished in the reporting of results by an ‘r’, indicating a reverse worded item where a positive response is based on responses “Strongly disagree” or “Disagree”, or “Never” or “Rarely”.

**Reliability and construct validity analysis**

Reliability analyses were conducted for the HSPSC, involving measurement of the internal consistency for each of the 12 safety culture dimensions using Cronbach’s alpha coefficient. A Cronbach’s alpha value of .70 or above is considered an acceptable level of reliability (Tabachnick & Fidell, 2000).

To assess the construct validity of each of the 12 safety culture dimensions in the HSPSC, composite scores were calculated for each respondent for each dimension of the HSPSC and these were then correlated with one another. Correlations between .20 to .70 indicate that dimensions are moderately related to one another, whereas correlations higher suggest that the dimensions are measuring the same construct.

**Qualitative open-ended questions**

For this study two open-ended questions concerning patient safety issues and culture were also included in the survey; the first seeking any overall comments or
suggestions, and the second asking respondents to indicate if they considered there were any discrepancies between their unit and the overall hospital:

- Please feel free to write any comments or suggestions for improvement about patient safety, error or event reporting in your hospital; and
- Please comment if you believe there are any significant differences between the culture in your unit and the overall organisational culture of the hospital.

**Demographic details**

Background information (Section H) was also collected to assist in the analysis of the survey results. These demographic details are shown in Table 3.2.

**Ethical considerations**

Ethics approval for this study was obtained from two different ethics committees, the University of Adelaide, School of Psychology Human Research Ethics Committee and the Royal Adelaide Hospital Ethics Committee.

A number of ICU nursing staff expressed their interest in completing the survey, but were reluctant to identify themselves through the request for written and signed consent on the Consent Form used in the study. These concerns were expressed irrespective of the fact that the Information Sheet assured participants of the anonymity and confidentiality of their responses. The principal researcher, in consultation with supervisors from the University of Adelaide and the Royal Adelaide Hospital, decided that as the subject population had no dependent relationship with the principal researcher, it seemed unnecessary to obtain a signature to indicate consent. It was also thought that exclusion of the Consent Form would encourage further voluntary staff participation and thus improve the representativeness of the findings. Accordingly a revision of ethics consideration was submitted to the Royal Adelaide Hospital Ethics Committee and approval was gained to exclude the use of a written Consent Form from research project (including subsequent studies in Chapters 4 and 5). Instead, participants were
informed that their return of the completed survey instrument would be considered as indicating their consent to take part in the study.

In accordance with the ethical guidelines of the University of Adelaide, School of Psychology Human Research Ethics Committee and the Royal Adelaide Hospital Ethics Committee, the survey data were stored in password protected files on the computer system of the School of Psychology in the University of Adelaide, and were only accessible by the principal researcher so as to ensure confidentiality.

Open-ended responses provided by respondents were assigned an identifying index, which included: C (consultant), R (registrar), RN (registered nurse) and each respondent was numbered chronologically within each category (Example: “RN4” refers to the response of the fourth registered nurse).

**Procedure**

For this study, all available consultant, registrar and nursing staff within the ICU were approached to participate in the study. Administrative staff were not surveyed as numbers within the ICU were small. Staff rosters from the ICU were used to identify potential participants for the distribution of surveys.

Points of contact were established in the ICU to assist with gaining access to relevant staff. The points of contact included the: Head, Department of Anaesthesia and Intensive Care, Director of Intensive Care, ICU Unit Clinical Manager, ICU Research Liaison Nurse, and ICU Education Nurse.

**HSPSC pilot**

The HSPSC was developed in the US and therefore required initial piloting within the Australian healthcare setting to ensure suitability. A total of eight critical care registered nurses were selected by the ICU Research Liaison Nurse to participate in the pilot phase of this study. The response from those involved in the pilot phase required the principal researcher to make several
changes to the survey. However, only those changes considered to be absolutely necessary were made in order to minimize any effect on the reliability and validity of the survey instruments.

The following changes were made to the HSPSC. Section A of the HSPSC asked the participant to indicate the work area or unit of the hospital in which they spent most of their time. This item was not included for the study as the sample population was already identified as the Intensive Care Unit. Section A and C originally stated “Think about your hospital work area/unit…” when answering the statements, however, the pilot study participants indicated that this was potentially misleading and should be reworded to read “Think about your work area/unit in the hospital…”. This change was considered minor and would not alter the manner in which participants would respond to the items; it simply ensured that the participants responded in reference to their work area/unit rather than perhaps responding to these items by considering the wider hospital.

For the background information (Section H), the item regarding staff position (Item 4) was altered to reflect the positions appropriate for Australian ICU staff. The staff were also asked if, in their position, they typically had direct interaction or contact with patients’ relatives/friends to complement the information that requested typical contact with patients, as ICU patients are often incompetent and ICU staff may have considerable contact with the patients’ relatives/friends. An original demographic question referring to the length of time worked in their current specialty or profession was revised and separated, with one item focused on the length of time worked in their current profession (i.e. nurse, consultant) and then a second item focused on the length of time worked in their current specialty (i.e. ICU).

During the pilot phase of this study, both nurses and consultants requested a section in each of the surveys for their open-ended responses. The qualitative open-ended questions at the end of each of the surveys were added specifically for this study (these questions are listed on p.65-66).
A pre-notification letter (see Appendix 3.2) was provided to all staff within the unit, to inform them of the purpose of the research, brief details of the survey, survey dissemination, completion and return, and the support of unit management regarding the study. Contact details were also provided of the principal researcher and others involved in the overall research project.

Two weeks after the posting of the pre-notification letter the surveys were sent to all staff in the unit. In order to maximize the response rate, a copy of the Information Sheet (see Appendix 3.3), Consent Form (see Appendix 3.4 – later removed from survey distribution) and the HSPSC were distributed to staff inboxes (internal mail), presented in brightly coloured (lime-green) envelopes with a name-label on each envelope to personalize the process of recruitment (Dillman, 1991). A clearly marked box was provided in the ICU staff tea-room and at the main nursing work stations for return of completed surveys by nursing staff. Surveys distributed to consultants and registrars included a reply-paid envelope for return of completed surveys by mail. In addition, the principal researcher spent time within the unit during rostered shift times (morning, afternoon, and night shift) for nursing staff, and with the permission of the Shift Coordinator for that time, approached each of the nursing staff with a copy of the survey, asking if they had received and completed the survey.

Informational “flyers” were displayed on notice boards in the main staff tea-room of the unit prior to the distribution of the surveys and further supplemented with reminder notices during the receipt process. A detailed notice was also included in the ICU Newsletter, including a short summary of the study and a photograph of the principal researcher who would be seen in the unit. During the ICU nurse education sessions the principal researcher presented a fifteen minute summary of the aims and objectives of the research and the voluntary capacity in which staff could participate.
Data analysis

Quantitative analysis

The Statistical Package for the Social Sciences (SPSS) version 12.0.1 for Windows was used for the data entry, management and analysis of data. Reliability was assessed using Cronbach’s alpha coefficient. Descriptive statistics (mean, SD, frequencies) were used for the analysis of the participant demographic details.

The frequency analysis was performed for each of the items in the HSPSC. The survey instrument sought participants’ responses on a 5-point Likert scale. For ease of reporting, based on analysis used in previous studies (Sorra et al., 2007; Sorra & Nieva, 2004), the frequency analysis used a 3-point Likert scale, combining the two lowest response categories (strongly disagree/disagree and never/rarely), and the two highest response categories (strongly agree/agree and most of the time/always), and the mid points of the scales are reported as a separate category (neither or sometimes) (Sorra & Nieva, 2004). Survey items were grouped according to the safety culture dimension each item was intended to measure.

These analyses were conducted to explore patterns within the response data. In conducting the frequency analysis, several different filters were employed to allow for exploration and differentiation between responses from different sub samples of the intensive care population who responded to the surveys. That is, frequencies of responses to the items of each of the 12 safety culture dimensions could be compared for the overall ICU staff respondents and then separately for each of the professional sub-groups, including ICU consultant, registrar and nursing staff. Patterns within the data were explored based on professional sub-groups to determine whether the frequency of responses were associated with the different position the staff members held within the unit. The data filters employed are presented in Table 3.3, indicating the number of participants for the different sub samples.
Table 3.3 Filters employed for the frequency analysis of ICU responses and the number of participants for each sub sample

<table>
<thead>
<tr>
<th>Filter</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ICU participants</td>
<td>123</td>
</tr>
<tr>
<td>ICU Consultant participants</td>
<td>7</td>
</tr>
<tr>
<td>ICU Registrar participants</td>
<td>14</td>
</tr>
<tr>
<td>ICU Nurse participants</td>
<td>102</td>
</tr>
</tbody>
</table>

As indicated by Sorra and Nieva (2004), the pattern of the HSPSC frequency analysis may reveal both strengths and areas needing improvement, with a patient safety strength identified as those positively worded items that 75 percent or more of respondents indicated ‘agree/strongly agree’ or ‘always/most of the time’ (or those reverse worded items that 75 percent of respondents disagreed/strongly disagreed with). The authors indicate that the cut off of ≥75% is somewhat arbitrary (Sorra & Nieva, 2004). For the purposes of the present study an additional, more liberal criterion has been used in order to further categorise survey responses. A “moderate strength” is defined here as those survey items where 66.6% (i.e. two-thirds) to 74.9% of respondents indicated ‘agree/strongly agree’ or ‘always/most of the time’ (or those reverse worded items that respondents disagreed/strongly disagreed with). An item and/or dimensions needing improvement was identified as those items that 50 percent or fewer respondents answered positively (i.e. answered negatively or ‘neither’ to positively worded items, or agreed with reverse worded items), as used in previous research (Sorra & Nieva, 2004).

The composite frequencies of the total percentage of positive responses were calculated for each of the 12 safety culture dimensions. Composites were calculated by adding the number of positive responses to the items in each dimension (Strongly agree/Agree or Most of the time/Always for positively worded items; Strongly disagree/disagree or Never/rarely for reverse worded items) and dividing by the total number of responses for each dimension (positive, neutral and negative) (Sorra & Nieva, 2004). Composite frequencies were then used to explore patterns of positive responses within the data for the total ICU
respondents, consultants, registrars and nursing staff (using the data filters described earlier in this section).

The problem of missing data is inevitable in any moderate-scale research project and this research was no exception. This study employed the procedure of the pairwise and listwise deletion method to replace and manage missing data.

The percentile scores were examined to place the ICU in the present study relative to the distribution of the ICU findings in the US HSPSC 2007 Comparative Database Report (US Report) (Sorra et al., 2007). Composite-level comparisons were examined for each of the 12 dimensions and the ICU patient safety grade and number of events reported. Statistical significance between scores of the present study (1 hospital; respondent n= 123) and the ICU findings of the US Report (215 hospitals; respondent n= 5992) (Sorra et al., 2007) are greatly influenced by disparity in sample sizes. Chi-square analysis was used to conduct comparisons between the present study findings and the US Report findings to identify any significant differences (statistical significance when \( p < .05 \)). Given the disparity in sample sizes within the present study, in particular the small consultant sample, comparisons were deemed unreliable between ICU subgroups for the present study. Consideration was given to combining the consultant and registrar groups to enable a comparison between medical and nursing staff in general using chi-square analysis. However, this was not considered appropriate as at times registrar responses were more similar to nursing staff responses than to the consultants, and therefore no between groups statistical comparisons were made. In addition, the US Report (Sorra et al., 2007) did not provide separate findings by ICU respondent staff position; therefore composite and item-level comparisons between the US Report and the present study for each staff subgroup could not be made.

**Qualitative analysis**

A thematic content analysis was used to explore the data obtained from the open-ended questions regarding staff perceptions of patient safety, error and event
reporting, and to further explore staff perceptions of an organisational culture
difference between the ICU and the wider hospital. This form of content analysis
was inductive; that is, the analysis was data-driven and themes were developed
from the raw data (Boyatzis, 1998). Participant responses to the open-ended
questions were organised under themes, consistent with the specific research
questions and the concerns of the respondents (Burman, 1998). This method of
analysis allowed the participant responses to the open-ended questions to be
assigned into themes and allowed for comparisons between these responses within
(i.e. consultant and consultant) and between disciplines (i.e. consultant and nurse).
This form of qualitative analysis permitted the inclusion of responses in more than
one theme (Bowling, 1997).
3.3 Results

Overview

This results section consists of two parts: firstly, the frequency analysis of the response data from the HSPSC; and secondly, analysis of the open-ended responses. The analysis of the open-ended responses exploring ICU staff perceptions of patient safety, error and event reporting, and further exploring staff perceptions of an organisational culture difference between the ICU and the wider hospital are presented in the second part of this section.

The HSPSC is designed to assess staff perceptions regarding patient safety issues, medical error and event reporting (Sorra & Nieva, 2004). The survey includes 42 items that assess 12 patient safety culture dimensions or composites and also two single item outcome variables, including “Patient safety grade” and “Number of events reported”. The 12 patient safety culture dimensions and the outcome variables include:

- Overall perceptions of safety (4 items),
- Frequency of event reporting (3 items),
- Supervisor/manager expectations and actions promoting safety (4 items),
- Organisational learning – Continuous improvement (3 items),
- Teamwork within units (4 items),
- Communication openness (3 items),
- Feedback and communication about error (3 items),
- Nonpunitive response to error (3 items),
- Staffing (4 items),
- Hospital management support for patient safety (3 items),
- Teamwork across hospital units (4 items),
- Hospital handoffs and transitions (4 items),
- Patient safety grade (single item outcome variable), and
- Number of events reported (single item outcome variable).
Reliability and validity analyses for the Hospital Survey on Patient Safety Culture

Table 3.4 shows Cronbach’s alpha estimates for each of the HSPSC 12 safety culture dimensions in the current study and previously published estimates. The internal consistency reliabilities were slightly lower than those obtained by Sorra & Neiva (2004) and represented only an adequate to satisfactory level of internal consistency (defined as Cronbach’s alpha greater than or equal to .70) (Tabachnick & Fidell, 2000). Cronbach’s alpha estimates can be seen in Table 3.3 ranging from 0.50 (for the Staffing scale) to 0.80 (for the Hospital handoffs and transitions).

Table 3.4 Summary of internal consistency reliabilities for each of the 12 safety culture dimensions for the Hospital Survey on Patient Safety Culture

<table>
<thead>
<tr>
<th>Patient Safety Culture Dimensions</th>
<th>α Sorra &amp; Nieva (2004)</th>
<th>α ICU (n= 123)</th>
<th>Number of items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome Measures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of event reporting</td>
<td>.84</td>
<td>.78</td>
<td>3</td>
</tr>
<tr>
<td>Overall perceptions of safety</td>
<td>.74</td>
<td>.64</td>
<td>4</td>
</tr>
<tr>
<td>Patient safety grade (single item measure)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of events reported (single item measure)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Unit-Level Safety Culture</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisor/manager expectations and actions promoting patient safety</td>
<td>.75</td>
<td>.68</td>
<td>4</td>
</tr>
<tr>
<td>Organisational learning – Continuous improvement</td>
<td>.76</td>
<td>.57</td>
<td>3</td>
</tr>
<tr>
<td>Teamwork within units</td>
<td>.83</td>
<td>.70</td>
<td>4</td>
</tr>
<tr>
<td>Communication openness</td>
<td>.72</td>
<td>.69</td>
<td>3</td>
</tr>
<tr>
<td>Feedback and communication about error</td>
<td>.78</td>
<td>.66</td>
<td>3</td>
</tr>
<tr>
<td>Nonpunitive response to error</td>
<td>.79</td>
<td>.73</td>
<td>3</td>
</tr>
<tr>
<td>Staffing</td>
<td>.63</td>
<td>.50</td>
<td>4</td>
</tr>
<tr>
<td><strong>Hospital-Level Safety Culture</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital management support for patient safety</td>
<td>.83</td>
<td>.71</td>
<td>3</td>
</tr>
<tr>
<td>Teamwork across hospital units</td>
<td>.80</td>
<td>.64</td>
<td>4</td>
</tr>
<tr>
<td>Hospital handoffs and transitions</td>
<td>.80</td>
<td>.80</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: α = Cronbach’s alpha estimate, ICU = Intensive care unit
In order to assess the construct validity of each safety culture dimension, the composite scores were calculated for each respondent for each of the 12 safety culture dimensions, and were then correlated with one another. Inter-correlations among the 12 safety culture dimensions are shown in Appendix 3.5. Correlations between .20 to .40 indicated that composite scores for each of the 12 safety culture dimensions were moderately related to one another. Correlations below .20 indicate that two safety culture dimensions were weakly related. The correlations between the safety culture dimensions ranged from .00 and .02 (Staffing and Nonpunitive Response to Error (respectively) with Frequency of Event Reporting) to .53 (Feedback and Communication About Error with Communication Openness) (see Appendix 3.5). No inter-correlations are considered so high that they can be considered as measuring the same construct (Sorra & Nieva, 2004).

In addition, the correlations between outcome measures ‘Patient Safety Grade’ and ‘Number of Events Reported’ and the 12 safety culture dimensions were also assessed. The highest inter-correlation was .60 ($p < .001$) between the outcome measures of “Overall Perceptions of Safety” and “Patient Safety Grade”, which was similar to the validity assessment by Sorra and Nieva (2004). This showed that the “Overall Perceptions of Safety” scale was highly related to participants’ assessment of the ICU “Patient Safety Grade” (‘Excellent’ through to ‘Failing’). The second highest inter-correlation was between “Overall Perceptions of Safety” and “Staffing” ($r = .51; p < 0.001$), indicating the important role that unit staffing plays in achieving patient safety (see Appendix 3.5). Staff rated the ICU “Patient Safety Grade” as higher when they perceived that unit “Staffing” levels were acceptable.

Finally, all but two correlations (“Organisational learning/Continuous quality improvement” and “Teamwork within units”) between the “Number of Events Reported” within the past twelve months and the safety culture dimensions were non-significant. One reason for the lack of relationship with this one-item outcome variable is that 27% ($n= 34$) of participants indicated that they had reported no events, whereas a further 68% ($n= 84$) of participants reported 5 or fewer events. The skewness in participant responses for this one-item outcome
indicates a non-linear relationship with the safety culture dimensions. This finding is similar to the assessment by Sorra and Nieva (2004), and they indicate that this one-item measure of number of events reported may be used simply as a change measure in staff reporting over time.

**Composite-level results**

Table 3.5 contains the composite frequency of the total percentage of positive responses for each of the 12 safety culture composites, for the total sample and for each of the consultant, registrar and nurse subgroups.
Table 3.5 Composite-level total percentage of positive responses for the total ICU respondents, consultant, registrar and nursing staff respondent sub-groups

<table>
<thead>
<tr>
<th>Patient Safety Culture Composites</th>
<th>Total</th>
<th>Consultant</th>
<th>Registrar</th>
<th>Nurse</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome Measures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall perceptions of safety</td>
<td>45.9</td>
<td>25.0</td>
<td>51.8</td>
<td>51.8</td>
</tr>
<tr>
<td>(A15, A18, A10r, A17r)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of event reporting</td>
<td>23.8</td>
<td>5.6</td>
<td>30.8</td>
<td>24.0</td>
</tr>
<tr>
<td>(D1, D2, D3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Unit-level Safety Culture</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Composites</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisor/manager expectations and actions promoting patient safety</td>
<td>58.9</td>
<td>65.2</td>
<td>76.9</td>
<td>56.3</td>
</tr>
<tr>
<td>(B1, B2, B3r, B4r)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organisational learning – Continuous improvement (A6, A9, A13)</td>
<td>60.3</td>
<td>71.4</td>
<td>52.4</td>
<td>60.7</td>
</tr>
<tr>
<td>Teamwork within units</td>
<td>61.8</td>
<td>71.4</td>
<td>91.1</td>
<td>57.1</td>
</tr>
<tr>
<td>(A1, A3, A4, A11)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication openness</td>
<td>48.2</td>
<td>77.8</td>
<td>82.1</td>
<td>42.2</td>
</tr>
<tr>
<td>(C2, C4, C6r)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback and communication about error (C1, C3, C5)</td>
<td>31.9</td>
<td>50.0</td>
<td>56.4</td>
<td>27.8</td>
</tr>
<tr>
<td>Nonpunitive response to error</td>
<td>39.8</td>
<td>66.7</td>
<td>42.9</td>
<td>37.6</td>
</tr>
<tr>
<td>(A8r, A12r, A16r)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staffing (A2, A5r, A7r, A14r)</td>
<td>50.3</td>
<td>39.3</td>
<td>41.1</td>
<td>52.3</td>
</tr>
<tr>
<td><strong>Hospital-level Safety Culture</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Composites</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital management support for patient safety (F1, F8, F9r)</td>
<td>45.9</td>
<td>38.9</td>
<td>43.6</td>
<td>46.7</td>
</tr>
<tr>
<td>Teamwork across hospital units</td>
<td>32.4</td>
<td>25.0</td>
<td>38.5</td>
<td>32.1</td>
</tr>
<tr>
<td>(F4, F10, F2r, F6r)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital handoffs and transitions (F3r, F5r, F7r, F11r)</td>
<td>27.5</td>
<td>8.3</td>
<td>17.3</td>
<td>29.9</td>
</tr>
</tbody>
</table>

Note: Values in “bold” indicate the highest and lowest patient safety culture composite frequencies for the total respondents, and consultant, registrar and nurse subgroups.

**Total ICU respondents**

Overall the total ICU sample responses did not reveal any composites identified as patient safety culture strengths (≥75%) or moderate patient safety culture strengths (66.6%-74.9%), although there were 8 composites with potential
for improvement (≤50%). The patient safety culture composite that received the highest percent positive response (62%) for the total ICU respondent sample was “Teamwork within units”, i.e. the extent to which ICU staff support one another, treat each other with respect, and work together as a team. However, it is important to note this can not be considered a patient safety culture strength (≥75%) or even moderate strength (66.6%-74.9%) and eight of the twelve composites can be identified as areas with potential for improvement (percentage positive responses ≤50%) for the total ICU sample. The composite with the lowest percent positive response was the “Frequency of event reporting”, i.e. the extent to which mistakes are reported for the total ICU respondents (24%), which can be considered an area for potential improvement by staff.

**Consultant respondents**

Overall the ICU consultant subgroup responses revealed one composite identified as a patient safety culture strength (≥75%), three identified as moderate patient safety culture strengths (66.6%-74.9%), and seven composites with potential for improvement (≤50%). For consultants, the highest percent positive response (78%) was ‘Communication openness’, i.e. the extent to which ICU staff freely speak up if they see something that may negatively affect a patient and feel free to question those with more authority, indicating this as a perceived area of patient safety culture strength by consultants within the ICU. “Teamwork within units” (71%) and “Organisational learning – Continuous improvement” (71%) were also considered moderate patient safety culture strengths (66.6%-74.9%) for consultants. However, the lowest composite positive responses for consultant respondents were the “Frequency of event reporting” (6%) and the “Hospital handoffs and transitions” (8%), indicating these as areas with potential for improvement within the ICU.

**Registrar respondents**

Overall the ICU registrar subgroup responses revealed three composites identified as patient safety culture strengths (≥75%), no composites identified as moderate patient safety culture strengths (66.6%-74.9%), and six composites with
potential for improvement (≤50%). Registrar respondents indicated “Teamwork within units” as the highest percent positive response (91%), and they also indicated a high percent positive response for the patient safety culture composite “Communication openness” (82%), revealing these as perceived patient safety culture strengths. According to registrar respondents “Handoffs and transitions”, that is, the extent to which important patient care information is transferred across hospital units and during shift changes, was the lowest percent positive response (17%), indicating this as an area with potential for improvement. In addition, the “Frequency of events reported” also received a low percent positive response (31%) from registrar respondents, indicating this as an additional area for improvement.

**Nurse respondents**

Overall the ICU nurse subgroup responses did not reveal any composites identified as patient safety culture strengths (≥75%) or composites identified as moderate patient safety culture strengths (66.6%-74.9%), although they did identify seven composites with potential for improvement (≤50%). The nurse responses indicated that “Organizational learning – Continuous improvement”, i.e. the extent to which there is a learning culture in which mistakes lead to positive changes and changes are evaluated for effectiveness, was the patient safety culture composite with the highest percent positive response (61%). However, this percentage did not reach the criterion for even a moderate strength.

According to nurse respondents, “Frequency of event reporting” (24%) and “Feedback and communication about error” (28%) received the lowest percent positive responses, indicating these patient safety culture composites as areas with potential for improvement within the ICU.

**Similarities and differences between groups**

The patient safety culture composite “Teamwork within units” received the highest percent positive response from the total ICU respondents and for registrars. However, the percentage for the total ICU respondents did not reach the
criterion for even a moderate strength within the ICU. It is important to note that although this was the second highest positive response for nurses (57%), it is still less than of moderate strength and is much lower than the consultant (moderate strength = 71%) and registrar (91%) responses for this composite. Similar to the consultant (8%) and registrar respondents (17%), nurses also indicated a low level of positive response (30%) for the “Handoffs and transitions” patient safety culture composite.

Contrary to the positive responses of the consultant and registrar respondents concerning “Communication openness” as a patient safety culture strength (≥75%) within the ICU, the nurse respondents indicated a much lower positive response of 42% for this same composite, indicating this as a patient safety culture area with potential need for improvement. The positive response composite results regarding “Overall perceptions of safety” also revealed a disparity between the consultant respondents (25%) and the registrar and nurse respondents (52% respectively).

**Item-level results**

**Overall item-level patient safety culture**

Table 3.6 shows the overall number of items rated as patient safety culture strengths (≥75%), moderate patient safety culture strengths (66.6%-74.9%), and those areas with potential for improvement (≤50%) for the total ICU sample, for each of the subgroups and for the total US Report findings (Sorra et al., 2007). In comparison to the US findings (Sorra et al., 2007) the present study reflects a safety culture with substantial areas for improvement, with Table 3.6 indicating more than half (n=28) of the total 42 survey items received a positive response of ≤50% for the total ICU sample, whereas only 2 items received a positive response of ≥75%. Overall, the present study findings revealed the registrar respondents considered the ICU to have more patient safety culture strengths (items ≥75%) than those of the consultant and nurse respondents. Table 3.7 to Table 3.18 reveal item-level frequencies for each of the 42 survey items.
Table 3.6 Overall item-level patient safety culture results

<table>
<thead>
<tr>
<th>No. of items</th>
<th>US ICU Database Total</th>
<th>Total Consultants</th>
<th>Registrars</th>
<th>Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient safety culture strength (≥75%)</td>
<td>4</td>
<td>2</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Moderate patient safety culture strength (66.6% - 74.9%)</td>
<td>9</td>
<td>3</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Area with potential for improvement ≤50%</td>
<td>13</td>
<td>28</td>
<td>26</td>
<td>22</td>
</tr>
</tbody>
</table>

US ICU Database Report Total (Sorra et al., 2007)

Item-level frequencies

The item-level frequencies for each of the 42 survey items are presented in Table 3.7 through to Table 3.18. The survey items are grouped according to the patient safety culture composite they are intended to measure.

Table 3.7 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Frequency of event reporting”

<table>
<thead>
<tr>
<th>Subscale and survey items</th>
<th>Sub-groups</th>
<th>Frequencies (%)</th>
<th>Most of the time / Always</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency of event reporting</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported? (D1)</td>
<td>Total</td>
<td>53.3</td>
<td>31.7</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>83.3</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>38.5</td>
<td>30.8</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>53.5</td>
<td>32.7</td>
</tr>
<tr>
<td>When a mistake is made, but has no potential to harm the patient, how often is this reported? (D2)</td>
<td>Total</td>
<td>42.9</td>
<td>41.2</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>50.0</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>38.5</td>
<td>46.2</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>43.0</td>
<td>40.0</td>
</tr>
<tr>
<td>When a mistake is made that could harm the patient, but does not, how often is this reported? (D3)</td>
<td>Total</td>
<td>15.3</td>
<td>44.1</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>50.0</td>
<td>33.3</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>7.7</td>
<td>46.2</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>14.1</td>
<td>44.4</td>
</tr>
</tbody>
</table>
Table 3.7 shows that overall, consultants were less likely to indicate the reporting of events than the registrar and nurse respondents, irrespective of the potential to harm the patient, whereas registrar and nurse respondents were more likely to report an event that has no potential harm or could harm the patient, but does not. All items for all subgroups indicate areas with potential for improvement (≤50%).

Table 3.8 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Overall perceptions of safety”

<table>
<thead>
<tr>
<th>Subscale and survey items</th>
<th>Subgroups</th>
<th>Frequencies (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall perceptions of safety</td>
<td>Disagree/Strongly Disagree</td>
<td>Neither</td>
</tr>
<tr>
<td>Patient safety is never sacrificed to get more work done (A15)</td>
<td>Total</td>
<td>35.2</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>71.4</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>28.6</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>33.7</td>
</tr>
<tr>
<td>Our procedures and systems are good at preventing errors from happening (A18)</td>
<td>Total</td>
<td>12.2</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>28.6</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>14.3</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>10.8</td>
</tr>
<tr>
<td>It is just by chance that more serious mistakes don’t happen around here (A10r)</td>
<td>Total</td>
<td>46.3</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>28.6</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>71.4</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>44.1</td>
</tr>
<tr>
<td>We have patient safety problems in this unit (A17r)</td>
<td>Total</td>
<td>41.0</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>42.9</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>42.2</td>
</tr>
</tbody>
</table>

Note: An ‘r’ indicates a negatively worded (reverse worded) item where a positive response is based on responses “Strongly disagree” or “Disagree”, or “Never” or “Rarely”.

Table 3.8 reports the item-level frequencies for “Overall perceptions of safety”. Consultant responses for two (A15 and A17r) of the four items within this composite reveal a very low percent positive response compared to that of other respondents. Nurse and registrar responses overall provide a slightly more
positively skewed response, although most responses for each of the subgroups indicates “Overall perceptions of safety” as an area with potential for improvement, with the exception of a moderate patient safety strength item indicated by ICU registrars (A10r).

Table 3.9 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Supervisor/manager expectations and actions promoting patient safety”

<table>
<thead>
<tr>
<th>Subscale and survey items</th>
<th>Subgroups</th>
<th>Frequencies (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supervisor/manager expectations and actions promoting patient safety</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures (B1)</td>
<td>Total</td>
<td>40.5 20.7 38.8</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>33.3 0.0 66.7</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>15.4 30.8 53.8</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>44.1 20.6 35.3</td>
</tr>
<tr>
<td>My supervisor/manager seriously considers staff suggestions for improving patient safety (B2)</td>
<td>Total</td>
<td>18.2 30.6 51.2</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>16.7 0.0 83.3</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>0.0 7.7 92.3</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>20.6 35.3 44.1</td>
</tr>
<tr>
<td>Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts (B3r)</td>
<td>Total</td>
<td>73.1 17.6 9.2</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>60.0 40.0 0.0</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>69.2 30.8 0.0</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>74.3 14.9 10.9</td>
</tr>
<tr>
<td>My supervisor/manager overlooks patient safety problems that happen over and over (B4r)</td>
<td>Total</td>
<td>72.7 16.5 10.7</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>50.0 16.7 33.3</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>92.3 0.0 7.7</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>71.6 18.6 9.8</td>
</tr>
</tbody>
</table>

Note: An ‘r’ indicates a negatively worded (reverse worded) item where a positive response is based on responses “Strongly disagree” or “Disagree”, or “Never” or “Rarely”.

Table 3.9 shows that overall, ICU respondents did not perceive their supervisor/manager to expect them to work faster and take shortcuts, nor did they perceive safety problems to be overlooked (B4r). However, consultant respondents perceived the latter as an area with potential for improvement (≤50%). Nurse respondents were more likely to disagree/strongly disagree with
the item “My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures”. Nurse respondents also indicated a significantly lower percent positive response (44%) compared with consultants (83%) and registrars (92%) regarding the item “My supervisor/manager seriously considers staff suggestions for improving patient safety”; a clear patient safety culture strength for consultant and registrar respondents, but an area in need of improvement according to nursing staff.

Table 3.10 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Organisational learning – Continuous improvement”

<table>
<thead>
<tr>
<th>Subscale and survey items</th>
<th>Subgroups</th>
<th>Frequencies (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Disagree/ Strongly Disagree</td>
<td>Neither</td>
</tr>
<tr>
<td>We are actively doing things to improve patient safety (A6)</td>
<td>Total</td>
<td>4.1</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>5.0</td>
</tr>
<tr>
<td>Mistakes have led to positive changes here (A9)</td>
<td>Total</td>
<td>14.6</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>7.1</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>16.7</td>
</tr>
<tr>
<td>After we make changes to improve patient safety, we evaluate their effectiveness (A13)</td>
<td>Total</td>
<td>14.6</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>14.3</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>15.7</td>
</tr>
</tbody>
</table>

As shown in Table 3.10, overall each subgroup indicated a high patient safety culture strength for their unit actively improving patient safety (A6), and only consultants considered mistakes leading to positive changes (A9) as a moderate patient safety culture strength within the ICU. However, consultants (43%) and registrars (14%) were less likely than nurses (55%) to agree that changes to improve patient safety were evaluated for their effectiveness, indicating this item as an area with potential for improvement.
Table 3.11 shows a uniformly positive response for the four items of the patient safety culture composite “Teamwork within units” for almost all of the subgroups involved in this study. However, nurse respondents indicated that “In this unit, people treat each other with respect” and “When one area in this unit gets really busy, others help out” are both areas with potential for improvement. Overall, the majority of ICU staff considered items as moderate (66.6%-74.9%) or high (≥75%) patient safety culture strengths.
Table 3.12 Item-level frequencies for the Hospital Survey on Patient Safety
Culture dimension “Communication openness”

<table>
<thead>
<tr>
<th>Subscale and survey items</th>
<th>Sub-groups</th>
<th>Frequencies (%)</th>
<th>Most of the time / Always</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication openness</strong></td>
<td><strong>Rarely / Never</strong></td>
<td>Sometimes</td>
<td></td>
</tr>
<tr>
<td>Staff will freely speak up if they see something that may negatively affect patient care (C2)</td>
<td>Total</td>
<td>7.4</td>
<td>29.8</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>0.0</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>0.0</td>
<td>15.4</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>8.8</td>
<td>32.4</td>
</tr>
<tr>
<td>Staff feel free to question the decision or actions of those with more authority (C4)</td>
<td>Total</td>
<td>37.2</td>
<td>32.2</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>0.0</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>0.0</td>
<td>14.3</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>44.1</td>
<td>35.3</td>
</tr>
<tr>
<td>Staff are afraid to ask questions when something does not seem right (C6r)</td>
<td>Total</td>
<td>51.2</td>
<td>43.8</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>66.7</td>
<td>33.3</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>76.9</td>
<td>23.1</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>47.1</td>
<td>47.1</td>
</tr>
</tbody>
</table>

Note: An ‘r’ indicates a negatively worded (reverse worded) item where a positive response is based on responses “Strongly disagree” or “Disagree”, or “Never” or “Rarely”.

Table 3.12 shows that consultant and registrar respondents indicated higher positive responses than nurses for all three items regarding “Communication openness”, perceiving this as a moderate to high patient safety culture strength within the ICU. However, almost half (44%) of the nurse respondents indicated that they would rarely or never feel free to question the decision or actions of those with more authority. Overall nurse item responses for this composite revealed a patient safety culture area in need of improvement.
Table 3.13 Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Feedback and communication about error”

<table>
<thead>
<tr>
<th>Subscale and survey items</th>
<th>Subgroups</th>
<th>Frequencies (%)</th>
<th>Most of the time / Always</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Feedback and communication about error</strong></td>
<td></td>
<td>Rarely / Never</td>
<td>Sometimes</td>
</tr>
<tr>
<td>We are given feedback about changes put into place based on event reports (C1)</td>
<td>Total</td>
<td>26.4</td>
<td>42.1</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>33.3</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>23.1</td>
<td>46.2</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>26.5</td>
<td>41.2</td>
</tr>
<tr>
<td>We are informed about errors that happen in this unit (C3)</td>
<td>Total</td>
<td>30.3</td>
<td>45.4</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>0.0</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>7.7</td>
<td>30.8</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>35.0</td>
<td>47.0</td>
</tr>
<tr>
<td>In this unit, we discuss ways to prevent errors from happening again (C5)</td>
<td>Total</td>
<td>18.2</td>
<td>42.1</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>0.0</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>7.7</td>
<td>15.4</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>20.6</td>
<td>47.1</td>
</tr>
</tbody>
</table>

Table 3.13 shows that percent positive responses revealed two of the three items within “Feedback and communication about error” as overall areas in need of improvement. However, consultant and registrar respondents considered that discussion of ways to prevent errors from occurring again as a patient safety culture strength within the ICU (≥75%).
Table 3.14 Item-level frequencies for the Hospital Survey on Patient Safety
Culture dimension “Nonpunitive response to error”

<table>
<thead>
<tr>
<th>Subscale and survey items</th>
<th>Subgroups</th>
<th>Frequencies (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nonpunitive response to error</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff feel like their mistakes are held against them (A8r)</td>
<td>Total</td>
<td>38.2 34.1 27.6</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>71.4 14.3 14.3</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>42.9 50.0 7.1</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>35.3 33.3 31.4</td>
</tr>
<tr>
<td>When an event is reported, it feels like the person is being written up, not the problem (A12r)</td>
<td>Total</td>
<td>40.7 27.6 31.7</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>42.9 42.9 14.3</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>35.7 50.0 15.3</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>41.2 23.5 35.3</td>
</tr>
<tr>
<td>Staff worry that mistakes they make are kept in their personal file (A16r)</td>
<td>Total</td>
<td>40.7 30.1 29.3</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>85.7 0.0 14.3</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>50.0 42.9 7.1</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>36.3 30.4 33.3</td>
</tr>
</tbody>
</table>

Note: An ‘r’ indicates a negatively worded (reverse worded) item where a positive response is based on responses “Strongly disagree” or “Disagree”, or “Never” or “Rarely”.

Table 3.14 shows that with the exception of consultant responses for two items (A8r and A16r), most of the responses for most groups in the “Nonpunitive response to error” composite were considered areas in need of improvement by most staff.
**Table 3.15** Item-level frequencies for the Hospital Survey on Patient Safety Culture dimension “Staffing”

<table>
<thead>
<tr>
<th>Subscale and survey items</th>
<th>Subgroups</th>
<th>Frequencies (%)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Staffing</strong></td>
<td></td>
<td>Disagree/Strongly Disagree</td>
<td>Neither</td>
</tr>
<tr>
<td>We have enough staff to handle the workload (A2)</td>
<td>Total</td>
<td>31.7</td>
<td>12.2</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>57.1</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>42.9</td>
<td>7.1</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>28.4</td>
<td>13.7</td>
</tr>
<tr>
<td>Staff in this unit work longer hours than is best for patient care (A5r)</td>
<td>Total</td>
<td>55.7</td>
<td>22.1</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>42.9</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>35.7</td>
<td>28.6</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>59.4</td>
<td>22.8</td>
</tr>
<tr>
<td>We use more agency/temporary staff than is best for patient care (A7r)</td>
<td>Total</td>
<td>41.5</td>
<td>33.3</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>28.6</td>
<td>28.6</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>14.3</td>
<td>35.7</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>46.1</td>
<td>33.3</td>
</tr>
<tr>
<td>We work in “crisis mode” trying to do too much, too quickly (A14r)</td>
<td>Total</td>
<td>48.0</td>
<td>32.5</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>42.9</td>
<td>14.3</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>64.3</td>
<td>35.7</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>46.1</td>
<td>33.3</td>
</tr>
</tbody>
</table>

Note: An ‘r’ indicates a negatively worded (reverse worded) item where a positive response is based on responses “Strongly disagree” or “Disagree”, or “Never” or “Rarely”.

The item-level frequency analysis for the patient safety culture composite “Staffing” shown in Table 3.15 shows that consultants and registrars were slightly more polarised in their responses concerning sufficient staff numbers to handle the workload within the ICU. In addition, consultants (43%) and registrars (50%) were also more likely than nurses (21%) to agree or strongly agree that a higher use of agency/temporary staff occurred within the unit than is best for patient care. Overall responses to items with the “Staffing” composite reveal areas with potential for improvement within the ICU for all staff subgroups.
Table 3.16 Item-level frequencies for the Hospital Survey on Patient Safety

Culture dimension “Hospital management support for patient safety”

<table>
<thead>
<tr>
<th>Subscale and survey items</th>
<th>Subgroups</th>
<th>Disagree/Strongly Disagree</th>
<th>Neither</th>
<th>Agree/Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital management support for patient safety</td>
<td>Total</td>
<td>14.0</td>
<td>23.1</td>
<td>62.8</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>33.3</td>
<td>0.0</td>
<td>66.7</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>15.4</td>
<td>7.7</td>
<td>76.9</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>12.7</td>
<td>26.5</td>
<td>60.8</td>
</tr>
<tr>
<td>The actions of hospital management show that patient safety is a priority (F8)</td>
<td>Total</td>
<td>21.7</td>
<td>36.7</td>
<td>41.7</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>33.3</td>
<td>50.0</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>38.5</td>
<td>38.5</td>
<td>23.1</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>18.8</td>
<td>35.6</td>
<td>45.5</td>
</tr>
<tr>
<td>Hospital management seems interested in patient safety only after an adverse event happens (F9r)</td>
<td>Total</td>
<td>33.3</td>
<td>31.7</td>
<td>35.0</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>33.3</td>
<td>16.7</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>30.8</td>
<td>38.5</td>
<td>30.8</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>33.7</td>
<td>31.7</td>
<td>34.7</td>
</tr>
</tbody>
</table>

Note: An ‘r’ indicates a negatively worded (reverse worded) item where a positive response is based on responses “Strongly disagree” or “Disagree”, or “Never” or “Rarely”.

The item-level frequency analysis for the patient safety culture composite “Hospital management support for patient safety” shown in Table 3.16 revealed that the majority of respondents agreed that management provided a work climate that promotes patient safety with consultants considering this a moderate strength and registrars a high patient safety culture strength. However, all respondent subgroups were less likely to agree that hospital managements’ actions reflected patient safety as a priority (≤50%). Furthermore, hospital management’s interest in patient safety is also an area in need of improvement.
Table 3.17 Item-level frequencies for the Hospital Survey on Patient Safety
Culture dimension “Teamwork across hospital units”

<table>
<thead>
<tr>
<th>Subscale and survey items</th>
<th>Subgroups</th>
<th>Disagree/ Strongly Disagree</th>
<th>Neither</th>
<th>Agree / Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teamwork across hospital units</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is good cooperation among hospital units that need to work together (F4)</td>
<td>Total</td>
<td>31.7</td>
<td>39.2</td>
<td>29.2</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>33.3</td>
<td>33.3</td>
<td>33.3</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>23.1</td>
<td>38.5</td>
<td>38.5</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>32.7</td>
<td>39.6</td>
<td>27.7</td>
</tr>
<tr>
<td>Hospital units work well together to provide the best care for patients (F10)</td>
<td>Total</td>
<td>21.7</td>
<td>50.0</td>
<td>28.3</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>33.3</td>
<td>50.0</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>7.7</td>
<td>69.2</td>
<td>23.1</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>22.8</td>
<td>47.5</td>
<td>29.7</td>
</tr>
<tr>
<td>Hospital units do not coordinate well with each other (F2r)</td>
<td>Total</td>
<td>17.4</td>
<td>31.4</td>
<td>51.2</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>0.0</td>
<td>33.3</td>
<td>66.7</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>23.1</td>
<td>30.8</td>
<td>46.2</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>17.6</td>
<td>31.4</td>
<td>51.0</td>
</tr>
<tr>
<td>It is often unpleasant to work with staff from other hospital units (F6r)</td>
<td>Total</td>
<td>55.0</td>
<td>29.2</td>
<td>15.8</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>50.0</td>
<td>50.0</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>69.2</td>
<td>30.8</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>53.5</td>
<td>27.7</td>
<td>18.8</td>
</tr>
</tbody>
</table>

Note: An ‘r’ indicates a negatively worded (reverse worded) item where a positive response is based on responses “Strongly disagree” or “Disagree”, or “Never” or “Rarely”.

Table 3.17 shows that regarding the survey items concerning good cooperation among hospital units that need to work together all respondent groups produced an even distribution across the different responses. Thus, regardless of staff position, there does not appear to be a firm opinion on this item. Nonetheless, results reveal an overall need for improvement in the area of “Teamwork across hospital units” (percent positive response ≤50%). However, respondents did not find working with staff from other units to be unpleasant. These findings may suggest a systemic issue rather than an interpersonal issue with teamwork across hospital units.
### Table 3.18 Item-level frequencies for the Hospital Survey on Patient Safety

**Culture dimension “Hospital handoffs and transitions”**

<table>
<thead>
<tr>
<th>Subscale and survey items</th>
<th>Subgroups</th>
<th>Frequencies (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hospital handoffs and transitions</strong></td>
<td></td>
<td>Disagree/Strongly Disagree</td>
</tr>
<tr>
<td>Things “fall between the cracks” when transferring patients from one unit to another (F3r)</td>
<td>Total</td>
<td>14.3</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>15.4</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>15.0</td>
</tr>
<tr>
<td>Important patient care information is often lost during shift changes (F5r)</td>
<td>Total</td>
<td>38.1</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>23.1</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>41.4</td>
</tr>
<tr>
<td>Problems often occur in the exchange of information across hospital units (F7r)</td>
<td>Total</td>
<td>18.3</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>7.7</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>19.8</td>
</tr>
<tr>
<td>Shift changes are problematic for patients in this hospital (F11r)</td>
<td>Total</td>
<td>39.2</td>
</tr>
<tr>
<td></td>
<td>Consultants</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Registrars</td>
<td>23.1</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>43.6</td>
</tr>
</tbody>
</table>

Note: An ‘r’ indicates a negatively worded (reverse worded) item where a positive response is based on responses “Strongly disagree” or “Disagree”, or “Never” or “Rarely”.

Table 3.18 shows a strong need for improvement for all items by all subgroups in the area of “Hospital handoffs and transitions” (all items percent positive response ≤50%). The pattern of responses shown in Table 3.18 indicated that the majority of consultants (67%), registrars (69%) and nurses (59%) agree that things do “fall between the cracks” when transferring patients between units. Approximately half (52%) of the total ICU respondents agreed that problems occurred in information exchange between hospital units. Responses also indicate that consultants and registrars were more likely than nurse respondents to perceive problems in the exchange of patient information at times of shift change and handover (50% and 39% agreement respectively), with important patient information often lost (50% and 46% agreement respectively).
Overall item-level patient safety culture strengths and areas with potential for improvement

The following section provides an overview of the item-level patient safety culture strengths and areas with potential for improvement. These are shown in Table 3.7 to 3.18, as indicated by the overall total ICU respondents, and then for each of the ICU subgroups: consultants, registrars and nursing staff respondents.

Total ICU respondents

Based on all the item-level frequencies shown in Tables 3.7 to 3.18 it can be seen in Table 3.11 that the survey item considered a patient safety culture strength with the highest percent positive response for the total ICU respondents (79%) was: “When a lot of work needs to be done quickly, we work together as a team to get the work done”. This item was part of the patient safety culture composite “Teamwork within units”. The item “We are actively doing things to improve patient safety” from the patient safety culture composite “Organisational learning – Continuous improvement” was also indicated as a patient safety culture strength, with a high overall percent positive response (79%).

The survey item with the lowest percent positive response for the total ICU respondents (14.3%) was from the patient safety culture composite “Handoffs and transitions”: ‘Things fall between the cracks’ when transferring patients from one unit to another”. That is, only 14% of respondents “Strongly disagreed” or “Disagreed” with this reverse worded item.

Consultant respondents

The frequency analysis revealed that the survey item with the highest percent positive response for consultant respondents (100%) was “We are actively doing things to improve patient safety”, from the patient safety culture composite “Organisational learning – Continuous improvement”. Consultants also indicated “Communication openness” as a patient safety culture strength within the ICU, which was reflected in their high percent positive responses for the following
items from this patient safety culture composite: “Staff will freely speak up if they see something that may negatively affect patient care” (83%), and “Staff feel free to question the decision or actions of those with more authority” (83%).

Consultant respondents revealed four survey items with the lowest percent positive responses (all four equalling 0%) as areas in need of improvement. Two were from the patient safety culture composite “Handoffs and transitions”: ‘Things fall between the cracks’ when transferring patients from one unit to another” and “Shift changes are problematic for patients in this hospital” (that is, no consultant respondents “Strongly disagreed” or “Disagreed” with these negatively worded items). The other two survey items were from the patient safety culture composite “Frequency of event reporting”: “When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?”, and “When a mistake is made, but has no potential to harm the patient, how often is this reported?” (that is, no consultant respondents indicated that they reported these events “Most of the time” or “Always”).

Registrar respondents
Registrar respondents scored two items with the highest percent positive responses (93% respectively) both from the patient safety culture composite “Teamwork within units”. These results are shown in Table 3.11: “People support one another in this unit” and “When a lot of work needs to be done quickly, we work together as a team to get the work done”.

Similar to consultants, the registrars’ survey item with the lowest positive response (8%) was from the patient safety culture composite “Handoffs and transitions”: “Problems often occur in the exchange of information across hospital units” (8% of registrar respondents “Strongly disagreed” or “Disagreed” with this negatively worded item).

Nurse respondents
The item with highest positive response (78%) for nurse respondents was the survey item “When a lot of work needs to be done quickly, we work together
as a team to get the work done”, from the survey composite “Teamwork within units”.

Also similar to the consultant responses, the nurses’ survey item with the lowest percent positive response (14%) was from the patient safety culture composite “Frequency of event reporting”: “When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?” (only 14% of nurse respondents indicated that they reported these events “Most of the time” or “Always”).

**Overall item-level similarities and differences between groups**

Although Table 3.5 shows that the majority of consultants (78%) and registrars (82%) responded positively to the patient safety culture composite “Communication openness”, identifying this as a patient safety culture strength, nurse responses for this composite were lower (42%), identifying this as an area with potential for improvement. Item-level frequencies of the “Communication openness” composite shown in Table 3.12, show that the nurses’ positive response (21%) for the item ‘Staff feel free to question the decision or actions of those with more authority’ was lower than those of the consultants (83%) and registrars (85%).

Table 3.8 shows that the composite “Overall perceptions of safety” for consultants scored moderate to high negative responses (“Strongly disagree” or “Disagree”) for items ‘Patient safety is never sacrificed to get more work done’ (71%) and ‘We have patient safety problems in this unit’ (67%) (“Strongly agree” or “Agree” to reverse worded item). These results indicated significantly higher disagreement than those of registrars (29% for both) and nurse respondents (34% and 30% respectively).

Consultant (83%) and registrar (77%) respondents were also more likely to respond positively to the item ‘In this unit, we discuss ways to prevent errors from happening again’ from the patient safety culture composite “Feedback and communication about error” compared with nurses (32%). This strongly suggests
a marked difference in perception concerning this issue between medical and nursing respondents, with consultants and registrars identifying this as a patient safety culture strength (≥75%), but nurses identifying prevention of error and improvement of feedback and communication as areas for improvement.

**Patient safety grade**

Figure 3.1 shows the distribution of responses for the respondents’ overall grade on patient safety within the ICU setting. Figure 3.1 indicates the percent of respondents providing grades from “Excellent” to “Poor”. Although the survey included a “Failing” grade, no respondents selected this as their response. Overall, the total ICU respondents indicated a patient safety grade of “Very good” (50%) or “Acceptable” (35%). The majority of consultant respondents (67%) indicated an “Acceptable” patient safety grade for the ICU, with 17% indicating a “Poor” patient safety grade. On average, registrars were more positive, with 77% giving the ICU a patient safety grade of “Very good”. Nurse respondents were more likely to grade their unit as “Acceptable” (57%) or “Very good” (48%). Both registrars and nurse respondents were more likely than consultant respondents to indicate a patient safety grade of “Excellent” for the ICU, with no consultants selecting this grade for the ICU.
Results of the item requiring respondents to indicate the number of events they had reported over the past 12 months are shown in Figure 3.2. The figure shows the percent of respondents who indicated they reported “No event reports” up to “11 to 20 events reports”. Although the survey included a “21 or more event reports” category, no respondents selected this as their response. Figure 3.2 indicates that nurses (51%) and registrars (54%) were more likely to have reported 1 to 2 event reports in the past 12 months, whereas 50% of consultants indicated they reported “No event reports” over the past 12 months. Overall, nurses (74%) and registrars (69%) were more likely to have reported at least one event in the past 12 months compared with consultants (50%).
Figure 3.2 Distribution of numbers of events reported in past 12 months

**Composite-level comparative results**

Table 3.19 shows the total positive responses for each of the 12 patient safety culture composites from the present study compared with those from the US Report; which included 5992 ICU respondents from 215 hospitals (Sorra et al., 2007). Chi-square analysis was used to compare the two studies.
Table 3.19 Composite-level comparative results

<table>
<thead>
<tr>
<th>Patient Safety Culture Composites</th>
<th>Composite % Positive Response</th>
<th>Total ICU respondents</th>
<th>US ICU Database</th>
<th>p-values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of Hospitals</td>
<td>No. of Respondents</td>
<td></td>
</tr>
<tr>
<td>Overall perceptions of patient safety</td>
<td></td>
<td>1</td>
<td>215</td>
<td>.056</td>
</tr>
<tr>
<td>Frequency of events reported</td>
<td></td>
<td>123</td>
<td>5992</td>
<td></td>
</tr>
<tr>
<td>Supervisor/manager expectations and actions promoting patient safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organisational learning – Continuous improvement</td>
<td></td>
<td></td>
<td></td>
<td>.065</td>
</tr>
<tr>
<td>Teamwork within units</td>
<td></td>
<td>60</td>
<td>68</td>
<td>.001</td>
</tr>
<tr>
<td>Communication openness</td>
<td></td>
<td>62</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Feedback and communication about error</td>
<td></td>
<td>48</td>
<td>61</td>
<td>.003</td>
</tr>
<tr>
<td>Nonpunitive response to error</td>
<td></td>
<td>32</td>
<td>55</td>
<td>.001</td>
</tr>
<tr>
<td>Staffing</td>
<td></td>
<td>50</td>
<td>53</td>
<td>.568</td>
</tr>
<tr>
<td>Hospital management support for patient safety</td>
<td></td>
<td>46</td>
<td>59</td>
<td>.005</td>
</tr>
<tr>
<td>Teamwork across hospital units</td>
<td></td>
<td>32</td>
<td>51</td>
<td>.001</td>
</tr>
<tr>
<td>Hospital handoffs and transitions</td>
<td></td>
<td>27</td>
<td>46</td>
<td>.001</td>
</tr>
</tbody>
</table>

ICU= Intensive Care Unit; Statistical significance p<0.01; Highest & lowest composite scores highlighted

Overall, Table 3.19 shows that the total ICU responses for the present study did not reveal any composites identified as patient safety culture strengths (≥75%) or moderate strengths (66.6%-74.9%), although it did reveal 8 composites with potential for improvement (≤50%). Table 3.19 also shows that the US ICU Database responses revealed one composite identified as a patient safety culture strength (≥75%), two composites identified as moderate strengths (66.6%-74.9%), and two composites with potential for improvement (≤50%).

Table 3.19 shows that all but one of the 12 responses from the current study were lower than those in the US, with a statistically significant difference in 8 of the 12 composites. This strongly suggests, on average, a less well-developed safety culture for the ICU in the present study compared with those in the US.
Only the patient safety culture composite “Non-punitive response to error” indicated a slightly higher (non-significant) positive response for the current study (40%) compared with the US (38%). Results from both the present study and the US indicate this as an area for improvement.

The pattern of scores revealed that the composite “Teamwork within units” received the highest positive response in both the present study and the US. Although this was a perceived patient safety culture strength for the US, it was perceived as less than a moderate strength for the present study. The pattern of scores also shows a low score from both the present study and the US study for the composite “Hospital handoffs and transitions”, revealing this as an area for potential improvement in both studies. Finally, the lowest positive response for the present study was found to be “Frequency of events reported”, which differed from the US, where it was the sixth highest positive response. The US reported “Nonpunitive response to error” as the lowest composite response, which differed from that of the present study with findings revealing this as the eighth highest percent positive response. US data were not available to compare responses by ICU staff position (consultant, registrar or nurse).

**Comparative results of ICU patient safety grade**

Figure 3.3 shows the distribution of responses for respondents’ overall grade on patient safety, from “Excellent” to “Failing”, for the total ICU respondents from the current study and the US ICU database findings.
On average, for both sets of data, the majority of respondents were positive and gave their ICU a patient safety grade of either “Very good” (50% and 48% for the present study and the US, respectively) or “Acceptable” (35% and 29%, respectively). Fewer respondents gave their ICU a grade of “Excellent” (13% and 15%, respectively). Very few respondents gave their unit a “Poor” grade. A 2x5 Chi-square test showed an overall p-value of 0.250, indicating no significant difference between the patient safety grades for the Total ICU respondents compared to the US ICU Database (see Appendix 3.6). No respondents in the current study perceived their unit to be “Failing” in patient safety.

**Comparative results of ICU number of events reported**

Results from the item that asked respondents to indicate the number of events reported in the past 12 months are shown in Figure 3.4 for the present study and the US findings. Figure 3.4 shows the percent of respondents who indicated they reported “No event reports” through to “11 to 20 reports”. Although the
survey included a “21 or more events” category, no respondents selected this as their response.

![Graph showing distribution of events reported in past 12 months]

**Figure 3.4** Comparative results of distribution of the numbers of events reported in past 12 months

Overall, the majority of local and US respondents reported either no events (28% and 31%, respectively) or 1 to 2 events (50% and 35% respectively) in their ICU over the past 12 months. This may represent under reporting of events in both the present study and the US. A 2x5 Chi-squared analysis showed an overall statistically significant difference ($p= 0.004$) between the patient safety grades for the Total ICU respondents compared to the US ICU Database (Appendix 3.6). Further Chi-squared analysis showed a higher percentage of respondents from the present study reporting 1 to 2 events ($p=.001$) and a higher percentage of respondents from the US sample reporting 6 to 10 events ($p=.007$) in the past 12 months (see Appendix 3.6).
Content analysis of open-ended responses

In the present study, an additional open-ended item was included at the end of the instrument seeking suggestions and/or comments from respondents.

Comments and suggestions were expressed by two of the seven consultant respondents (n= 2; 29%) and three of the fourteen registrars (n= 3; 21%). Comments on patient safety were mentioned by three respondents (two registrars (67%) and one consultants (50%)), focusing on issues of patient transfer and discharge to and from other units within the hospital, for example: “Ward nursing staff do not ever seem keen to receive patients, always trying to avoid getting a new patient. This can impair efficiency and communication. Delays in transfer of patient from ED (Emergency Department) to ICU can be dangerous” (R2). The remaining two comments (40%) from consultants referred to the need for increased feedback about events reported, for example: “More feedback about adverse events to the general staff would be helpful in preventing the same mistake from being made twice” (R3).

Comments and suggestions were expressed by 21 (21%) of the 102 ICU nurse respondents. Comments on patient safety mentioned by nurse respondents focused on issues relating to staffing within the ICU setting, with respect to nursing staff rostering (n= 4; 19%), for example: “Need more staff at times. Need more senior staff at times. Need more sleep late to early shift” (Nurse 49), and also staff education (n=2; 10%), for example: “Need protocols more easily accessible. Need more educators on ward” (Nurse 49), and staff experience (n=2; 10%), for example: “My greatest concern re patient safety is the level of skilled nurses caring for patients in specialist areas (e.g. ICU). There are far too many GNP’s/Enrolled nurses, adequate supervision/education is often impossible to ensure. I believe the public have the right to expect that the nurse at the bedside is appropriately skilled to look after them!” (Nurse 67).

Error/event reporting comments mentioned by nursing staff focused on the need for encouragement of staff to report events (n= 4; 19%), for example: “Easy access to incident report forms but staff need encouragement to fill them out.”
Nurses worry about the effect a bad report may have on their professional outcomes. Senior staff often give direction to complete an incident report and staff are reluctant to do so” (Nurse 50), and a culture change required with event reporting and loss of the blame culture (n= 3; 14%), for example: “There needs to be a more positive approach about incident reporting, as one question stated, staff are sometimes made to feel at fault if an incident occurs, this mentality needs to be changed” (Nurse 64).

The final open-ended item seeking comments from respondents was “Please comment if you believe there are any significant differences between the culture in your unit and the overall organisational culture of the hospital”.

Comments and suggestions were expressed by one of the seven intensive care consultant respondents (14%) and two of the fourteen registrars (14%), all indicating a positive reference to their ICU culture in relation to the overall organisational culture of the hospital; for example: “Unit culture is better than hospital culture” (C1) and “I believe the ICU is particularly well run compared to the rest of the hospital. There is a culture of teaching and cooperation and support – it is a pleasure to work here” (R3).

Comments and suggestions were expressed by 26 (25%) of the 102 ICU nursing staff respondents, with 14 (54%) respondents indicating a positive reference to their unit (ICU) culture compared with that of the overall organisational culture of the hospital; for example: “Education is pushed within ICU whereas I don’t feel this is so within other areas of the hospital. Management are great within the ICU, easily approachable. Even though we work hard one actually feels like you are doing a good job and that you are respected within the unit” (Nurse 57) and “It appears to be a more positive environment at the unit level” (Nurse 25), including some respondents who indicated a positive response with some criticism: “On a ratio there are more who have specialised in this chosen field than perhaps a general ward, etc, therefore there is always the potential for 1. More thorough care, 2. Arrogance, pride” (Nurse 45), and “There are some people who should not be managers, as they do not understand the
concept of interpersonal skills. But most are good to excellent” (Nurse 61). A total of 12 (46%) respondents indicated a negative response in relation to the ICU culture specifically, for example: “The unit is very top heavy. Too many people who have perceived importance. In other wards more direct chain of command. Much simpler structure. Staff here generally have years of experience and knowledge. Unit is up to 10 times bigger than any other ward, but also have very, very junior staff with little or no experience in nursing let alone ICU” (Nurse 47), and 2 (8%) respondents indicated a negative reference to both the unit culture and the overall hospital culture, for example: “The culture in this unit reflects that of the organisation. There is little consistency or fairness in the way individual staff members are treated. There is a culture of blame throughout the organisation as there has been for the sixteen years I have worked here” (Nurse 12).
3.4 Discussion

Overview

The present study involved the assessment of the ICU patient safety culture using the Hospital Survey on Patient Safety Culture survey instrument (Sorra & Nieva, 2004). This section will include a discussion of ICU patient safety culture findings, along with a comparison of the present study outcomes with the US HSPSC Comparative Database report (Sorra et al., 2007) and the challenging factors highlighted by the similarities and differences that were found.

Validity of the survey instrument and response rates

The internal consistency of the HSPSC instrument was assessed using Cronbach’s alpha coefficient. The Cronbach’s alpha estimates for the present study were within a moderate range and were slightly less than previous research (Sorra & Nieva, 2004). There was an overall response rate of 44% for the ICU setting and this is consistent with previous healthcare research involving self-administered survey responses (Singer et al., 2003).

Hospital survey on patient safety culture (HSPSC)

The following section provides a discussion of the HSPSC findings within the present study ICU and comparisons drawn from the US Report (Sorra et al., 2007). The US Report had no responses by ICU respondent staff, so composite and item-level comparisons for each staff subgroup could not be made.

Safety culture strengths

Similar to the findings in the US (Sorra et al., 2007), the current study revealed that “Teamwork within units” was the patient safety culture composite with the highest average positive response (62%) for all respondents. Although this score did not meet the criterion to qualify as a patient safety culture strength, it was also considered a strength by the ICU registrar respondents, receiving the highest positive score of all (91%). The overall item that received the strongest
agreement (79%) was: “When a lot of work needs to be done quickly, we work together as a team to get the work done”. This was considered a patient safety strength for the overall sample, as well as for registrars and nurses, but only a moderate strength by consultants.

The overall composite “Teamwork within units” received the highest level of agreement from respondents in the present study and the US study (Sorra et al., 2007). It had a slightly lower positive response for nurses, but it was still second highest for this group. This differs from previous studies which found a substantial disparity in the attitudes of medical and nursing staff (Sherwood et al., 2002; Thomas et al., 2003). This perception of teamwork is important, as teams play a major role in creating and maintaining safe patient care and in ensuring that improvements are successful (Curtis et al., 2006b; Firth-Cozens, 2001).

Registrars rated “People support one another in this unit” as a high strength (≥75%), whereas nurses considered this a moderate strength. Nurses also considered the composite “Organisational learning and continuous improvement” as a moderate strength for their ICU, with mistakes leading to positive changes (with these changes being evaluated for their effectiveness). ICU consultants rated the survey item “We are actively doing things to improve patient safety” as a high safety culture strength (100%).

Both consultants (78%) and registrars (82%) perceived the composite “Communication openness” as a strength, whereas nurses saw this composite as an area in need of improvement (≤50% positive response). This aligns with previous research where only a third of nurses rated the quality of their communication with physicians as high or very high (Thomas et al., 2003). This may also reflect the different administrative systems that exist within ICU for medical and nursing staff, with nursing staff having more hierarchical and rigid structures than that of the medical staff.

This disparity between medical (consultant and registrar) and nursing staff is concerning, as the literature highlights communication as a major variable in healthcare safety (Kohn et al., 2000; Wilson et al., 1995). Ideally communication
should flow freely regardless of hierarchy or authority gradients (Kohn et al., 2000). Issues of hierarchy or authority gradient are a likely cause for this disparity in responses; this may be reinforced by the fact that reporting lines are different for nursing and medical staff.

Nurses and registrars provided a patient safety grade of “Very good” or “Acceptable”, and were more likely to indicate a patient safety grade of “Excellent” than consultants, the majority of whom provided a grade of “Acceptable”. No consultant provided a grade of “Excellent”. There was a significant correlation between “Overall perceptions of safety” and the respondents “Patient safety grade”; consultants provided low positive response (25%) for the latter, whereas both registrars and nurses provided a positive response of 52%.

Areas with potential for improvement

The composite “Nonpunitive response to error” was rated lowest in the US for all hospitals and for the ICU’s (Sorra et al., 2007). Respondents from the present study did not rate this composite highly (40% positive response), but rated “Frequency of events reported” the lowest composite (24% overall, 6% for consultants, 24% for nurses). In this study, the majority of staff indicated reporting no events (28%) or 1 to 2 events (50%) in the past 12 months, similar to that of the US (53% of overall hospitals and 31% of ICU’s staff reported no events) (Sorra et al., 2007). Events were more likely to be reported by nurses and registrars in the present study than by consultant staff. Consultant responses to open-ended questions revealed a perceived lack of feedback for events reported, providing a potential reason for lower reporting levels. Reporting events is clearly an area for improvement. If safety issues are not being identified, they can not be addressed (Sorra et al., 2007). This ICU also rated poorly in this respect in a previous study of incentives and barriers to reporting (Evans, 2006).

Far fewer nurses (44%) than consultants (83%) or registrars (92%) believed that their supervisors and/or managers seriously considered staff suggestions for improving patient safety. This disparity has important implications
and may reflect the hierarchical nature of nursing, and/or the number of ICU nurses that are ‘critical care’ trained. Further research is required to identify the relevant issues ICU nurses may have concerning their supervisors and/or managers expectations, actions and support within the ICU. In this study “Handoffs and transitions” were of particular concern for registrars, with the lowest rating (17%). Furthermore, survey findings within the composite “Handoffs and transitions” were rated lowest by both consultants and registrars. This is of concern as researchers indicate that the quality of both verbal and written communication between senior and junior staff and between different professions impacts on patient care and that effective, safe handovers are essential (AMA, 2006; BMA, 2004; Vincent & Taylor-Adams, 2001). Although identified within the literature as important, few institutions have a comprehensive system for handover of patient care (Horwitz, Krumholz, Green, & Huot, 2006). The results of the present study strongly suggest that handovers and transitions of patient care require further improvement.

**Comparative results**

Composite percent positive responses found in the present study were compared with the US HSPSC Comparative Database report (Sorra et al., 2007). All but one of the twelve composite scores from the present study were considerably lower than the benchmark ICU scores from the US (Sorra et al., 2007). Eight of the total twelve composite scores were lower than 50%, highlighting areas for improvement.

In both this study and the US “Teamwork within units” received the highest positive response (high strength for the US - 80%, but less than a moderate strength for the present study - 62%). This is encouraging as teamwork is a major contributory factor in creating and maintaining safer patient care (Firth-Cozens, 2001). However, both studies revealed “Hospital handoffs and transitions” as area for improvement, as discussed above.
The “Patient safety grades” of both studies were similar, although significantly more US ICU staff gave a patient safety grade of “Poor” for their ICU (Sorra et al., 2007).

Qualitative results

The consultant respondents’ qualitative comments revealed issues with handover of patient care and of patient transfer, further supporting the low percentage positive responses for the composite “Hospital handoffs and transitions”. In addition, comments also referred to the need for increased feedback for events reported, offering a potential reason for the lower “Numbers of events reported in the past 12 months” by consultant respondents. Nurse respondents indicated that staff education and experience were important in achieving adequate skill mix within the ICU. Also, they commented on the need for increased encouragement for event reporting and a change of culture to further support this reporting practice.

Positive responses were provided by consultants regarding the ICU culture, and the majority of nurse respondents had a positive perception of unit culture. However, negative comments were made regarding a ‘top heavy’ hierarchy within the ICU as compared with other units, consistent with perceptions by nurses of poor responses to identified problems. Although the patient safety culture composite “Staffing” received the fourth highest percent positive response from nursing staff (52%), this is close to qualifying as an area for potential improvement (< 50%).

Challenges

Changing the culture of a unit can take some time (Scott, Mannion, Davies, & Marshall, 2003a). A number of similarities and differences between the three ICU staff subgroups were noted in the present study, revealing positive aspects and also challenges that may exist in achieving a uniform culture of safety within the ICU. The separate lines of reporting and professional subcultures mean that major changes will need to be made to modify the consequences of
professional “silo” arrangements. The disparity between medical and nursing perceptions of “Communication openness” presents a particular challenge in this respect. Major efforts will be needed to encourage ICU nursing staff to feel free to question those with more authority. Additional research may also be required to provide understanding of the affect of gender, patient care responsibilities and differences in medical and nursing training on interdisciplinary communication (Thomas et al., 2003). This is of particular importance, as communication difficulties and failures contribute to increased length of stay, increased resource use, staff dissatisfaction, and a large percentage of patient adverse events (ACSQHC, 2005a; BMA, 2004; Pronovost et al., 2003; Wilson et al., 1995).

In addition, the “Frequency of event reporting” and the extent to which mistakes are reported were items in the patient safety culture composite with the lowest score in the present study. This finding coupled with the low “Number of events reported in the past 12 months” reveals a challenge for the ICU in further encouraging event reporting and ensuring feedback on those errors that are reported.

As discussed earlier, the findings of the present study revealed that consultants, registrars and nurses all considered “Hospital handoffs and transitions” as an area with potential for improvement. The ICU also faces the challenge of improving handover of patient clinical information, both within and between units. In particular, results indicate that consultants and registrars perceived problems in the exchange of patient information at times of shift change and handover (50% and 39% respectively), with important information often lost (50% and 46% respectively).

Limitations

The current study used a non-randomised convenience sample of nursing and medical staff from a single ICU in a teaching hospital. The generalisability of this sample to other settings is therefore limited. However, to the extent that they produced a similar pattern of findings to the US studies (Sorra et al., 2007; Sorra & Nieva, 2003), the results would seem to be valid. An increased sample size,
with nursing and medical responses from all hospital units and areas of care within the hospital involved in the current study may have provided further insights into the nature of the culture in the ICU in relation to the wider hospital. Also, the present study was cross-sectional in nature whereas a longitudinal analysis would enable participants’ responses to be compared with their actual reporting behaviour over time, and the assessment of different levels of the safety culture dimensions (i.e. staffing, communication, teamwork, hospital handovers, etc) at the unit level and the hospital level. A longitudinal analysis could be useful to assess the effects of organisational and patient safety culture on successful change outcomes and the maintenance of such change over time. In addition, surveys provide information concerning perceived practice of ICU staff and this may not represent actual practice. Observational studies may be more valid and informative (Cook et al., 2004), based on spending time within the ICU setting.

Not all aspects of hospital patient safety culture could have been included in the survey used in this study. However, the open-ended questions at the end of each survey provided participants with the opportunity to add any additional responses, examples or suggestions, as well as a comparison of ICU versus hospital-wide organisational culture. Relying on individual self-reported perceptions of nursing and medical staff is a limitation, but is reasonable as the hospital relies on nursing and medical staff’s subjective self reporting of errors and issues that may have contributed to an event (i.e. communication, management and supervision, staffing, etc).

**Theoretical and practical implications**

The use of survey instruments of the kind used in this study has several strengths. These include an economical way of generating communication between nursing staff, medical staff and management regarding staff perceptions of hospital patient safety culture, and an opportunity for confidential input relating to the sensitive topics of patient safety. Information can be obtained about communication openness, error/event reporting, perceptions of teamwork, supervisor/manager expectations, actions and support of staff and staffing, and can provide a baseline for assessing future interventions.
The disparity in consultant and nursing staff perceptions of communication openness has implications for the training that medical and nursing staff receive and the emphasis that is placed on effective interdisciplinary communication within healthcare and more specifically in the ICU setting. Furthermore, these findings may also have implications for the management of the organisational and hierarchical structure that exists within the ICU and that may impact on communication openness within and between professional staff subgroups.

**Future research**

Future research might include repeating the HSPSC assessment throughout all ICU staff in order to more accurately compare safety culture divergence in staff perspectives and to compare any changes in perceptions of patient safety amongst staff over time. It could be extended to incorporate assessment of the culture of patient safety among staff throughout the whole hospital and other hospitals and ICU’s, thus providing an opportunity for internal and external benchmarking (Nieva & Sorra, 2003). Similar to the AHRQ database in the US (Sorra et al., 2007), future research may include setting up a national repository for data collected using the HSPSC in Australia. This would allow for international benchmarking (Nieva & Sorra, 2003), and allow a national comparison of data within Australia and between Australia and other countries regarding staff perceptions of patient safety culture.

**Summary**

The use of the HSPSC in the ICU identified areas of strengths and areas requiring improvement. Areas of strength included teamwork within the ICU for consultants (moderate strength) and registrars (≥75%). Although this was also the highest overall total ICU composite-level positive response, it did not reach the criterion for even a moderate strength. There were eight patient safety culture composites with potential for improvement (≤50% positive response), which included the “Frequency of event reporting” within the ICU (with potential patient safety issues not being identified and addressed within the unit) and hospital
handoffs (handovers) and transitions within the ICU and between hospital units. Analysis revealed 28 of the 42 survey items were identified as areas requiring improvement (≤50%) for the total ICU respondents. However, it is worth noting that ICU registrar respondents indicated the highest number of items (n=12) scoring ≥75% positive responses.

Differences were found in the perceptions of different staff groups. In particular, consultant and registrar respondents indicated a higher positive response regarding communication openness within the ICU than nurses. Consultants and registrars were also more likely than nurses to consider that discussions of ways to prevent errors from happening again occurred within the unit. This is a potential area for improvement for nursing staff. Their perceptions may be a reflection of the hierarchical nurse structure and high percentage of junior staff. Consultants were more likely than registrars and nurses to consider that patient safety was sacrificed to get more work done.

Qualitative comments by respondents provided additional data that helped to explain the quantitative findings and identify additional areas of concern. In particular, respondents indicated a need for encouragement for event reporting and increased feedback concerning events that have been reported. In addition, consultant respondents commented on issues with handover of patient care, such as the inadequate transfer of patients between units.

A comparison of the present study with the US study showed all but one of the patient safety culture composites received lower positive responses, with significantly lower scores for 8 of the 12 composites. This strongly suggests a less well-developed patient safety culture for the ICU in the present study compared with the US findings (Sorra et al., 2007).

Overall, the results of this study showed that while respondents considered there was a strong positive culture for teamwork within the ICU, they also felt that there was a need to improve certain areas affecting patient safety that were related to aspects of the organisational culture of the ICU, including staff communication,
and handover and transitions of patient care within the ICU and between hospital units.

As indicated in this chapter, the findings of the current study suggested that hospital handover and transitions of patient care were perceived as critical issues by ICU respondents. This concern was confirmed by the already ongoing development of a quality improvement initiative within the ICU, in which both consultant and nursing staff were involved. Staff within the ICU extended an invitation to the principal researcher to examine this organisational change initiative designed to improve the handover process. This provided an opportunity to examine organisational change as it was occurring and to relate this to aspects of the safety culture as assessed in this study, as the organisational change literature has identified the culture within an organisation as a key factor in determining the success, or otherwise, of change. Evaluation of this attempt to improve the handover of patient clinical information within the ICU will be considered in the next chapter (Chapter 4).
CHAPTER 4

Handover communication in an adult intensive care unit: The impact of a Patient Management Plan & Progress document

4.1 Overview

This chapter reports on the before- and after-introduction assessment of the impact of a handover document, Patient Management Plan and Progress Medical Record 42.1 document (PMPP), within an adult intensive care unit (ICU). This study involved examining staff perceptions concerning the ICU handover process and the evaluation of the impact of the PMPP document developed as an intervention specifically for the ICU.

Introduction

Issues of patient safety and the quality of healthcare have been the focus of interest and concern in Australia and internationally (IOM, 2001; Kohn et al., 2000). In particular, there is an increased focus on a patient safety culture and the need for quality improvement to improve patient safety. Previous research has identified the need for clear and effective communication among healthcare providers in the ICU, in order to achieve improved patient outcomes (Baggs et al., 1999; Ferrand et al., 2003; Pronovost et al., 2003; Zwarenstein & Reeves, 2002). With communication failures being a common problem in healthcare organisations (Fagin, 1992), a clear and well-maintained method of documentation for healthcare professionals to record patient care details is paramount.

The handover of patient clinical information has been identified in the literature as an important area needing improvement, with a clear need for further research to improve handover of patient clinical information (ACSQHC, 2005b, 2005c; AMA, 2006; BMA, 2004). Despite the importance of this process a substantial gap in policy and research remains around clinical handover (ACSQHC, 2005b), with little research focused on examining the process of handover of patient clinical information (Beach et al., 2003; Bomba & Prakash,
There is no published standard method for handover of patient clinical information (Bhabra, Mackeith, Monteiro, & Pothier, 2007). Although the research discussed in this chapter has not all been conducted in the ICU setting, results and recommendations of other health and non-health areas can provide information of some relevance to ICU’s.

**The importance of handover**

Handover has been defined as: “the transfer of information from one healthcare provider to another when a patient has a change of location or venue of care, and/or when the care of/responsibility for that patient shifts from one provider to another” (ACSQHC, 2005c). The need for a process for handing over patient clinical information is ubiquitous in the ICU setting. Recent literature highlights the importance of continuity of patient care and the need for good quality handover of patient clinical information for transfer amongst medical and nursing staff (ACSQHC, 2005b; AMA, 2006; BMA, 2004; Pronovost et al., 2003). With an increase in shift work within healthcare, resulting in a number of individuals responsible for the care of a patient, the importance of good quality handover has increased, as the information provided during handovers influences the delivery of care for the whole shift (AMA, 2006; BMA, 2004; Currie, 2002).

Continuity of patient care is said to be underpinned by a continuity of information (BMA, 2004). This is particularly pertinent in an ICU setting where the objective to save the lives of critically ill patients involves communicating aspects of patient progress throughout the ICU admission, specifically key issues, intended management plans, events, investigations and decisions. Handover should be comprehensive and efficient (BMA, 2004). The effective transfer of patient care from one hospital staff member to another is an essential communication element of a culture of safety (Bomba & Prakash, 2005).

A recent report by the Australian Council for Safety and Quality in Healthcare (ACSQHC) (2005c) based on consultation with key stakeholders regarding improvement in clinical communication identified key themes and priorities for change, including the need to raise awareness of the importance of
handover amongst healthcare staff and seek organisational commitment for improvement, including improving documentation of handover information and clarifying the structure of medical and nursing handover (Gandhi, 2005; Kennedy, 1999; Miller, 1998; Sexton et al., 2004; Sherlock, 1995).

Studies reveal that systems of handover vary among and within different healthcare organisations (Horwitz et al., 2006). These may include verbal face-to-face handover, written handover, both written and verbal handover of patient care, typed text, and/or the use of clinical information systems (CIS) for handing over patient care (Horwitz et al., 2006; Miller, 1998).

**Factors and critical problems affecting handover**

Effective and safe handover is essential for maintaining high standards of clinical care (AMA, 2006; BMA, 2004). Evidence suggests that handover of patient care is one of the most unsafe procedures in healthcare, remaining highly variable and with the potential to be a major contributory factor to subsequent error and harm; and a threat to patient safety if carried out inappropriately (Beach et al., 2003; BMA, 2004). Although transfers of patient clinical information are frequent, research has shown that very few institutions have a comprehensive system for the handover of patient care, and that such transfers are frequently haphazardly managed (Horwitz et al., 2006).

**Shift patterns**

The importance of good handover has increased, with the increased shift patterns for healthcare staff that result in an increase in the number of people caring for each patient (AMA, 2006; BMA, 2004). Research has emphasized a need to focus on the impact of shift changes on patient care and the occurrence of adverse events (Petersen, Brennan, O'Neil, Cook, & Lee, 1994). Comprehensive handover during shift change requires patient clinical information to be accurate, succinct and relevant, with adequate time allowed to understand it (AMA, 2006; BMA, 2004). There is a need for coordinated shifts and appropriate rostering of
staff, both medical and nursing, to ensure that this process results in a safe handover.

**Communication difficulties and adverse events**

Retrospective medical record reviews of adverse events reveal that communication difficulties or failures contribute to a large percentage of adverse events (Wilson et al., 1995). Lack of communication and/or communication breakdown at the time of handover can result in poor outcomes for the patient, with inaccurate or delayed information, contributing to adverse events and near misses (Beach et al., 2003; Coiera et al., 2002; Donchin et al., 1995; Elbright et al., 2004). There is a need to prevent errors by reducing the reliance on human memory (AHRQ, 2000) and improving access to documented information. Furthermore, with the exchange of patient clinical information being a two-way process, with one individual providing and another receiving the information, handover is said to be quite person-dependent (BMA, 2004), and is particularly reliant on the skills and abilities of the person conveying the information (Odell, 1996).

Results from an Australian study investigating the use of documentation during handover between doctors in a metropolitan hospital reveal that all respondents indicated that the handover was largely a verbal interaction and that they relied on their memory or used a note pad to remember patient information during their shift times (Bomba & Prakash, 2005). The handover process was found to be unstructured, informal and error-prone, with a lack of formal and standard procedures for handover (Bomba & Prakash, 2005).

Further to the systemic factors impacting handover, a number of studies have indicated the importance of individual factors in the process of handover of patient clinical information (Anwari, 2002; Arora, Johnson, Lovinger, Humphrey, & Meltzer, 2005; Beach et al., 2003; Gandhi, 2005). A recent US study involved interviews with acute care resident physicians (interns) and focused on near misses or adverse events from poor communication during handover (written and/or verbal) (Arora et al., 2005). The interview data concerning these incidents
revealed content omissions and a failure-prone communication process as two major themes. Content omissions related to a failure to hand over active medical problems, medications or treatments and diagnostic tests or consults (Arora et al., 2005). Failure-prone communication processes included hand-written sign-out or handover information that was unclear or illegible, and a lack of face-to-face communication, as factors contributing to the incidents. These communication failures lead to uncertainty for the intern staff involved (Arora et al., 2005).

Anwari (2002) conducted a study of the verbal handover of relevant aspects of patient information including the course of surgery and any complications from the anaesthetist to the post-anaesthesia care nurse. Nurse responses revealed that the anaesthetist failed to provide all five required points concerning the patients’ condition in 67% of cases (Anwari, 2002). Verbal handover of patient information concerning the course of surgery and any complications occurred in only 15% of cases and in 20% of cases the nurse reported that the patients’ postoperative instructions handed over from the anaesthetist to the post-anaesthesia care nurse were either illegible or not written (Anwari, 2002).

Case studies have identified relevant issues concerning the handover of patient clinical information. A case study of a patient admitted to an emergency department highlighted the poor documentation and communication during the patient’s first 20 hours of care, with the perpetuation through various handovers of an inappropriate diagnosis (Beach et al., 2003). The discontinuity of care that exists during the handover of the patient highlights the importance of the handover process as an opportunity to not only transfer responsibility for the patient, but also to direct the therapeutic and diagnostic plan and take corrective actions (Beach et al., 2003). Another case study involving a substantial delay in appropriate diagnosis revealed system problems that included poor continuity of care between the multiple healthcare providers responsible for the patient’s care, a lack of communication regarding relevant patient clinical information, and the process of care involving several handovers between care providers (Gandhi, 2005). The study revealed a potential diffusion of responsibility and highlighted the importance of clear lines of responsibility and documentation in order to
Prevent misunderstandings where several physicians are responsible for a patient’s care (Gandhi, 2005).

Communication difficulties are common among physician and nurse staff, with studies revealing the omission of necessary information, incomplete patient charts and provision of incomplete information by the individual handing over as barriers that impact on the exchange of patient information (McKnight, Stetson, Bakken, Curran, & Cimino, 2002; Patterson, Blehm, Foster, Fuglee, & Moore, 1995). A study in the United States found that physician and nursing staff perceived a gap between information needs and timely access to information, further highlighting an issue of inconsistent communication at transfer of patient care and the need for face-to-face communication where mistrust or disagreement about care plans exists (McKnight et al., 2002).

**Interdisciplinary communication**

The literature highlights the importance of interdisciplinary handover, emphasizing that this approach to handover of patient care is essential to ensure efficient flow of information and both system and personal continuity of care (AMA, 2006; BMA, 2004). The importance of effective communication during handover of information has also been highlighted in other non-healthcare related areas of research, such as aviation and military communities (Burke, Salas, Wilson-Donnelly, & Priest, 2004; Helmreich, 2000). Interdisciplinary communication and collaboration between medical and nursing staff concerning aspects of the planning and delivery of patient care is imperative within the ICU (Baggs et al., 1999; Pronovost et al., 2003). Previous research provides evidence that the collaboration between nurses and doctors in joint decision-making and sharing of responsibility can reduce patient length of stay and hospital charges, without impacting mortality rates or having adverse effects (Curley, McEachern, & Speroff, 1998; Zwarenstein & Bryant, 2000). However, barriers to doctor-nurse interdisciplinary communication and collaboration require further research (Zwarenstein & Bryant, 2000).
**Need for structure and guidelines**

Ad hoc handover often misses out important aspects of patient care, potentially resulting in unnecessary orders, adverse events, and significant risk to patient safety (BMA, 2004). Sherlock (1995) reports the giving of patient information during handover to be a process of variable quality, lacking in organization and appropriate standards, with the need to remember all the relevant information a seemingly impossible task. A study of nursing handover found that verbal handover was haphazard and found that a lack of clear and concise guidelines may be responsible for this, suggesting the benefits of guidelines that structure and outline what should be provided during verbal handover and what should be written, reducing the time spent during handover and improving quality (Sexton et al., 2004).

In highlighting the issue of clear and uninterrupted communication, the British Medical Association (BMA) suggests that handover requires a quiet setting for exchange of patient clinical information, or clear leadership if handover is conducted in a group setting, to avoid issues of concurrent conversations between individuals unrelated to the handover in question, reducing opportunity for conflicting information (BMA, 2004).

**Organisational culture factors**

Organisational culture can also impact on the handover of patient clinical information. In order to improve the handover processes, consideration of the organisational context is important (ACSQHC, 2005b), with major changes required to the culture and organisation of doctors of all levels and specialties (AMA, 2006; BMA, 2004). Organisational culture factors include professional subcultures (Bloor & Dawson, 1994) and levels of hierarchy within the hospital and at unit level. Different settings affect interdisciplinary communication within and between health professional groups and interpersonal relationships that may in turn influence the exchange of information (ACSQHC, 2005b). Communication flow can occur horizontally, within and across a single profession or employee group, vertically, flowing top-down from management to employees, or bottom-up from employees to a higher level in the unit or organisation (Robbins, 2003).
An interdisciplinary approach to improving handover of patient clinical information requires the greatest change in culture, but is said to have the potential for the greatest benefit (BMA, 2004). Restructuring or implementation of change to the process of handover in order to improve efficiency and effectiveness requires an administrative change and also a change in the social system and culture of the organisation or unit (Bomba & Prakash, 2005).

**Attempts to improve handover**

Researchers have indicated that development and implementation of a clinical information system (CIS) to improve patient safety and continuity of care is a major professional and organisational challenge (Patterson et al., 1995). An electronic CIS usually refers to a computerised system to manage patient clinical information (patient records) within a specific area of a hospital such as the ICU (Fraenkel, 2003). The literature reveals some attempts at improving the handover process in local healthcare settings, including ICU’s. Research concerning improvement of the handover process within healthcare has predominantly focused on nurse handover, although some research has focused on improving medical handover, largely involving the implementation of electronic CIS’s.

In one study, an interdisciplinary daily goals form was introduced to improve the effectiveness of handover communication within a 16-bed surgical ICU in the United States (Pronovost et al., 2003). Prior to the implementation of the daily goals form, the ICU handover was described as being provider-centric, with staff often lacking clarity about tasks needing to be accomplished, such as the plan of care for patients for the day, and the plan for communications with patient and/or patient’s family and other healthcare staff associated with the patient (Pronovost et al., 2003). The study found that respondents perceived the introduction of an ICU daily goals sheet to have improved communication, and patient care, and results indicated a 50% reduction in ICU length of stay (LOS) (Pronovost et al., 2003). However, the pre-intervention data for this study were lacking, so it is difficult to establish a causal relationship between the implemented daily goals sheet and the reported decrease in LOS. The implementation of a daily goals form should include evaluation and revision, with
ongoing modifications to allow the form to evolve, with the document as a ‘vehicle of communication’ among healthcare providers and not necessarily an official document in the patients’ medical records (Pronovost et al., 2003).

The communication between physicians and nurses was said to have improved during multidisciplinary patient care rounds after the introduction of a single standardized daily goals sheet located at the end of each ICU patients bed (Narasimhan, Eisen, Mahoney, Acerra, & Rosen, 2006). However, respondent attitudes towards use of the document differed. Nursing staff were more likely to continue to use the daily goals sheets, whereas physicians were less likely to want to continue using them. Results indicated a reduction in ICU LOS, from 6.4 days in the preceding year to 4.3 days (Narasimhan et al., 2006).

A further study examined communication during nurse handover and found that nursing care plans were referred to during handover 1% of the time, due to care plans not being updated and remaining incomplete (Kennedy, 1999). The study revealed that staff did not feel confident in using the care plan as they could not rely on the information documented, although this issue was self-perpetuating, with care plans underutilized and not updated (Kennedy, 1999). Information during handover was retrospective, focusing on what was done and not on the care plan for the patient (Kennedy, 1999). Following nurse education aimed at improving handover and the utility of the non-verbal documented care plan, nurses reported a 60% improvement in documentation with more referring to documented care plan details. Moreover, they felt they could rely on this information (Kennedy, 1999). An audit of documentation of patient care plans revealed a 60% improvement in non-verbal handover. Kennedy (1999) concluded that written handover allows for efficient time management and better continuity of patient care.

In a regional teaching hospital, researchers in consultation with junior and senior doctors and the hospital’s clinical risk management team, developed a minimum electronic data set for handover of surgical patients (Cheah, Amott, Pollard, & Watters, 2005). Of the 14 registrar respondents, all considered the electronic handover system to be desirable, with 85% indicating that the handover
list reminded them of investigations to do and/or results to review, although the free-text entry was often found to be deficient in information regarding patient care decisions (Cheah et al., 2005). However, the minimum electronic data sets were specifically designed for handover of single procedure surgical patients, and therefore may not prove as effective for more complex patient handovers (Cheah et al., 2005), such as those that occur in an ICU.

**Recommendations from the literature on improving handover**

The concern with, and emphasis on, the importance of effective communication during handover for patient care highlights the need for research to identify issues of handover between healthcare staff (Bomba & Prakash, 2005) (BMA, 2004). The literature reveals a number of suggestions for improving handover, including the implementation of guidelines and structure, the introduction of written documentation to assist handover, provision of handover education for junior doctors, and CIS and the personal handheld digital assistant for exchange of clinical information (ACSQHC, 2005c; Cheah et al., 2005; Gandhi, 2005; Horwitz et al., 2006; Miller, 1998; Priest & Holmberg, 2000). The literature also highlights the significant organisational change required to enable effective handover to occur (BMA, 2004).

A number of studies recommend the provision of education and training for staff in order to ensure effective communication at the time of handover of patient care, supporting and developing a learning culture within the organisation or unit setting (ACSQHC, 2005b; Arora et al., 2005). Further research is required to establish clear protocols and evidence-based guidelines for clinical handover to assist in providing structure for handover of patient information to guide staff practices and enable a more effective handover (ACSQHC, 2005b, 2005c; Miller, 1998; Priest & Holmberg, 2000).

Research indicates that the use of electronic clinical information systems (CIS) may improve the handover and documentation of patient clinical information (Cheah et al., 2005; Patterson et al., 1995). The obvious advantage of a CIS is that it prevents the need for manual entry or transcription of patient
clinical information (Fraenkel, 2003). However, the financial and human resource requirements for the implementation of a CIS can be significant (Fraenkel, 2003), and it is important to note that technological solutions cannot alone guarantee the handover of all relevant patient clinical information (Ash, Berg, & Coiera, 2004).

Further research reveals that paper solutions are still being utilised to improve the process of handover and effectiveness of communication at the times of shift changes (Pronovost et al., 2003), with no plans for alternative systems that are safe and effective (Gandhi, 2005). However, a written format and structure for handover has been recommended to ensure the adequate exchange of information at times of patient handover (BMA, 2004; Sherlock, 1995). A change to written documentation of handover is often due to the inconsistency of information given during handovers (Miller, 1998). The ACSQHC (2005c) highlight the importance of a combination of both verbal and written communication processes that enable feedback and clarification of information during handover of patient care.

Research has shown that medical staff perceive a need for written handover of patient information, including such issues as most recent changes in medications, medical problems and pending tests (Arora et al., 2005). A pre-prepared written handover sheet has also been reported as beneficial for handover (Miller, 1998). A written form of handover of patient information can be used as a reminder list of ‘work in progress’, or a tool to assist in the recollection of various tasks; what psychologists would refer to as a “cognitive artefact”, and an aide memoire (Volpp & Grande, 2003). Written handovers should be legible, relevant, accurate and updated regularly (Arora et al., 2005). Furthermore, regular reviews and evaluation of the handover process have also been suggested (Miller, 1998).

The present study

The following study sought to examine aspects of organisational change within an ICU setting. This study was concerned with the evaluation of intensive care medical and nursing staff perceptions regarding the ICU handover process and the impact of the PMPP document, a written document to be used for the handover of patient clinical information. The study is based on interview and
survey data obtained from ICU consultants, registrars and critical care registered nursing staff. The document was developed specifically as a quality improvement initiative for the ICU and focused on the importance of improving communication and continuity of care in the handover of patient clinical information. The study was conducted using a triangulated methods research design (Mays & Pope, 2000), with both quantitative and qualitative methods used to examine staff perceptions of the handover process before and after the introduction of the PMPP document. Due to the small sample size and the low utility of the PMPP document, the qualitative empirical data provide greater insight into the impact of the document and why the document did not have the intended impact.

**The intensive care unit (ICU)**

The ICU involved in this study is a large unit situated in a large hospital in Adelaide, South Australia, with twenty-four ICU beds and an additional ten high dependency unit (HDU) beds, with a large number of complex patients. This can result in a large amount of information from multiple sources, requiring triaging of patient clinical information in order to make time-critical decisions. Medical staff work two 12 hour shifts and nursing staff work three eight hour shifts across each 24-hours, with handover of patient clinical information occurring at differing times throughout the day. Registrar and consultant staff morning handover occurs at 08:00 hours and evening handover at 18:30 hours, with a major ICU ward round at 11:00 hours. Registered nursing staff morning handover occurs at 07:00 hours, the afternoon handover at 15:00 hours, and the evening handover at 22:45 hours. Therefore a number of handovers occur for both medical and nursing staff throughout the day, with differing shift patterns for each profession.

**The ICU handover process**

Prior to the introduction of the PMPP document, the handover process within the ICU for the consultant and registrar staff involved a verbal exchange or verbal summary of patient information from staff members to staff members, with no formal written document. However, medical staff were inclined to take ‘personal notes’ on scraps of paper that were kept in their pockets for their own
personal reference, highlighting an emphasis on a personal continuity of
information, with a potentially heavy cognitive load imposed by the exclusively
verbal process of handover.

Each of the 24 ICU beds has a bedside nurse and there are four team
leaders available on each shift, one for every six ICU patient beds. Each of the
team leaders receives a verbal update of patient clinical information from their
respective six bedside nurses. The clinical case managers (one for each 12 bed
“end”) and the team leaders provide the overall ICU nurse coordinator for the shift
with a brief verbal handover of all patients within the unit and the nurse
coordinator is then responsible for the overall nursing staff within the unit and any
staffing issues that may arise. The clinical case managers for the shift attend the
1100 hour ward round with the consultants and registrars and subsequently
provide a summary of patient clinical information to the nursing staff hierarchy of
ICU nurses.

Separate handovers for medical and nursing staff existed prior to the
introduction of the PMPP document on July 25, 2005, with no formal
interdisciplinary handover document for use by both ICU medical and nursing
staff. The nurse team leaders, nurse coordinator and clinical case managers
engaged in handover away from the patients’ bedside, usually at the nursing
station of each section within the unit (i.e. A, B and C ends). Prior to the
introduction of the PMPP document, team leaders, nurse coordinators and clinical
case managers were using an ICU Nurse Assessment/Planning document. This
brief written summary document consisted of two pages including an initial
patient assessment on arrival in the unit and ongoing daily management plan
updates for each of the patients within the unit. The documents were divided into
groups (e.g. ICU patient beds 1-6, 7-12, etc) and located in folders at each of the
respective ends of the unit. Clinical case managers took the folders to the 1100
hour ward rounds each day, providing a summary of relevant patient clinical
information for discussion by ICU medical staff, and subsequently fed this back to
the nurse team leaders in the unit.
Bedside nursing staff engaged in handover at the bedside at the change of shift, from the registered nurse completing the shift to the registered nurse commencing the shift. This concerned the care details of their specific patient. Intensive care medical staff engaged in a verbal handover between one or more doctors, and individual/personal summary notes were made.

A description of the Patient Management Plan and Progress MR 42.1 (PMPP) document and reason for change

Research has indicated that communication failure within the healthcare setting can result in increased patient length of stay, increased resource use, staff dissatisfaction and patient adverse events, highlighting the importance of documented management plans in improving continuity of information and patient care (ACSQHC, 2005b, 2005c; BMA, 2004; Pronovost et al., 2003).

The aim of the PMPP document was to improve the continuity of care provided to patients by improving clinical handover in the ICU. In particular, the purpose was to improve communication and clinical handover between medical staff and between medical and nursing staff. The document was intended: to standardize the patient clinical information being handed over; to ensure consistency of transfer of information; to minimize errors and omissions; summarize and optimize handover and ward rounds; to improve the completion of handover; and to improve patient discharge summary accuracy and ease of completion. Brevity and relevance were seen as important in encouraging completion of the document.

The changes to the process of handover of patient clinical information within the ICU were derived from a quality improvement focus within the unit and based on a review of relevant literature in similar healthcare settings (Pronovost et al., 2003) and reports of best practice published by the British Medical Association (BMA) and the Australian Council for Safety and Quality in Health Care (ACSQHC, 2005b, 2005c; BMA, 2004). Initial planning and development involved two separate documents being created, one for medical staff and one for nursing staff. However, collaboration during the development
phase occurred between a senior ICU consultant, ICU Nurse Director and Unit Clinical Manager, in consultation with the Hospital Forms Committee, and resulted in the merging of the two documents and the development of a single interdisciplinary document (PMPP). The overall planning and development of the PMPP document was therefore undertaken by a senior ICU consultant and a small number of senior ICU nursing staff, functioning as the ‘change agents’ for this quality improvement initiative. No formal stakeholder input was gained to inform the planning and development of the change (survey of nurses or registrars at the coal face of patient care) although there was informal discussion and canvassing of opinion. The PMPP document was introduced on Monday 25 July 2005.

The PMPP document consists of eight pages (See Appendix 4.1). The first page, Patient Management Plan and Progress refers to introductory information and is the responsibility of both medical and nursing staff: admission details; diagnosis; past medical history; disability details; and deficits or impairments of vision/hearing. The second page requires details of routine procedural care, including: nature and duration of invasive catheters / drains; nature of, and indication for, surgery; intubation; DVT prophylaxis; whether or not the patient had had a splenectomy; do not resuscitate (DNR) order; enteral feeds; and any research the patient may be involved in. The patient’s diagnostic summary is required on the third page, detailing the nature of, and indications for, radiological investigations (e.g. computed tomography (CT) scans / magnetic resonance imaging (MRI) scans). The fourth page of the diagnostic summary requires medical staff to detail all ‘other investigations’, including echocardiograms, angiography, and ultrasound investigations. The fourth and fifth pages both require documented details of antimicrobial management, with medical staff documenting the date, the microbiological sample taken, the results received, sensitivity, resistance, and the antimicrobial management that is started and stopped as a consequence of this. The final two pages of the document, the daily management record, which were to be completed by both medical and nursing staff, detail the daily management issues and goals, the plan for the day, and the outcomes achieved.
The document was to be stored in the ‘results folder’ located at the bedside of every patient within the ICU. Specific sections of the document were to be completed by medical staff, nursing staff or both, with sections completed at the time of admission of patient, during ward rounds and throughout the shift. The document was not intended to replace the writing of “progress notes” in the medical record, but intended to function as an index and a summary of patient details, tests, results, management plan, and other relevant information.

Aim of the study

The aim of this study was to investigate factors associated with the implementation of the PMPP document, which was designed to improve the handover of patient clinical information within the ICU, and to examine the findings in relation to organisational change theory.

As a result of the principal researcher’s involvement in assessing the patient safety culture in the ICU (see Chapter 3), an invitation was extended by ICU staff involved in planning a quality improvement initiative to improve ICU handover, to evaluate this organisational change program. The evaluation of this program would provide an opportunity to assess the relative success of the change program and relate the outcomes to the evaluation of the patient safety culture completed in Chapter 3. The main research question concerned the extent to which the implementation of the document would improve the process of handover of patient clinical information. In particular, the study sought to examine the perceptions of ICU medical and nursing staff regarding the process of handover of patient clinical information before and after the introduction of the document.
4.2 Method

Setting

This study was conducted within the ICU at the Royal Adelaide Hospital (RAH). As indicated in Chapters 2 (Methodology of the current research) and 3 (Method: Setting) the ICU is a multidisciplinary unit, with a complement of 24 ICU and 10 HDU beds. On a typical day within the adult ICU there are approximately 50 ICU staff members working (approximately 35 nursing staff and 15 medical consultant and/or registrar staff).

Participants

Consultants

The participants involved in this study included eight intensive care consultants (2 female, 6 male) from an overall population of ten consultants within the unit at the time of the study (80% response rate). All consultants involved in the before-introduction also participated in the after-introduction. Two consultants declined to participate in the study for “personal reasons”.

Most consultants worked 40 hours or more per week (n= 6; 75%) within the ICU and had worked in their current specialty of intensive care medicine for 1 to 5 years (n= 1; 13%), 11 to 15 years (n=1; 13%), and the majority of consultants had worked in their current profession for a period of 16 to 20 years (n= 3; 37%) or more than 21 years (n= 3; 37%) (See Table 4.1).

Registrars

Twenty five registrars were interviewed from an overall available population of 37 registrars during the three month period of conducting ‘before-introduction’ interviews (68% response rate). Eighteen registrars were involved in the ‘after-introduction’ semi-structured interviews from an overall available 25 registrars during the one and half month period of conducting ‘after-introduction’ interviews (72% response rate). A total of eight registrars in the before sample
were involved in the after interviews. The remaining registrars participated only in the before interviews (n= 17; 68%), or after interviews (n= 10; 56%). Registrars who declined to participate did so for personal reasons (e.g. it was during exam time, or they were too committed with work).

As can be seen in Table 4.1, most registrars worked 40 hours or more per week within the ICU and had worked in their current specialty of intensive care medicine for 1 to 5 years, and the majority of registrars had worked in their current profession for a period of 1 to 5 years and 6 to 10 years.

Critical Care Registered Nurses (CCRN)

Surveys were distributed to all available critical care registered nursing staff (CCRN n= 101) within the ICU. Thirty-three participants completed and returned the ‘before’ survey, a before PMPP document introduction response rate of 33%. Twenty-four participants completed and returned the ‘after’ survey, an after response rate of 24% from the overall CCRN staff sample. A total of 11 of the CCRN staff included in the before sample also completed a survey in the after-introduction assessment, whereas the remaining CCRN staff completed a survey only in the before assessment (n= 22; 67%) or after assessment (n= 13; 54%). Due to the self-administered survey method of this sample it is not possible to determine why nurses did not participate in the study.

As can be seen in Table 4.1, most CCRN staff worked 20 to 39 hours per week within the ICU and had worked in their current specialty of intensive care medicine for 6 to 10 years or 11 to 15 years, and the majority of CCRN staff had worked in their current profession for a period of 6 to 10 years or 11 to 15 years.
Table 4.1 Demographic characteristics for consultants, registrars, and critical care registered nurses (CCRN): before-only, both the before and after, and after-only

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Before-only</th>
<th>Both before and after</th>
<th>After-only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Registrars (n= 17)</td>
<td>CCRN (n= 22)</td>
<td>Registrars (n= 8)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>11 (64.7)</td>
<td>4 (18.2)</td>
<td>6 (75)</td>
</tr>
<tr>
<td>Female</td>
<td>6 (35.3)</td>
<td>18 (81.8)</td>
<td>2 (25)</td>
</tr>
<tr>
<td>Hours per week</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 20 hours</td>
<td>0</td>
<td>4 (18.2)</td>
<td>0</td>
</tr>
<tr>
<td>20-39 hours</td>
<td>5 (29.4)</td>
<td>13 (59.1)</td>
<td>2 (25)</td>
</tr>
<tr>
<td>≥ 40 hours</td>
<td>11 (64.7)</td>
<td>5 (22.7)</td>
<td>6 (75)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (5.9)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Years in current profession</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td>1 (5.9)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-5 years</td>
<td>9 (52.9)</td>
<td>1 (4.5)</td>
<td>0</td>
</tr>
<tr>
<td>6-10 years</td>
<td>6 (35.3)</td>
<td>6 (27.3)</td>
<td>0</td>
</tr>
<tr>
<td>11-15 years</td>
<td>0</td>
<td>7 (31.8)</td>
<td>1 (12.5)</td>
</tr>
<tr>
<td>16-20 years</td>
<td>0</td>
<td>3 (13.6)</td>
<td>3 (37.5)</td>
</tr>
<tr>
<td>≥ 21 years</td>
<td>0</td>
<td>5 (22.7)</td>
<td>4 (50)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (5.9)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Years in current specialty area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td>2 (11.8)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-5 years</td>
<td>12 (70.6)</td>
<td>2 (9.1)</td>
<td>1 (12.5)</td>
</tr>
<tr>
<td>6-10 years</td>
<td>1 (5.9)</td>
<td>7 (31.8)</td>
<td>0</td>
</tr>
<tr>
<td>11-15 years</td>
<td>0</td>
<td>7 (31.8)</td>
<td>1 (12.5)</td>
</tr>
<tr>
<td>16-20 years</td>
<td>0</td>
<td>4 (18.2)</td>
<td>3 (37.5)</td>
</tr>
<tr>
<td>≥ 21 years</td>
<td>0</td>
<td>2 (9.1)</td>
<td>3 (37.5)</td>
</tr>
<tr>
<td>Missing</td>
<td>2 (11.8)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Measures

A before- and after-introduction study of the PMPP document was conducted to assess the impact of the intervention aimed at improving the process of handover for intensive care consultants, registrars and CCRN staff. A mixed methods research design was used for this study. Both quantitative and qualitative methods were used to examine staff perceptions of the handover process before and after the introduction of the PMPP document.

Demographic details

To assist in data analysis and interpretation of results, the survey included demographic measures of: gender; staff position; hours worked per week; area of training/specialty; years worked in RAH ICU; years worked in current profession; and years worked in current specialty.

Quantitative

In order to evaluate the participants’ level of satisfaction with the way information was provided during the handover process, a 15 item Satisfaction Scale was used. The survey required participants to indicate their level of satisfaction using a ten-point Likert-type scale, whereby 1 = not at all satisfied, 5 = moderately satisfied and 10 = completely satisfied, with items designed to reflect particular aspects of handover of clinical information for ICU patients (See Appendices 4.3, 4.4 and 4.5).

To investigate the participants’ level of confidence with the comprehensiveness and accuracy of information provided during the handover process, a Confidence Scale was used for each of the 15 items. For the confidence subscale the survey again required the participants to indicate their level of confidence using a ten-point Likert-type scale, whereby 1 = not at all confident, 5 = moderately confident and 10 = completely confident with items designed to reflect particular aspects of handover of clinical information for ICU patients (See Appendices 4.3, 4.4 and 4.5).
The fifteen items for both the satisfaction and confidence subscales that reflected aspects of handover of patient clinical information included: 1) Patient background (includes medical and social history and carers); 2) Reason for ICU admission; 3) Circumstances of admission to ICU (e.g. medical emergency team (MET) call, retrieval, operating theatre (OT), etc); Nature of, and indications for;: 4a) Radiological investigations and 4b) Surgery; 5) Results of the radiological investigations; 6) Planned/Booked, but not yet done, investigations; 7) Duration of intubation; 8) Nature and duration of vascular access lines; 9) Type and duration of antibiotics; 10) Microbiological results; 11) Biochemical results; 12) Haematological results; 13) Other blood results; and 14) Family discussions.

Reliability and construct validity analyses

Reliability analyses were conducted for both the satisfaction and confidence subscales for the before- and after-introduction survey instruments. These analyses involved measurement of the internal consistency of the instrument by examining the stability of responses to items of the instrument (Tabachnick & Fidell, 2000). The internal subscale reliability was assessed using Cronbach’s alpha coefficient. The literature indicates that a Cronbach’s alpha value of .70 or above is an acceptable level of reliability (Tabachnick & Fidell, 2000).

Qualitative open-ended questions

To further investigate factors relating to medical and nursing participants’ perceptions of the ICU handover, additional qualitative questions were included (See the Procedure section ‘stage 2’ of this chapter for an explanation of why medical and nursing staff were asked different qualitative questions in the before-introduction survey). The before-introduction survey (see Appendix 4.3) for consultants and registrars included a single qualitative open-ended question evaluating the participants’ perception of the consistency of information transfer during the then current handover process:
1. How would you rate the consistency of the transfer of patient clinical information at ICU handover?

The before-introduction survey (see Appendix 4.4) for CCRN staff included two major questions evaluating the participants’ perception of the then current handover process and the need for change:

1. What do you think of the current process for handing over patient clinical information in this ICU?
2. Do you perceive a need for changes in the present handover process?
   Yes / Maybe / No
   Please comment on:
   a. What kind of changes
   b. Why they are needed
   c. What outcomes they may produce

In order to evaluate the consultant, registrar and nursing participants’ perceptions concerning the impact of the new PMPP document, six qualitative questions were included in the after-introduction survey (see Appendix 4.5). These six qualitative questions included:

1. What did you think of the education / introduction sessions for the ‘Patient Management Plan and Progress’ document?
2. What do you think of the new document for handing over patient clinical information in this ICU?
3. Do you consider that the process of ICU handover has been improved?
   Yes / Maybe / No
   Please comment and provide examples on:
   Those aspects that have improved
   Those aspects that have not improved
   What you consider to be the most important change(s) resulting from the new document
4. How do you perceive the current interdisciplinary communication within the ICU?
5. Has the introduction of the new document changed interdisciplinary communication? Yes/No Why/Why not?

6. Do you have any suggestions for improving the process of handover? Yes / No If yes, what improvements could be made?

**Procedure**

A before- and after-introduction design was utilized for this study to assess the introduction of the new ICU handover PMPP document.

**Stage 1**

*November 2004–March 2005*

**Before-introduction: consultants and registrars**

The overall population of consultants and registrars within the ICU was considered a reasonable size for the principal researcher (the only individual involved in collection of data) to conduct semi-structured interviews, in order to maximise response rates. The ICU had a total of twelve consultants at the time the study was carried out. Only ten of the consultants were included in the available sample population for the study as two of the ICU consultants were affiliated with the overall research project. For both the before- and after-introduction interviews, a purposive sample of intensive care consultants and senior registrars was contacted via their work mobile phones by the principal researcher of the study. The unit staff listings for each of the two groups were used to accomplish this purposive sampling, used as a non-random method of sampling specifically with the practical intention of including all available consultant and registrar staff. A brief description of the study and the semi-structured interview protocol was provided verbally over the phone; a request was made for their voluntary participation in the study, and if they volunteered to participate, a date and time were chosen for the interview to be conducted in person.

Semi-structured interviews were conducted within the ICU, either in the office space of the consultants and registrars or within one of the available tutorial or meeting rooms. Each interview lasted approximately fifteen minutes. Participants received an information sheet (see Appendix 4.2) and a copy of the
survey instrument. Self completion of the survey instrument and demographic details occurred first. Participants were then asked if they were comfortable with their responses to the open-ended questions being recorded. Request for an indication of verbal consent from participants for the recording of the interview was made at the commencement of recording: “I’ll just ask that you indicate your verbal consent that you are aware this is being recorded and that you are comfortable with that?”. The open-ended questions were read out/asked by the interviewer (principal researcher) and participant responses were recorded using a digital Sony Voice Recorder. Some registrars provided written responses only with no recording: Before: n= 2; After: n= 5 registrars.

Stage 2

May 2005

The document becomes inter-disciplinary

The document was initially designed by a senior intensive care consultant to be used by ICU registrar and consultant staff in documenting the patient clinical information for ICU handover. During the development stages of the new document, it became clear that the ICU nursing staff were designing a similar document specifically for their handover of patient information and as a means of concise reporting and duplication of the consultant/registrar summary in the medical records, for use by nursing staff. The ICU Unit Clinical Manager and the senior ICU consultant then combined the design/content of the separate discipline documents to create a multi-disciplinary document for handover of patient clinical information.

At this time the ICU Unit Clinical Manager requested that the nursing staff population be included in the study, to assess their perceptions of handover before and after the introduction of the resultant PMPP document. In consultation with the ICU Unit Clinical Manager, ICU Director of Nursing, and the ICU Education Nurse, the survey instrument was slightly modified for this purpose. It was also requested that the nursing staff not be surveyed until the development of the document was completed and formalized as staff had not been informed of the impending change. In order to meet this request, and due to delays in the
development and final approval of the document, the surveying of ICU nursing staff did not commence until 10 June 2005.

From May through to the beginning of July, ICU registrar staff working within the unit who had not already participated in a semi-structured interview were contacted to seek their voluntary participation in the study (following the procedure described in Stage 1).

**Stage 3**

**June 2005**

*Before-introduction: CCRN staff*

A sub-sample of CCRN staff was selected (n= 101) for involvement in the study from the overall ICU registered nurse staff population (n= 249). The sampling decision to include only the CCRN staff for this study was made in consultation with the ICU Director of Nursing, ICU Unit Clinical Manager and ICU Education Nurse. As the study was based around the introduction of the PMPP document to be utilized during handover, the CCRN sub-sample was considered the most relevant and appropriate within the registered nurse staff population, as they held the senior nursing roles within the unit and it was anticipated that they would have a higher level of involvement and use of the PMPP document for the handover of patient clinical information away from the patients bedside.

Due to the large population of CCRN staff (n= 101) and only one researcher being available to collect data (the principal researcher), semi-structured interviews were not conducted. Instead a copy of the Information Sheet, self-administered survey and qualitative open-ended questions were distributed into staff inboxes (internal mail) for completion. A clearly marked box was provided in the main staff tea-room for return of completed surveys by nursing staff. CCRN staff rosters were used to identify potential participants for the distribution of surveys. Each survey was coded in order to enable a comparison of before- and after-introduction survey responses.
In order to maximise response rates, copies of the information sheet and the surveys were presented in brightly coloured (lime-green) envelopes with a name-label on each envelope to personalize the process of recruitment. Staff were also informed of the study by the ICU Unit Clinical Manager during nurse education sessions (30 minute sessions held at 1430 hours Monday-Friday in the ICU Conference Room). Subsequent reminders were given during these sessions, confirming the ICU nurse management support for this study and encouraging staff to complete and return the survey. Informational flyers were displayed on notice boards in the main staff tea-room of the unit prior to the distribution of the surveys and further supplemented with reminder notices two-weeks later during the receipt process.

Stage 4
July 2005

Introduction of the Patient Management Plan and Progress (PMPP) document

Although originally planned for introduction in the earlier months of 2005, the introduction of the PMPP document was significantly delayed because of ICU medical and nursing revisions that were due to the merging of two separate documents to create a multidisciplinary document (See Stage 2) and the final approval from the Royal Adelaide Hospital Forms Committee (a requirement for the document to be considered an official medical record document). The PMPP document was introduced on Monday 25 July 2005. In the two weeks preceding the introduction of the document, two ICU medical staff in-service training sessions were conducted for ICU registrars and consultants by the senior ICU consultant involved in the design of the PMPP document and this research project. A further ten in-service training sessions were conducted by the Unit Clinical Manager on ten different days to reach as many of the ICU nursing staff as possible. Both the nursing and medical training consisted of reviewing each of the sections of the PMPP document and describing the rationale for each of the sections, with the opportunity for staff to raise any issues or provide feedback during each of the sessions. The principal researcher observed the medical and eight of the ten nursing staff education sessions. Staff unable to attend the in-service training sessions were provided with a memo detailing the information
provided in the in-service training sessions regarding the change (i.e. CCRNs) or were informed in person regarding the change (i.e. consultants and registrars).

A feedback box was made available in the staff tea-room for the receipt of anonymous feedback and/or suggestions regarding the new document and suggested changes from staff during the first ten-weeks of the document being utilized within the ICU (Note: No staff member provided feedback in this manner). As a means of providing feedback to staff during the initial ten weeks of the document being utilised, a suggestion was also made by the principal researcher to use a visual chart displayed within the ICU reflecting the patient length of stay (LOS) statistics as an indication of the impact of the PMPP document, as used by Pronovost et al. (2003). However, the ICU consultant staff involved in the study did not consider this appropriate due to the inability to establish causal relationships between the PMPP document and any changes that may occur in LOS during this time.

Stage 5

October–December 2005

After-introduction: consultants and registrars

To conduct the after-introduction assessment, the unit medical staff list was again used to contact consultants and registrars via work phones requesting their voluntary participation in the after-introduction interview for this study. The process of recruitment and interviewing was the same as in Stage 1.

The consultant staff sample population and respondents remained the same for both before- and after- introduction of the PMPP document. The sample population of registrar staff within the ICU changed considerably during the time frame of this study. As the study was undertaken in the ICU of a large teaching hospital, rotating placements existed for registrar training. For this reason the registrar group/sample for before- and after- introduction was different. Due to the delay between the before- introduction semi-structured interviews and the introduction of the new document (due to final ICU revisions and approval from the RAH forms committee), and the study design allowing for ten weeks of
exposure/use following the introduction of the document, seventeen of the original registrar respondents involved in the before-introduction interviews were no longer working within the ICU at the time the after-introduction interviews were conducted. Only eight registrars were available for both the before- and after-introduction interviews. In consultation with the senior ICU consultant and the School of Psychology primary supervisor, it was decided that the registrars working within the unit at the time of the after-introduction interviews should be included in the study and their perceptions sought regarding the PMPP document. Although these registrars were not part of the unit before the introduction of the document and could not respond to questions pertaining to changes attributable to the new document, their perceptions of satisfaction and confidence with the use of the document and any comments/suggestions they might have were considered relevant for this study. Similarly, all data collected in the before-introduction interviews from those registrars no longer working within the unit for participation were still used/reported in this study, as they provided a clear indication of the handover process before the PMPP document was introduced.

**Stage 6**

**October–December 2005**

**After-introduction: CCRN staff**

The same procedure as in Stage 3 for distribution and receipt of survey instruments was used for the after-introduction assessment of CCRN staff. The same sample population of 101 CCRN staff were working in the unit before and after the introduction of the PMPP document. As the overall CCRN sample population remained unchanged, the entire sample was surveyed for the after-introduction, irrespective of whether a response was received in the before-introduction survey. The CCRN staff exposure to the process of handover was considered sufficient/adequate for them to provide perceptions of the changes in handover (after) irrespective of their voluntary participation in the before survey.
**Ethical considerations**

Ethics approval for this study was obtained from two ethics committees, the University of Adelaide, School of Psychology Human Research Ethics Committee and the Royal Adelaide Hospital Ethics Committee.

Interviews conducted with the ICU consultant and registrar respondents were recorded using a digital Sony Voice Recorder and were transferred to computer files for further transcription, analysis and storage. Interview recordings were indexed in a manner that prevented identification of the individual participants, except by the principal researcher. In accordance with the ethical guidelines of the University of Adelaide, School of Psychology Human Research Ethics Committee and the Royal Adelaide Hospital Ethics Committee, the data were stored in password protected files on the computer system of the School of Psychology, University of Adelaide, and were only accessible by the principal researcher, to ensure confidentiality. Furthermore, transcripts of interview recordings were also indexed in a manner that prevented identification of the individual participants, except by the principal researcher.

Interviews were transcribed, with each transcript assigned an identifying index, which included C (consultant) and R (registrar), with each interview numbered chronologically within each category (Example: “C2” refers to the second intensive care consultant to be interviewed).

As indicated in Chapter 3 (see 3.2 Method: Ethical considerations), the use of written consent was not included as the subject population had no dependent relationship with the principal researcher, and it seemed appropriate that written consent not be regarded as necessary in this research. Instead, an indication of recorded verbal consent was sought from the consultant and registrar participants during the semi-structured interviews, and it was indicated on the information sheet that receipt of the completed survey by CCRN staff would be considered as provision of consent.
Each of the CCRN staff surveys was coded in a manner that prevented identification of the individual participants, except by the principal researcher. This information was stored on an Excel spreadsheet and used to enable a comparison of before- and after-introduction survey responses. The coded listings were stored on the computer system of the School of Psychology in the University of Adelaide, and only the principal researcher had the required passwords to access the data.

Data analysis, assessment and results of this study were written up in a report format so that it could be included as part of the requirements for the hospital accreditation process.

**Data Analysis**

**Quantitative**

The Statistical Package for the Social Sciences (SPSS) version 12.0.1 for Windows was used to conduct the quantitative management and analysis of data. Subscale reliability was assessed using Cronbach’s alpha coefficient.

Frequency analyses were conducted to explore the demographic data. A frequency analysis was also carried out on each of the items in the satisfaction and confidence scales to explore the distribution and patterns within the response data. A general linear model repeated measures analysis of variance (ANOVA) was conducted to examine the differences in before- and after- introduction mean satisfaction and mean confidence scores for each of the three groups (sub-samples): consultants; registrars; and CCRN staff. The paired-samples (within subjects) t-test was conducted to compare differences in mean satisfaction scores and mean confidence scores within each of the sub-sample groups, before and after the introduction of the document. Mean satisfaction and confidence scores were calculated for each participant.
Qualitative

The use of qualitative research methods in healthcare research has become increasingly common (Mays & Pope, 2000), especially content or thematic analysis (Green & Thorogood, 2004; Pope, Ziebland, & Mays, 2006). The qualitative analysis of the present study took the form of a content analysis of responses to open-ended questions. The staff interview transcripts and survey responses were analyzed inductively; content analysis was data-driven and thematic codes were developed from the raw data (Boyatzis, 1998).

Boyatzis (1998) outlines three ways to develop a thematic code including: theory driven (developing codes on the basis of existing theory); prior-research driven (development of codes using previous research and existing codes); and inductive or data-driven (the development of codes derived from the raw data). For the purposes of this study an inductive or data-driven analysis approach was chosen for the analysis of the staff interview transcripts and survey responses of ICU consultants, registrars and CCRNs.

Responses to open-ended questions were organised under themes, consistent with the research questions and concerns of the respondents (Burman, 1998). This method of analysis allowed the responses to the open-ended questions to be assigned to themes and comparisons to be made between these responses within (i.e. consultant and consultant) and between groups (i.e. consultant and nurse). This form of qualitative analysis permitted the inclusion of responses in more than one theme (Bowling, 1997).
4.3 Results

A proportion of the participants were involved in both the before- and after-introduction surveys, whereas some were only involved in the before or the after-introduction survey. This information is shown in Table 4.2.

Table 4.2 Overall participant numbers

<table>
<thead>
<tr>
<th>Overall Participant Number</th>
<th>Both Before and After</th>
<th>Before- Only</th>
<th>After- Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultants</td>
<td>8</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>Registrars</td>
<td>35</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>CCRNs</td>
<td>46</td>
<td>11</td>
<td>22</td>
</tr>
</tbody>
</table>

Quantitative analyses

Reliability analyses for the PMPP survey

The internal consistency reliability for the current study was assessed using Cronbach’s alpha coefficient for each of the satisfaction and confidence subscales. The internal consistency reliabilities represented a satisfactory level of internal consistency (defined as Cronbach’s alpha greater than or equal to .70) (Tabachnick & Fidell, 2000), with the before- and after-introduction survey satisfaction scales with a Cronbach’s alpha of 0.90 and 0.94 respectively. The before- and after- introduction survey confidence scales were also found to have good consistency, with a Cronbach’s alpha of 0.94 and 0.95 respectively.

Repeated measures results

A paired samples t-test compared the group differences from time one (before) and time two (after) for those participants with both before- and after-introduction responses. Results are shown in Table 4.3 and Table 4.4.
Consultants

A paired-samples t-test was used to compare the intensive care consultants’ before-introduction overall mean satisfaction score with the after-introduction overall mean satisfaction score.

A significant decrease occurred in mean satisfaction scores for consultants from the before- to the after-introduction (t (7) = 2.59; p= 0.03). No significant difference was found (t (7) = 1.72; p= 0.13) between the before- and after-introduction mean confidence scores.

Registrars

No significant differences were found (t (7) = 0.58; p= 0.57) between the before- and after-introduction overall mean satisfaction scores. There was also no significant difference in overall mean confidence scores (t (7) = 0.69; p= 0.51) between the before- and after-introduction.

Critical Care Registered Nurses

No significant difference was found (t (10) = 1.55; p= 0.15) between the before- and after-introduction overall mean satisfaction scores. There was also no significant difference in overall mean confidence scores (t (10) = 2.15; p= 0.06) between the before- and after-introduction. An inspection of means (p = 0.06) indicates that the differences in overall mean satisfaction scores is somewhat lower in satisfaction afterwards, and the overall mean confidence is tending towards a significant difference, with decreasing mean confidence scores.

All repeated measures results

A paired-samples t-test was also used to examine the differences between before-and after-introduction mean satisfaction and confidence scores for the combined group of both before- and after-introduction participants (consultants, registrars and CCRN staff (n= 27)). A significant difference was found in overall mean satisfaction scores (t (26) = 2.30; p= 0.03) between the before- and after-
introduction, with a decrease in mean satisfaction scores for the overall group of participants. A significant difference was also found in overall mean confidence scores \((t (26) = 2.19; p= 0.03)\) between the before- and after-introduction for the overall group of ICU participants, with a decrease in mean confidence scores for the overall group of participants.

**Differences in mean scores between groups before- and after- introduction**

Further analyses were conducted using a General Linear Model Repeated Measures Analysis of Variance (ANOVA) to determine whether there were any before and after differences between the three groups for mean satisfaction and confidence scores. The results are shown in Table 4.3 and Table 4.4.

**Table 4.3** Mean satisfaction scores for both before- and after-introduction consultants, registrars and CCRNs

<table>
<thead>
<tr>
<th></th>
<th>Before-introduction</th>
<th>After-introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Consultants</td>
<td>8</td>
<td>7.61</td>
</tr>
<tr>
<td>Registrars</td>
<td>8</td>
<td>5.37</td>
</tr>
<tr>
<td>CCRNs</td>
<td>11</td>
<td>6.11</td>
</tr>
</tbody>
</table>

A significant difference in mean satisfaction scores was found between the consultant group and the registrar group \((F (2, 24) = 4.56; p<0.05)\), with the consultant group having a higher mean satisfaction score than the registrar group for both the before and after scores. No other significant differences in mean satisfaction scores were identified. No significant differences in mean confidence scores were found between the three groups. As can be seen in Table 4.3 and Table 4.4, the mean satisfaction and confidence scores for both before- and after-introduction consultants were slightly higher than those of the CCRN’s and registrars, and the mean satisfaction and confidence scores for both before- and after-introduction CCRN’s were slightly higher than those of the registrars, although these differences were not statistically significant.
Table 4.4 Mean confidence scores for both before- and after-introduction consultants, registrars and CCRNs

<table>
<thead>
<tr>
<th></th>
<th>Before-introduction</th>
<th>After-introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Consultants</td>
<td>8</td>
<td>7.43</td>
</tr>
<tr>
<td>Registrars</td>
<td>8</td>
<td>6.00</td>
</tr>
<tr>
<td>CCRNs</td>
<td>11</td>
<td>6.75</td>
</tr>
</tbody>
</table>

As can be seen in Figure 4.1 and Figure 4.2, there was an overall decrease in mean satisfaction and mean confidence scores from time one (before) and time two (after) for all three groups (consultants, registrars, CCRN staff). However, these decreases in mean scores for both satisfaction and confidence were not significant.

Figure 4.1 Before- and after-introduction mean satisfaction scores for consultants, registrars and CCRNs
A general linear model univariate analysis of variance (ANOVA) was conducted to determine whether there were any differences between the before-only and the after-only participant groups for registrars and CCRN staff. The mean and standard deviation values for each of the groups can be seen in Tables 4.5 and Table 4.6.

Figure 4.2 Before- and after-introduction mean confidence scores for consultants, registrars and CCRNs
Table 4.5 Mean satisfaction scores before-only or after-only introduction for registrars and CCRNs

<table>
<thead>
<tr>
<th></th>
<th>Before-introduction</th>
<th>After-introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Registrars</td>
<td>17</td>
<td>6.27</td>
</tr>
<tr>
<td>CCRNs</td>
<td>22</td>
<td>6.24</td>
</tr>
</tbody>
</table>

There was a consistent decrease in mean satisfaction and confidence scores for the before-only and the after-only registrar and CCRN groups, although this decrease in mean scores over time was not significant.

Table 4.6 Mean confidence scores before-only or after-only introduction for registrars and CCRNs

<table>
<thead>
<tr>
<th></th>
<th>Before-introduction</th>
<th>After-introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Registrars</td>
<td>17</td>
<td>5.79</td>
</tr>
<tr>
<td>CCRNs</td>
<td>22</td>
<td>6.44</td>
</tr>
</tbody>
</table>

Based on the similarity of mean response scores (before-and after, before-only, and after-only) a decision was made to include all respondents in the following analysis of qualitative responses.

Qualitative analyses

Responses to open-ended questions were examined using a data-driven or inductive approach to the analysis of data, involving the development of themes directly from the respondent data rather than from previous theory or prior research (Boyatzis, 1998). Themes were developed consistent with the open-ended questions included in the survey, and also in response to any further concerns of respondents that explored issues outside the open-ended questions. This form of qualitative analysis permitted the inclusion of responses in more than one theme (Burman, 1998); accordingly percentage values for the reporting of
qualitative results do not always add up to 100 per cent. Where appropriate, the results highlight the overall responses within a theme to be exclusive or overlapping in responses (responses that fall under more than one theme), providing further details of those overlapping responses.

As some open-ended questions lead onto other questions in the survey, the tables (see Tables 4.7, 4.8, 4.9 and 4.10) reflect firstly the N-value for the overall number of respondents, followed by ‘respondent n’ values that denote the number of participants who provided a response for that particular question and an indication of the percentage of overall N. The subsequent n-values following the ‘respondent n’ for each of the themes then each have a percentage value calculated from the ‘respondent n’ value.

Qualitative findings reveal an overall consensus between the three staff groups, (consultants, registrars and CCRNs), highlighting that the PMPP document did not achieve its goals. The percentages of responses vary at times between the groups, with issues more salient to some than others. This variability in percentages can perhaps be explained by the differing methods of data collection, as consultant and registrar staff were interviewed, but CCRNs completed self-administered surveys. Findings reveal that the registrars made more comments regarding their perceptions of the PMPP document, the majority giving overwhelmingly negative comments concerning aspects of handover that had not improved since its introduction. CCRN respondents made more comments regarding the document being largely underutilised and incomplete. Finally, consultant respondents mentioned more suggestions for improvement and offered more additional themes beyond those identified in Table 4.9.

**Before-introduction: Themes expressed by consultants and registrars**

Table 4.7 provides a summary of the themes expressed by consultants and registrars in the assessment before the introduction of the document.
Table 4.7 Themes identified in the before-introduction assessment for consultants and registrars regarding the intensive care handover process

<table>
<thead>
<tr>
<th>Themes</th>
<th>Consultants (n=8)</th>
<th>%</th>
<th>Registrars (n=25)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall response</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive reference to consistency of handover</td>
<td>6</td>
<td>75.0</td>
<td>18</td>
<td>72.0</td>
</tr>
<tr>
<td>Negative reference to consistency of handover</td>
<td>2</td>
<td>25.0</td>
<td>19</td>
<td>76.0</td>
</tr>
<tr>
<td>Factors relevant to handover process</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Omission of detail / inaccurate information</td>
<td>6</td>
<td>75.0</td>
<td>16</td>
<td>64.0</td>
</tr>
<tr>
<td>Handover is person-dependent</td>
<td>3</td>
<td>37.5</td>
<td>16</td>
<td>64.0</td>
</tr>
<tr>
<td>Issue of time</td>
<td>6</td>
<td>75.0</td>
<td>9</td>
<td>36.0</td>
</tr>
<tr>
<td>Impact of other systemic issues</td>
<td>4</td>
<td>50.0</td>
<td>4</td>
<td>16.0</td>
</tr>
<tr>
<td>Suggestions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative suggestions to improve the handover process</td>
<td>4</td>
<td>50.0</td>
<td>9</td>
<td>36.0</td>
</tr>
</tbody>
</table>

Note: Percentage values may not add up to 100 per cent since not all responses fall under one exclusive theme.

4.3.1 Overall before-introduction response

Four of the six consultant respondents were exclusively positive in their responses; the remaining two consultant respondents expressed a predominantly negative response with some positive remarks. Six of the 25 registrar respondents were exclusively positive in their responses; 7 registrars were exclusively negative in their responses, and the remaining 12 registrar respondents expressed a mixed response (both positive and negative) in referring to the ICU handover process.

4.3.1.1 Positive reference to consistency of handover

The majority of consultant (75%) and registrar (72%) respondents referred to the consistency of handover as positive within the ICU: “The handover round and even more so at the midday round there are multiple people present who have knowledge about the patient, so if one of the reporters is inaccurate or inconsistent [in what] he’s presenting, or what he or she is presenting, then the other people present can contribute” (C7), and “I said that it’s high, I’d rate it as being high, but there is a degree of variability and that degree of variability is
proportional to the experience of the individual and also directly proportional to
the duration of direct contact with the patient, because it’s easier to, the
information gained is of, is clearly greater if you’re the person who’s actually
examined the patient and written it all down, you have a greater understanding of
it” (R23).

4.3.1.2 Negative reference to consistency of handover

Most negative comments regarding the consistency of handover came
from registrars (76%) rather than consultant respondents (25%), describing an
inconsistent and or ineffective handover: “I wouldn’t say it was very consistent.
I’d say it’s very depend on a lot of factors, you know, who’s there, how long
they’ve been there, as in how long they’ve been looking after the patients, and
umm, how much time there is. Sometimes I think the A End gets a better handover
because… that’s where it starts and by the time you get to the end of the B End, I
certainly know because I always do the B End, you’re quite keen to get home and
as such, the handover is probably less than startling… I agree that what we do at
the moment isn’t ideal” (R10), and finally another registrar indicated, “I would
rate it as chaotic. Poorly disciplined. Basically totally unstructured. Structure
changes from patient to patient” (R19).

4.3.2 Factors of handover process

Further themes were identified, relating to specific factors relevant to the
handover process, as listed in Table 4.7.

4.3.2.1 Omission of detail and or incorrect detail

Seventy-five percent of consultant respondents and 64% of registrar
respondents mentioned the omission of details and incorrect details as an issue
with the handover process: “You try to summarize what effectively fills maybe
thirty pages of case notes into a one or two minute verbal summary. There’s never
going to be an adequate way of communicating all that information” (C3); and
also “You often get a persistence of incorrect information from handover to
handover. Important relevant pieces of information not being handed over…”
(R1); and regarding documentation “Documentation in the case notes is
appalling… it’s very substandard and the reason that happens is because understandably people put the care of the patients first and that’s what we should do and then they don’t have enough time to do any of the writing” (C2).

4.3.2.2 Handover is person-dependent

Consultant (38%) and registrar (64%) respondents emphasized that handover was person-dependent: “It would be variable I think, depending on the background of the registrars and their competency in the English language… I mean it’s up to the person receiving the handover to elicit the information they want, if it’s not coming freely and to prompt and probe” (C8), and also “I think it’s very inconsistent and it’s very dependent on the people involved at the time, so it depends on both consultants, registrars and that includes registrars who are receiving and giving information” (R20).

4.3.2.3 Issue of time

The issue of time was also a theme expressed by a majority (75%) of consultant respondents and a minority (36%) of registrar respondents: “The accuracy of the information could be improved and the time taken for handover, in what is now a very large and busy intensive care unit, could be used more effectively. Time is a major problem here because the unit is busy and large” (C5), and “The other issue is time constraints, given the large number of patients we have to see in a fixed certain amount of time, there’s always not enough time to talk about absolutely everything that should be handed over” (R15); and another respondent indicated, “…morning and evening [handover], they take too long, they’re unstructured, they’re chaotic, they’re undisciplined” (R19).

4.3.2.4 Impact of other systemic issues on handover

The impact of other contributing systems issues was also raised by half of the consultant respondents and 16% of registrar respondents. Comments reflected on systemic aspects within the unit, including the large size of the unit, hierarchical and horizontal paths of communication, and the staff roster and shift times: “It’s one of these system problems that has to do with the size of the unit, the number of doctors, both registrars and consultants, but particularly registrars involved in the unit… the unit is too big and as a result of being too big it has to
have a lot of people involved with looking after the patients and that is a system
problem” (C6); “I think we struggle, their [registrar] communication from my
[consultant] intent through to what actually happens with the patient sometimes.
It’s one of the other communications, there’s the horizontal communication issue
over time and there’s also communication of what the nurse perceives through to
me… hierarchical communication I think is another issue that could be
addressed” (C3), and a registrar respondent indicated “…this is a big unit doing
twenty-four beds all at once” (R6).

4.3.3 Suggestions for improving handover

Fifty percent of the consultant and 36% of registrar respondents also made
suggestions for improving the ICU handover process: “I think if we had an
electronic note keeping system, where we could put in the daily progress notes or
admission note and daily progress notes into an electronic record keeping system,
and then just pull that out for the midday ward round, that’d be great” (C7); and
“I think everything should be electronic, there should be an electronic progress
note with certain things can be cut and pasted from that to make one of these
sheets rather than an extra piece of paper to fill in every day… GP’s [general
practitioners] have medical director [computer program], there’s no reason why
we can’t have something similar… everyone should have a palm pilot, so every
point of care has a computer terminal so if you had a palm pilot as well, you could
do you entries and things on that…” (R6), and “I personally don’t think there’s
enough walking around with senior staff looking at the patient and thinking, well
not sort of things but brainstorming at the bedside, I don’t think there’s anywhere
near enough of that, I think there’s too much responsibility left to junior staff to
just sort of keep things tidy and then decisions are meant to be made at the eleven
o’clock round and invariably they don’t because handover is incomplete…
principally consultants at bedside ward rounds I think would be very useful”
(R21).
Before-introduction: Themes expressed by nurses

Table 4.8 provides a summary of the themes expressed by CCRNs in the before-introduction assessment of the PMPP document. Of the overall thirty-three CCRN respondents, twenty-nine (88%) answered the first question concerning their thoughts of the current process of handover of patient clinic information in the ICU.
Table 4.8 Themes identified in the before-introduction assessment for CCRNs (N= 33)

<table>
<thead>
<tr>
<th>Question and corresponding themes</th>
<th>CCRN n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>What do you think of the current process for handover of patient clinical information in intensive care?</td>
<td>Respondent n= 29 (87.8%)</td>
<td></td>
</tr>
<tr>
<td>Overall response:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive emphasis on current handover</td>
<td>21</td>
<td>72.4</td>
</tr>
<tr>
<td>Negative emphasis on current handover</td>
<td>8</td>
<td>27.6</td>
</tr>
<tr>
<td>Factors relevant to handover process:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Omission of detail / inaccurate information</td>
<td>7</td>
<td>24.1</td>
</tr>
<tr>
<td>Dependent on nurse</td>
<td>10</td>
<td>34.5</td>
</tr>
<tr>
<td>Issues of time</td>
<td>4</td>
<td>13.8</td>
</tr>
<tr>
<td>Do you perceive a need for changes in the current process for handover of patient clinical information?</td>
<td>Respondent n= 32 (96.9%)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>9</td>
<td>28.1</td>
</tr>
<tr>
<td>Maybe</td>
<td>15</td>
<td>46.9</td>
</tr>
<tr>
<td>No</td>
<td>8</td>
<td>25.0</td>
</tr>
<tr>
<td>If yes/maybe, what kind of changes?</td>
<td>Respondent n= 24 (72.7%)</td>
<td></td>
</tr>
<tr>
<td>(a) Qualification/position of nurse involved in handover</td>
<td>6</td>
<td>25.0</td>
</tr>
<tr>
<td>(b) Nurse access to other discipline information</td>
<td>9</td>
<td>37.5</td>
</tr>
<tr>
<td>(c) Need for more structure, process and/or guidelines</td>
<td>8</td>
<td>33.3</td>
</tr>
<tr>
<td>(d) Other (Additional paperwork not required)</td>
<td>1</td>
<td>4.2</td>
</tr>
<tr>
<td>Why are the changes needed?</td>
<td>Respondent n= 21 (63.6%)</td>
<td></td>
</tr>
<tr>
<td>(a) Improve communication &amp; increase understanding</td>
<td>6</td>
<td>28.6</td>
</tr>
<tr>
<td>(b) Increase understanding of other discipline information</td>
<td>8</td>
<td>38.1</td>
</tr>
<tr>
<td>(c) Improve consistent handover and quality of care</td>
<td>7</td>
<td>33.3</td>
</tr>
<tr>
<td>What outcomes they may produce?</td>
<td>Respondent n= 19 (57.6%)</td>
<td></td>
</tr>
<tr>
<td>(a) Improve patient outcome and increase understanding</td>
<td>4</td>
<td>21.0</td>
</tr>
<tr>
<td>(b) Enhance quality of patient care</td>
<td>8</td>
<td>42.1</td>
</tr>
<tr>
<td>(c) Improve consistent handover and quality of care</td>
<td>7</td>
<td>36.8</td>
</tr>
</tbody>
</table>

Note: Percentage values may not add up to 100 per cent not all responses fall under one exclusive theme, however all numbers add up to totals
4.3.4 Overall before-introduction response

4.3.4.1 Positive emphasis on current handover

As can be seen in Table 4.8, the majority of nurses reported a positive perception (72%) of the then current process of handover before the introduction of the PMPP document. Nurses comments included: “Very happy with it” (CCRN1); several respondents indicated that handover was “Adequate” (CCRN3; CCRN42; and CCRN52); and another CCRN respondent noted, “Overall I think it works well” (CCRN15).

4.3.4.2 Negative emphasis on current handover

Unlike the comments from registrars, only 28% of CCRN respondents reflected an overall negative response to the handover process: “Hit and miss. Variable and inconsistent. Incomplete and laborious. Imprecise and irrelevant.” (CCRN4); and another respondent noted, “Relatively poor given the high acuity of our patients conditions. Verbal handover is subject to differing interpretations, written notes are poorly written” (CCRN27).

4.3.5 Factors relevant to the handover process

4.3.5.1 Omission of detail and or incorrect detail

As indicated in Table 4.8, some respondents further identified/highlighted specific problems with the handover process. One of the three main problems included the omission of detail or incorrect detail (24%), “Team leaders change constantly, information not handed over (e.g. social work involvement; follow ups with ward doctors)” (CCRN18); and another respondent noted, “Nursing handover of acute phase fairly comprehensive, sometimes, however, lacking in past medical history” (CCRN22).

4.3.5.2 Nurse-dependent handover

Other CCRN respondents perceived the process of handover to be nurse dependent (35%), “Some nursing handovers are excellent, some are not, depends on circumstances and time availability and the nurse doing handover” (CCRN6); and a further respondent indicated, “A little subject to personal differences but generally accurate and comprehensive as most people follow the ICU chart
4.3.5.3 Issue of time

Finally, 14% of CCRN respondents highlighted the issue of time as a problem in the handover process within the ICU, “With such a busy unit and lack of staff, rarely does TL [team leader] have time to read any notes of patients therefore not having much of an idea of patients ICU stay and investigations/results, etcetera. Lately large lack of continuity of care.” (CCRN14).

4.3.6 Perceived need for change

Of the overall thirty-three CCRN respondents, 32 (97%) completed the second question, indicating their perception of need for changes in the current process for handover of patient clinical information. However, only 28% (n= 9) of nurse respondents perceived a definite need for change, and a further 47% (n= 15) indicated that there might be some need for change (reporting ‘maybe’). Eight (25%) respondents did not perceive a need for changes to the current process of handover. Further questions following this requested the respondent to indicate what kind of changes? (n= 24; 73%); why the changes were needed? (n= 21; 64%); and finally what outcomes they may produce? (n= 19; 58%). Below are the results for these questions with examples to illustrate each.

4.3.7 Changes needed and potential outcomes

4.3.7.1 Status of nurse involved in handover

Of the 24 respondents (73% of overall 33 respondents) who did perceive a need for change, 6 (25%) made specific reference to the need for changes in (a) the level of qualification and/or position of nurse involved in the handover process: “More input/cooperation between team members / team leaders / case managers” (CCRN10). Those respondents that indicated this as a need for change
highlighted the need to improve communication and increase understanding (n= 6; 29%), “Lack of communication at times” (CCRN10). Finally, slightly fewer respondents further indicated the possible outcome of such a change would be to improve patient outcome and increase understanding (n= 4; 21%): “More accurate information” (CCRN10).

4.3.7.2 Nurse access to other discipline information

Of the 24 respondents who did perceive a need for change, 9 (38%) identified a need for (b) nursing staff to access other discipline (i.e. medical staff) information: “Attend case discussion, medical handover. Greater length of time!! Access to notes, lab and radiological results” (CCRN23). Almost all those respondents that indicated this as a need for change further highlighted the need as necessary to increase understanding of other discipline information (n= 8; 38%): “Improved understanding of patients. Growth and development of nursing service” (CCRN23). Finally, respondents indicated the possible outcome of such a change to enhance quality of care (n= 8; 42%): “Enhance patient care, increase knowledge base, reduce incidents, increase potential for growth and development of nursing staff, and enhance communication with peers medical / nurses” (CCRN23).

4.3.7.3 Increase handover structure, process and or guidelines

The need for more structure and or guidelines for the handover process (c, see Table 4.8) was indicated by 8 (33%) of the 24 respondents: “Expectation for information to be handed over made clear” (CCRN20). Almost all those respondents that indicated this as a need for change further highlighted the need to improve consistent handover and quality of care (n= 7; 33%): “A little too much variation between people, and junior staff initially seem to be confused as to what should and shouldn’t be handed over” (CCRN20). Finally, respondents identified the possible outcomes as the same; that is, to improve consistent handover and quality of care (7; 37%): “Consistency, accuracy, completeness” (CCRN20).

4.3.7.4 Other comments

One respondent indicated a separate issue ((d) Other) for change without further clarification of why it was needed or the possible outcome of the change:
“We have too much documentation at the moment. More paperwork is not needed, especially if it increases the workload of the bedside nurse or team leader” (CCRN6).

Increased understanding of other discipline information (e.g. ICU medical staff) (n= 8; 38%) and improving consistent handover and quality of patient care (n= 7; 33%) were also considered important reasons, offering further explanation for the perceived need for change in handover. In particular, nurses reported potential benefits of change in handover including enhanced quality of patient care (n= 8; 42%) and improved consistency of handover and quality of care (n= 7; 37%).

After-introduction: Themes expressed by consultants, registrars and nurses

Themes identified in the after-introduction of the PMPP document responses from consultant and registrar staff are shown in Table 4.9.
<table>
<thead>
<tr>
<th>Question and corresponding themes</th>
<th>Consultant</th>
<th>Registrar</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>What did you think of the education / introduction sessions for the Patient Management Plan and Progress document?</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Satisfactory / positive</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>What do you think of the new document (PMPP) for handing over patient clinical information?</td>
<td>Respondent</td>
<td>n= 8 (100%)</td>
</tr>
<tr>
<td>The concept is good, but…</td>
<td>2</td>
<td>25.0</td>
</tr>
<tr>
<td>Inaccurate information, document incomplete and underutilized</td>
<td>3</td>
<td>37.5</td>
</tr>
<tr>
<td>Double documentation / separate from case notes</td>
<td>3</td>
<td>37.5</td>
</tr>
<tr>
<td>Cumbersome size and time</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Document not accessible</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Impact of registrar roster and shift times</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Case notes and verbal handover preferred</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Positive, extremely valuable</td>
<td>1</td>
<td>12.5</td>
</tr>
<tr>
<td>Do you consider that the process of ICU handover has been improved?</td>
<td>Respondent</td>
<td>n= 8 (100%)</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
<td>12.5</td>
</tr>
<tr>
<td>Maybe</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No</td>
<td>7</td>
<td>87.5</td>
</tr>
<tr>
<td>Please comment on those aspects that have improved</td>
<td>Respondent</td>
<td>n= 8 (100%)</td>
</tr>
<tr>
<td>Handover remains unchanged</td>
<td>6</td>
<td>75.0</td>
</tr>
<tr>
<td>Improved result reporting</td>
<td>2</td>
<td>25.0</td>
</tr>
<tr>
<td>Document as a guide for verbal handover</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Please comment on those aspects that have not improved</td>
<td>Respondent</td>
<td>n= 2 (25%)</td>
</tr>
<tr>
<td>Inaccurate information, documentation incomplete and document underutilized</td>
<td>1</td>
<td>12.5</td>
</tr>
<tr>
<td>Cumbersome size and takes too much time</td>
<td>1</td>
<td>12.5</td>
</tr>
<tr>
<td>Document not accessible</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Double documentation</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Case notes and verbal handover still preferred</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>-------</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Please comment on what you consider to be the most important change(s) resulting from the new document</td>
<td>Respondent n= 8 (100%)</td>
<td>Respondent n= 8 (44.4%)</td>
</tr>
<tr>
<td>Reporting of results</td>
<td>1</td>
<td>12.5</td>
</tr>
<tr>
<td>Negative impact / outcome overall</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Remains unchanged</td>
<td>7</td>
<td>87.5</td>
</tr>
</tbody>
</table>

| How do you perceive the current interdisciplinary communication within the intensive care unit? | Respondent n= 8 (100%) | Respondent n= 17 (94.5%) |
| Positive / satisfactory | 5  | 62.5 | 14 | 82.4 |
| Variable | 1  | 12.5 | 3  | 17.6 |
| Negative / unsatisfactory | 2  | 25.0 | 0  | 0  |

| Has the introduction of the new document changed interdisciplinary communication? | Respondent n= 7 (87.5%) | Respondent n= 8 (44.4%) |
| No | 7  | 100 | 8  | 100 |
| Why not? | | | |
| Cumbersome time and size | 0  | 0  | 2  | 25.0 |
| Document is underutilized and incomplete | 2  | 28.6 | 3  | 37.5 |
| Other | 0  | 0  | 1  | 12.5 |

| Do you have any suggestions for improving the process of handover within the unit? | Respondent n= 8 (100%) | Respondent n= 17 (94.4%) |
| Electronic Clinical Information System (CIS) | 3  | 37.5 | 4  | 23.5 |
| Return to previous handover process (case notes Preferred) | 3  | 37.5 | 5  | 29.4 |
| Revise and reintroduce the document (PMPP) | 0  | 0  | 3  | 17.6 |
| Improve staff roster / shift times | 5  | 62.5 | 1  | 5.9 |
| Unit culture change required | 2  | 25.0 | 0  | 0  |
| Reduce the size of the unit | 1  | 12.5 | 0  | 0  |
| Other | 0  | 0  | 4  | 23.5 |

Note: Percentage values may not add up to 100 per cent not all responses fall under one exclusive theme; N/A= Not Applicable as consultants did not attend education sessions.
Table 4.10 shows the themes identified in the after-introduction of the PMPP document responses from CCRNs.

### Table 4.10 Themes identified in the after-introduction responses to the open-ended questions for CCRNs (N= 25)

<table>
<thead>
<tr>
<th>Questions and corresponding themes</th>
<th>CCRNs</th>
</tr>
</thead>
<tbody>
<tr>
<td>What did you think of the education / introduction sessions for the Patient Management Plan and Progress document?</td>
<td>N= 23 (92.0%)</td>
</tr>
<tr>
<td>Satisfactory / Positive</td>
<td>11</td>
</tr>
<tr>
<td>Unsatisfactory introduction</td>
<td>3</td>
</tr>
<tr>
<td>Incomplete dissemination of information / introduction</td>
<td>9</td>
</tr>
<tr>
<td>What do you think of the new document (PMPP) for handing over patient clinical information?</td>
<td>N= 23 (92.0%)</td>
</tr>
<tr>
<td>Inaccurate information, document incomplete and underutilized</td>
<td>21</td>
</tr>
<tr>
<td>Document not accessible</td>
<td>8</td>
</tr>
<tr>
<td>Negative impact overall</td>
<td>11</td>
</tr>
<tr>
<td>The concept is good, but…</td>
<td>5</td>
</tr>
<tr>
<td>Do you consider that the process of ICU handover has been improved?</td>
<td>N= 24 (96.0%)</td>
</tr>
<tr>
<td>No</td>
<td>24</td>
</tr>
<tr>
<td>Please comment on those aspects that have not improved</td>
<td>N= 21 (84.0%)</td>
</tr>
<tr>
<td>Inaccurate information, document incomplete and underutilized</td>
<td>11</td>
</tr>
<tr>
<td>Document not accessible</td>
<td>5</td>
</tr>
<tr>
<td>Negative impact overall</td>
<td>6</td>
</tr>
<tr>
<td>Double documentation</td>
<td>2</td>
</tr>
<tr>
<td>Please comment on what you consider to be the most important change(s) resulting from the new document</td>
<td>N= 19 (80.0%)</td>
</tr>
<tr>
<td>Negative impact / outcome overall</td>
<td>7</td>
</tr>
<tr>
<td>Time consuming / double documentation</td>
<td>3</td>
</tr>
<tr>
<td>Remains unchanged</td>
<td>5</td>
</tr>
<tr>
<td>Reporting of results</td>
<td>4</td>
</tr>
</tbody>
</table>
How do you perceive the current interdisciplinary communication within the intensive care unit?  

<table>
<thead>
<tr>
<th>Perception</th>
<th>Respondent n=</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative / unsatisfactory</td>
<td>10</td>
<td>45.5</td>
</tr>
<tr>
<td>Positive / satisfactory</td>
<td>7</td>
<td>31.8</td>
</tr>
<tr>
<td>Variable</td>
<td>5</td>
<td>22.7</td>
</tr>
</tbody>
</table>

(communication dependent on nurse and hierarchy)

Has the introduction of the new document changed interdisciplinary communication?  

<table>
<thead>
<tr>
<th>Change</th>
<th>Respondent n=</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes (Negatively impacted)</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>87.0</td>
</tr>
</tbody>
</table>

Why not?  

<table>
<thead>
<tr>
<th>Reason</th>
<th>Respondent n=</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document is underutilized and incomplete</td>
<td>11</td>
<td>73.3</td>
</tr>
<tr>
<td>Verbal communication is still preferred</td>
<td>4</td>
<td>26.7</td>
</tr>
</tbody>
</table>

Do you have any suggestions for improving the process of handover within the unit?  

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Respondent n=</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team leader involvement at ward rounds</td>
<td>4</td>
<td>20.0</td>
</tr>
<tr>
<td>Central handover document specific for team leaders</td>
<td>8</td>
<td>40.0</td>
</tr>
<tr>
<td>Return to previous handover process</td>
<td>2</td>
<td>10.0</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>30.0</td>
</tr>
</tbody>
</table>

Note: Percentage values may not add up to 100 per cent since not all responses fall under one exclusive theme, however all numbers add up to totals

4.3.8 Education and introduction

As can be seen in Table 4.9, the consultants indicated that they did not attend the education sessions conducted for medical staff. Of the 18 registrar respondents, 7 (39%) indicated that they had attended the education sessions and all (n= 7; 100%) found the sessions to be satisfactory: “The sessions themselves were fine, they described the document in some detail” (R20). However, Table 4.10 also indicates that of the 23 CCRN respondents only 48% (n= 11) indicated that the education and introduction sessions conducted prior to the introduction of the PMPP document were satisfactory and/or adequate, with respondents indicating: “Sufficient. It is a fairly easy to understand form” (CCRN25). A further 13% (n= 3) of respondents perceived the education/introduction sessions to be unsatisfactory: “Poor” (CCRN34), and “Not comprehensive enough” (CCRN69). Unfortunately 39% (n= 9) of CCRN respondents worked night duty
and were therefore unable to attend or were not aware that education sessions were held regarding the PMPP document.

4.3.9 Perceptions of the new PMPP document

All consultant respondents (n= 8; 100%), all registrar respondents (n= 18; 100%), and 92% of CCRN respondents answered the second question concerning their perceptions of the new document for handing over patient clinic information. Many respondents expressed more than one thought in their responses. Due to overlapping responses percentages do not equal 100%. Registrars made more comments regarding their perceptions of the document, with the majority of comments negative.

4.3.9.1 The concept is good but…

Twenty-five percent of consultant respondents, 61% (n=11) of registrar respondents and 22% of CCRN respondents indicated that the concept of improving handover was good, but did not perceive the resultant change to be suitable or beneficial: “It’s confirmed to me that this process is inconsistent with human nature or at least human nature of the doctors working in intensive care and that if we’re going to introduce something like this then we need to be cleverer about it, we need to work out why it doesn’t work, why they don’t take it on, and work out a way that it will work because I think the concept is good. The notes [documentation] are terrible and the concept of a useful handover document is a good one. We need to work out how we’re going to make it work rather than just trying to inflict it upon people because it appears there’s no motivation to make it work” (C7).

4.3.9.2 Inaccurate information, document incomplete and underutilized

A further 38% of consultant respondents, 56% of registrar respondents and the majority of CCRN respondents (91%) indicated that the document included inaccurate information, and that it was incomplete and underutilized: “It is not completely filled in because of both the time that is required to do it but also the availability of the document… because it’s not completely filled in I don’t trust it so I wouldn’t use it as a handover tool, I’d look in the notes where I’ve always
looked” (R20); and CCRN respondents, “It’s ok, but most people, nursing staff that is, do not use it. We make notes on our own paper, carry it with us during the shift, add to it and then handover from it” (CCRN34).

4.3.9.3 Document not accessible
A total of 17% registrar respondents and a further 35% of CCRN respondents indicated that the document was not always accessible when required for times of handover: “It gets filed away where generally you don’t have access to it, so it’s actually a bit of a noose around the necks of the registrars and RMO’s looking after the patient” (R21). No consultant respondent indicated this response.

4.3.9.4 Double documentation
Furthermore, 38% of consultant respondents and 44% of registrar respondents stated that the document created an issue of double documentation for staff that was separate from the case notes (i.e. patients’ medical record): “Not an improvement on old system, just increased workload, double/triple recording” (R23), and “It’s a duplication of a whole lot of other information that has to be physically hand written by the staff involved in the care of the patient” (R21).

4.3.9.5 Positive and valuable
A single consultant thought the document was positive and extremely valuable (n= 1; 13%) “To come back after time away and have to pick up thirty four patients or twenty four intensive care patients and twelve at any one hit, I found the document extremely valuable” (C5). No registrar or CCRN respondent indicated this in their response.

4.3.9.6 Cumbersome size and time
Overall, 33% of registrar respondents thought the document was cumbersome, both in size and the time required to complete it: “I think it needs to be this [PMPP document] or the case notes because I’ve found myself anyway that it’s just too cumbersome” (R30).
4.3.9.7 Impact of roster and shift times

A further 17% of registrar respondents expressed the impact of the current roster system for registrar staffing and shift times as an issue in the use of the document for handover: “The aspect of improvement does not lie in this [PMPP document] actually it perhaps lies in the way we roster people to work” (R18). No consultant or CCRN respondents indicated this in their response.

4.3.9.8 Case notes preferred

Thirty-three percent of registrar respondents expressed a preference for verbal handover and written summary in the case notes (i.e. medical record):

“Most of the time it was like a lot of what we found out about the patient was from the case notes as well as the investigations that we looked up on the computer or radiological reports or by verbally speaking to the other registrars involved in the patient care” (R24).

4.3.9.9 Overall negative impact

Almost half the CCRN respondents (48%) simply indicated that the document had an overall negative impact: “Far too busy, another bloody form to fill in, in the plethora of useless documentation” (CCRN90), and “Completely unsatisfactory, none filled out, since introduction we have had no ongoing information sheets and nurses have resorted to handwriting everything about each patient each shift on paper [and] put in pocket” (CCRN10).

4.3.10 Perceived improvement of ICU handover

Overall, the majority of respondents did not consider the process of ICU handover had improved. Seven of the eight (88%) consultants did not consider that the process of ICU handover had improved, indicating that the process had remained unchanged. Eight (44%) of the overall registrar respondents had been working within the ICU prior to the introduction of the new PMPP document. Two (25%) registrar respondents indicated that ‘maybe’ the process of ICU handover had improved, whereas the majority of registrars (n= 6; 75%) did not consider that the process of ICU handover had improved and had remained unchanged. Of the 25 CCRN respondents, 24 (96%) indicated a response to
question three, and all (n= 24; 100%) did not consider that the process of ICU handover had improved.

4.3.11 Aspects improved by PMPP document

When asked to comment on any aspects that had improved, again the majority of consultant respondents (75%) and registrar respondents (75%) further emphasized that they perceived no improvement and considered that handover remained unchanged. Two (25%) consultant respondents and one (13%) registrar respondent highlighted that aspects of patient result reporting (e.g. microbiology, radiological investigations; surgical investigations) had improved: “I think the radiology, I think the microbiology bit is fantastic, and the surgical interventions fantastic. After that it ceases to be terribly relevant to me” (C6). Another registrar (n= 1; 13%) suggested the document may be used as a guide for verbal handover: “Well maybe the change has been made by these sheets [PMPP document], I don’t know, maybe the registrars are getting a clearer idea of how to present a patient to other registrars who are taking over the cases” (R24). No CCRN respondents indicated that aspects of the handover process had improved.

4.3.12 Aspects not improved by PMPP document

Two (25%) of the consultant respondents, 7 (39%) of registrar respondents (see Table 4.9), and 21 (84%) CCRN respondents (see Table 4.10) commented on those aspects of handover that had not improved. Five (71%) of the overall 7 registrar respondents and 3 CCRN respondents indicated more than one aspect that had not improved. Respondents indicated similar responses to those stated earlier regarding perceptions of the overall document (i.e. similar to responses to Question 2).

4.3.12.1 Inaccurate information, document incomplete and underutilized

A total of 13% of consultant respondents, and over half of the registrar (71%) and CCRN (52%) respondents referred to the issue of the document being incomplete, with inaccurate information, and largely underutilized: “[The PMPP
document has] increased the amount of paperwork that is not filled in or utilized properly” (CCRN25).

4.3.12.2 Document not accessible

A further 14% of registrar respondents and 24% of CCRN respondents indicated that the document was not accessible when required for times of handover: “Quite frequently they’re [PMPP document] off being sorted or photocopied… so it’s not accessible, so you’d go to write in them even when you would want to and it’s not there” (R20), and “Concept a bit difficult as nurses at bedside care need to have handover chart [PMPP document] at the same time as team leaders.” (CCRN27).

4.3.12.3 Double documentation

A total of 43% of registrar respondents and 10% of CCRN respondents perceived that the document had increased their workload due to double documentation of patient clinical information: “Increase in workload, duplication of reporting biochemistry and patient management handover” (R23), and “They [PMPP document] don’t replace the case notes and the problem is that most of this [PMPP document] is duplicating case notes again and therefore it’s either creating more work or is meaning that things aren’t getting documented in the case notes where other [home] teams are looking” (R20). No consultant respondent commented on this aspect.

4.3.12.4 Cumbersome and time consuming

Both consultant (13%) and registrar (29%) respondents perceived the document to be cumbersome and time consuming to complete: “The registrars just have too much to do, too busy, the unit is too big and there’s too much work to do” (C6), and “It takes so much time to do more paper work that the patient care itself, the time for patient care has suffered” (R20).

4.3.12.5 Verbal handover and case notes preferred

Furthermore, the majority of registrar respondents (n= 5; 71%) highlighted again that they preferred a verbal handover with a written summary in the case notes (i.e. medical records): “Maybe if you bring this [PMPP document] up as a
part of the case notes rather than someone writing in two different sheets and leaving out a bit here and a bit there, it might be a better rounded thing” (R24). No consultant or CCRN respondents commented on this.

4.3.12.6 Overall negative impact

A total of 29% CCRN respondents indicated that the PMPP document had a negative impact overall: “Not correct information, too lengthy, too medically orientated” (CCRN46).

4.3.12.7 Other

Finally, 29% of registrar respondents commented on ‘other’ issues not improved by the PMPP document, whereas no consultant or CCRN respondents commented on this: “That’s another problem with the document, that it’s a multidisciplinary document, nobody has the responsibility for it, so if I write a note [in the case notes] under my heading of my title, my job title and dated it and documented it, then what I write there is my responsibility… whereas in this document [PMPP document] I don’t have any ultimate responsibility, neither day to day nor week to week” (R20).

4.3.13 Most important change resulting from the PMPP document

When asked to consider the most important change(s) resulting from the new document, all consultants, 44% of registrars and 80% of CCRN respondents expressed their perception of the most important change (no overlap in themes). Most consultants did not perceive that any important changes had occurred, whereas the registrar and CCRN respondents commented negatively concerning the impact of the PMPP document.

The majority of consultants (88%), 13% of registrars and 26% of CCRN respondents did not indicate any important changes resulting from the new document and perceived that handover remained unchanged: “No, it’s unchanged, that’s my observations, it’s no different from what it was before the forms were brought in” (C1). Only 13% of consultant and 50% of registrar and 21% of CCRN respondents stated an improvement in availability of results (i.e.
microbiology, radiological investigations; surgical investigations): “The most important change is that we have an immediate overview of the microbiology results” (R19). A further 38% of registrar and 37% of CCRN respondents reflected on the overall negative impact of the document: “I think it’s been unnecessarily large and so has not been utilized and therefore has been a waste of what was in theory a good idea” (R20) and “I think it’s just added to the work of the registrars” (R21). Finally, 16% of CCRN respondents considered the new document to be time consuming and requiring double documentation: “Time consuming and double documentation reduces time spent caring for patients” (CCRN43).

4.3.14 Interdisciplinary communication

Staff were also asked to indicate their perceptions of interdisciplinary communication within the ICU (e.g. between medical and nursing staff). Most consultant (63%) and registrar (82%) respondents perceived the current interdisciplinary communication within the ICU to be reasonable and satisfactory (n= 5; 63%): “In general I think it’s done pretty well, mainly verbally between day and night staff between nursing and otherwise, probably less with documentation but more as a verbal handover” (R31), and “I think communication between nursing and medical staff is very good and that’s because it occurs at a personal level” (C1), as compared with only 32% of CCRN respondents: “Current communication is generally excellent, high levels of mutual respect and understanding” (CCRN98).

A total of 25% of consultants and 46% of CCRN respondents perceived the interdisciplinary communication within the ICU to be negative/unsatisfactory: “I think the Royal Adelaide ICU always had major problems with communication and they continue to deteriorate in my view” (C8) and “Woeful. Information filters down from doctors to case managers to team leaders to patient care nurse in an ad-hoc manner and often not at all” (CCRN52).

A further 13% of consultant respondents and 18% of registrar respondents perceived interdisciplinary communication to be variable: “It’s all right, I think
it’s not bad, it’s like all sorts of communication isn’t it, some are better communicators than others. Again it bothers me that our unit is too big, you’ve got a vast number of nursing staff, the skill mix of nursing staff is deteriorating” (C6). A slightly higher percentage (23%) of CCRN respondents also perceived interdisciplinary communication to be variable and dependent on the individual nurse and nurse hierarchy within the unit: “Between doctors and nurses, quite well. Between senior nurses and team leaders, poor” (CCRN58) and “Generally one way. Nurses tend to communicate more with medical officers as opposed to medical officers communicating with nurses” (CCRN65).

Consultant, CCRN and registrar respondents who worked within the unit prior to the introduction of the new PMPP document were asked if the document had impacted upon the interdisciplinary communication within the unit. The majority of consultant (88%) respondents, all registrar respondents and 87% CCRN respondents did not perceive that the new document had impacted upon the interdisciplinary communication within the unit.

The major reasons provided by respondents for this lack of impact included consultant (29%), registrar (38%) and CCRN (73%) respondents indicating the document was underutilized by ICU staff: “Due to the lack of documentation by medical staff on these new forms, communication has continued to worsen” (CCRN69). A further 27% of CCRN respondents still preferred verbal communication with medical staff: “Still converse with medical staff for important patient management” (CCRN46), whereas 25% of registrar respondents stated that the document was too cumbersome for staff to use: “No, because registrars are still using personal notes for handover due to cumbersome nature of new format” (R23). A further explanation was offered by 13% of registrar respondents (‘other’): “There’s been such a big turn over of staff that I couldn’t really say that this [PMPP document] has influenced it one way or the other” (R21).
4.3.15 Suggestions for improvement

Suggestions for improving the process of handover within the ICU were expressed by all consultant respondents and the majority of the registrar (94%) and CCRN (80%) respondents (see Table 4.9 and Table 4.10) (multiple suggestions expressed by 5 of 8 consultant respondents). Overall the majority of suggestions made by CCRN respondents were focused specifically on the role of the nursing team leader within the unit.

4.3.15.1 Electronic clinical information system

A number of consultant (38%) and registrar (24%) respondents suggested introducing an electronic clinical information system (CIS) into the ICU: “The handover would be a more useful thing if it were an electronic document, in that if all case notes were kept on a computer and you then had your notes categorized so that you can have your problem list in one corner and your daily case notes in another corner and investigations in another corner and stuff, and then the computer could just grab the problem list and the results of radiological investigations and the biochemistry and all that stuff and put it together in a single document. If we could get doctors and nurses entering their notes into a computer it’d be fantastic. It has a significant drawback in that a large proportion of the population can’t type.” (C7) and also “The burden of paperwork on this unit is positively twentieth century. We should be looking at systems which electronically update patients’ conditions and results automatically. Any system that increases the already tedious burden of paperwork will not have compliance of middle grade staff unless it can be pre-emptively shown to improve outcome” (R35).

4.3.15.2 Staff roster / shift times need to be improved

A majority of consultant respondents (63%) and a few registrar respondents (6%) suggested improving the current roster system for staffing and the shift times worked by staff: “Given the vagaries of rostering and all the rest and the way the roster is done… you have the I’m here today and there tomorrow and there the next day” (C6).
4.3.15.3 Required change to unit culture

A further 2 (25%) consultants perceived that the ICU required a culture change: “I think problems with communication require a cultural change. The unit has a culture of blame and morale is very poor and it’s a major job requiring input from work psychologists to change to a successful culture or what’s generally called a culture of praise which is completely lacking at the Royal Adelaide [Hospital] at all levels” (C8).

4.3.15.4 Unit size needs to be reduced

Finally, one consultant suggested that the unit size should be reduced.

4.3.15.5 Revise and reintroduce PMPP document

Only 18% of registrar respondents suggested that the document should be reduced in size and trialled in the unit again: “I think this form is a very good idea because at times I’ve had handovers from medical staff which were sub-par and it makes it very difficult to know what’s going on… so I think with time if we persist with this kind of thing [PMPP document] then it could be useful” (R26). No consultant or CCRN respondents made this suggestion.

4.3.15.6 Return to previous handover process or combination

A considerable minority of consultants (38%) and registrars (29%) and some CCRN (10%) respondents indicated a preference for returning to the previous handover process, with a written summary in the case notes (medical records): “The only reliable way of overcoming that [omission of information] is to actually go back to source documentation [case notes] and source information and reacquire information... the barriers to using any form of documentation [PMPP document] as an alternative to that is how much confidence you have in that document” and “Go back to the old system of centralized patient documentation with addition of micro and radiology results page” (CCRN52).

4.3.15.7 Central team leader handover document required

A suggestion made by 40% of CCRN respondents included the need for a central handover document to be introduced specifically for nurse team leaders:
“Re-introduce a central folder or document that the team leader has the ability to update and maintain for nursing handovers” (CCRN69).

4.3.15.8 Team leader involvement at ward round

A further suggestion made by only 20% of CCRN respondents included the need for nurse team leaders to be involved in the ICU medical ward rounds (11 o’clock ward round): “The team leaders need to be at medical ward round, not just the clinical case manager who is five steps behind what is happening at the bedside.” (CCRN09).

4.3.15.9 Other suggestions

A further 24% of registrar and 30% of CCRN respondents made ‘other’ suggestions for improving the handover process within the ICU, such as: “Don’t make oncoming person listen to all of the handovers if not taking care of all patients. Makes you glaze over. Doesn’t give you enough time on your six patients to get proper handover” (R28).

4.3.16 Additional themes identified

In addition to the themes highlighted in the previous table (Table 4.9) relevant to responses to particular questions, other issues were also raised by consultant and registrar respondents, including ‘issues of collective experience’ of previous attempts at improvement, the use of scraps of paper, large size of the unit, interpersonal staff differences, and the simultaneous development of an alternative document for handover.

4.3.16.1 Issue of collective experience

Three consultant respondents (38%) reflected on previous experience and a failed attempt to formalize the documentation of the handover process in the past: “It’s like reinventing the wheel, we’ve done this before and it didn’t work before for the very same reason this wasn’t going to work now, registrars just have too much to do, too busy, the unit is too big and there’s too much work to do” (C6), and “We’ve tried this before several years ago when the result was exactly the same, that didn’t improve things at all and fell into disuse very
rapidly” (C8). Although not indicated by registrar or CCRN respondents, the pattern of consultant responses revealed a level of scepticism towards the PMPP document on the basis of previous experience and failure with a similar document.

4.3.16.2 Scraps of paper

The practice of making handover notes on a scrap of paper for individual use was mentioned by 38% of consultants, 17% of registrars and 4% of CCRN respondents: “The introduction of this form [PMPP document] is a major cultural change in the intensive care unit. We’ve existed for many years with individual junior medical staff making notes on scraps of paper and then throwing them away in the bin when they go off duty, so what we’re talking about is a significant cultural change” (C5), and “they have their own little notes, you know, just bits of paper” (R25).

4.3.16.3 Large unit size

The very large unit size was raised as an additional issue beyond the responses to the questions, in comments by 38% of consultant respondents and only 6% of registrar respondents (R27): “The other way of improving handover is to have a smaller unit, so that there’s less to handover and you actually know your patient better… I think handing over 34 patients is basically impossible, it wouldn’t matter how good your documentation was, you can’t know 34 sick people, so the practical, real solution to it is to not have a 34 bed unit, it isn’t practical” (C7). Most of these comments came from consultant respondents.

4.3.16.4 Interpersonal staff differences

Inter-personal differences amongst some consultant staff were thought to have contributed to the document not being utilized or to have impeded the uptake of the document. This was predominantly an issue expressed by consultants (38%) and only a small percentage of registrar respondents (6%): “Its probably fair to say that interpersonal issues with various staff members didn’t aid the uptake of the document and its utility was limited by a slow uptake… any new shift in practice requires support throughout the unit and I think in this case that might not have been the case partially due to interpersonal reasons…” (C4).
4.3.16.5 Simultaneous development of another handover document

Some consultant (25%) and registrar (11%) respondents stated that an alternative handover document was being developed by registrar staff and trialled within the ICU at the same time that the PMPP document was introduced: “I think it was unfortunate that there was actually a very good handover process in evolution at the same time the [PMPP] document came out, which caused some confusion because that was then overridden by the presence of this document [PMPP]” (C4), and “The registrars had that much interest and commitment that they wanted to actually develop something themselves… They [registrars] were not involved in the process [of PMPP document development]. The hallmark of this unit’s work is that people don’t involve the people at the coalface… they do not, it’s far too hierarchical and bureaucratic, which may be because it’s too big” (C6).
4.4 Discussion

Overview

The introduction of the PMPP document as a quality improvement initiative was not successful in changing the documentation of handover of patient clinical information. Results were unequivocal; overwhelmingly the ICU staff respondents indicated that the PMPP document, introduced as a quality improvement initiative to improve the handover process within the ICU, was underutilised with a lack of acceptance by staff within the ICU. This change initiative not being considered an improvement by staff respondents is consistent with existing literature that states that achievement of successful change outcomes in quality improvement in healthcare is difficult (Grol et al., 2007). The use of the PMPP document for ICU handover was subsequently discontinued and the previous process for handover reinstated. At that time there were no plans for future reviews of the handover process and related documentation.

The following discussion of why the quality improvement initiative was unsuccessful is based largely on the findings of content analysis conducted on the qualitative data collected for this study, as these data reveal more than the quantitative data concerning the staff perceptions of the impact and effect of the document within the unit. A discussion of staff perceptions concerning the process of handover before and after the introduction of the PMPP document will be used to reflect on the outcome of this change process in relation to existing research literature and change management theory.

Validity of the survey instrument

The survey instrument was specifically designed for use in this type of study to measure the satisfaction and confidence scores of respondents concerning specific aspects of the handover process. The survey instrument was found to have good internal consistency.
PMPP document was not successful

Survey results revealed that the desired outcome of the PMPP document, to improve communication and handover of patient clinical information, did not occur. Staff comments in the current study confirmed that the PMPP document was not successful. The majority of consultant and registrar respondents and all CCRN respondents indicated that the document did not improve the process of ICU handover and transfer of patient clinical information. Furthermore, the majority of consultant and registrar respondents and CCRN respondents commented that handover remained unchanged, with the exception of the reporting of patient test results as possibly being improved. Intensive care consultants’ mean satisfaction scores significantly decreased following the implementation of the PMPP document. Their mean confidence scores remained unchanged. The satisfaction and confidence levels of registrar and CCRN respondents were not significantly impacted by the introduction of the PMPP document.

Although education sessions were provided for staff prior to the introduction of the document, definite barriers/resistance to change in the handover process remained apparent, such as the ‘issue of collective experience’ of staff concerning previous unsuccessful change attempts, an example of resistance to change with previous improvement failures impacting on staff perceptions of the current change initiative (Johnson & Scholes, 2002). The overall idea or concept of improving handover was perceived by some respondents as good, ‘concept of improving handover was good, but…’, the ‘but….’ and subsequent reasons given suggest that the particular quality improvement initiative chosen did not meet the satisfaction of the respondents nor did it achieve its purpose of improving the process of handover.

In the before-introduction survey, consultant and registrar respondents indicated that verbal handover was person dependent, with omissions of detail and inaccurate information, yet the results from the after-introduction survey indicated that the same issues of inaccurate information continued to exist with the document remaining incomplete and underutilized. Consultant and registrar
respondents highlighted the issue of time as a contributing factor to the quality of the handover process before the introduction of the PMPP document, with the large size of the unit said to be affecting their ability to adequately handover patient clinical information. According to a third of registrar respondents, this issue was not resolved by the introduction of the PMPP document. Consultant and registrar respondents both perceived the change to involve double documentation of patient clinical information, separate from the patients’ medical records. The consultant and registrar respondents also perceived the document as far too cumbersome, lengthy and time consuming to complete. Staff resistance may have been lessened or been overcome if they perceived the change to be reducing rather than increasing their current workload (Watson, 1966). Registrars in particular preferred medical documentation in the patient’s medical records and verbal handover to that of the PMPP document and expressed broader areas of dissatisfaction than the ICU consultants, perhaps as they are more likely to be involved in the documentation of patient clinical information throughout shift time and therefore had greater exposure to the PMPP document.

Almost a third of CCRN respondents and consultant and registrar respondents perceived the handover process within the ICU as person-dependent. This notion is consistent with the research literature, where the two-way process of handover involving one person providing the handover and another receiving the information is said to be quite person-dependent (BMA, 2004). Similarly, Pronovost et al. (2003) reported in their study that prior to the implementation of a daily goals form, the ICU handover was stated as being ‘provider-centric’, with staff often lacking clarity about tasks needing to be accomplished, the plan of care for patients for the day, and the plan for communications with patient and/or patient’s family and other healthcare staff associated with the patient (Pronovost et al., 2003).

Although the CCRN respondents also perceived a need for more structure, process and guidelines for handover before the introduction of the PMPP document, the results of the after-introduction survey indicated issues of inaccurate information, with the document remaining incomplete and under-utilized (comments reflecting the document being underutilized were by both
medical and nursing staff). Thus, the desired outcome of the change to improve handover by ensuring consistency of transfer of information and minimising omissions did not occur. The qualifications and positions of the nurses involved in handover were raised as an issue in the before-introduction survey but this was not addressed by the study. Prior consultation with staff in the design and implementation of the change initiative may have assisted in addressing the needs and concerns of key stakeholders who would be most affected (Burgers, Grol, & Eccles, 2005; Kirkpatrick, 1987; Ramanujam et al., 2005). Further suggestions made by CCRN respondents in the after-introduction survey included having team leaders in ward rounds with the medical staff and a specific and separate document for team leaders (i.e. not interdisciplinary). In addition, the reported need for access to other discipline (i.e. medical) information does not appear to have been fulfilled by the PMPP document, as few nurses reported a change in interdisciplinary communication as a result of the new document, again largely due to the document remaining under-utilized and incomplete.

**Reasons why the PMPP document was not successful**

The failure of this quality improvement initiative to achieve the desired outcome did not appear to be due to a lack of staff understanding. Consultants and nurses with greater years of experience in the ICU specialty were clear about the potential utility of the new PMPP document, but did not perceive it to be useful. The registrars had the lowest mean satisfaction and confidence scores for both the before- and after-introduction, with fewer years of experience in the specialty of ICU, yet no significant interaction effect was found.

The results of the current study suggest that the ICU may have benefited from a more thorough investigation of medical and nursing staff perceptions concerning the existing handover process, and in particular their suggestions for change, before the planning and development of the PMPP document. The study process revealed the simultaneous development of an alternative, perhaps relevant, document by registrars. Seeking staff perceptions to inform the planning and development stage may have revealed that registrar staff had developed and begun using their own alternative document for handover, which would have
provided an opportunity to incorporate these ideas. Instead, the development of the new document was based on best practice reflected in the literature in similar kinds of units and only a senior consultant and a small number of senior nursing staff were involved in the planning and development. Change management literature and the TQM/CQI approach to change highlights the importance of ownership in the implementation of change. This involves consultation, empowerment and change driven by the specific needs of key stakeholders involved in the process of handover who will be directly impacted by the document (Burgers et al., 2005; Grol et al., 2007; Kirkpatrick, 1987; Plsek et al., 2004; Ramanujam et al., 2005).

**The issue of collective experience and organisational culture as a factor in change**

An understanding of the cultural dynamics of a unit and the presence of professional subcultures is important in implementing quality improvement initiatives (Bloor, 1999). The perspective of several consultants revealed scepticism toward the PMPP document as a quality improvement initiative due to previous experience and a failed attempt to formalize the documentation of handover in the past. This is consistent with previous literature and theory, highlighting the importance of the taken-for-granted assumptions and routines within the organisational culture, that are shaped by an organisation’s ‘collective experience’ of past success and failure (Johnson & Scholes, 2002).

A further example of the taken-for-granted assumptions and culture within the unit can be seen in the preference for, and current practice of, individual staff members making notes on scraps of paper to be used as an aide memoire during their shift time. Respondents noted this as an aspect of culture difficult to change. Moreover organisational politics and interpersonal issues between medical staff were indicated as one reason for the lack of support and utility of the PMPP document, consistent with previous literature that emphasizes politics and change as inextricably linked (Buchanan & Badham, 1999), with the extent of change strongly influenced by power struggles within the organisation or unit (Robbins, 2003).
While research has shown that quality improvement initiatives aimed at improving handover can be successful, widely accepted and utilised (Cheah et al., 2005; Kennedy, 1999; Pronovost et al., 2003), the findings from the current study are consistent with existing literature on change that state that the achievement of successful change outcomes in quality improvement in healthcare is difficult (Grol et al., 2007). It is also possible that such difficulties are more common than the research literature would suggest, since negative or failed efforts and examples of quality improvement initiatives tend not to be published (Plsek, 1999).

**Respondents’ suggestions for improvement**

Findings reveal that this is a difficult area to effect change, with respondents’ suggestions, both before and after the introduction of the PMPP document, providing a valuable source of information for future quality improvement initiatives that may focus on the ICU handover process. Consultant and registrar respondents suggested the use of an electronic CIS, whereby patient medical records are stored electronically and accessible for print out and use in the handover of patient clinical information. This suggestion takes a more comprehensive look at the issue of patient information, inclusive of the handover process, by looking at the wider systems approach to the issue of patient clinical information use during handover of patient care. To continue the emphasis on the traditional verbal exchange of patient information during handover, with a guided approach through a check list or guidelines, was also suggested by staff. Systemic issues surrounding shift times and the size of the unit were both perceived as important aspects needing change. Furthermore, the overall unit culture and need for culture change was also highlighted by consultant respondents. CCRN respondents suggested the notion of a central handover document specific for CCRN team leaders for improving handover for nurses, with team leader involvement at medical ward rounds for improving the process of handover between nursing and medical staff.
Although a small percentage of registrar respondents suggested revising and reintroducing the PMPP document, the majority of respondents indicated alternative suggestions that reflected negatively overall on the PMPP document.

**Limitations**

As with any action research that occurs within an organisational setting, there are limitations of the current study that need to be considered when interpreting these findings. One of the first issues to consider is that this study involved the assessment of a local change in handover within one ICU in a teaching hospital in South Australia. Involving only one ICU limits the overall available sample population and therefore results in a smaller sample size of respondents, but findings revealed no sign that a large sample size would have resulted in a different conclusion. Delays in the development and implementation of the PMPP document also resulted in differing respondents in the before and after-introduction samples for this study. The small and differing sample size restricts the generalisability of findings. Nevertheless, the overwhelming consensus from staff respondents in this study revealed that the introduction and implementation of the PMPP document was not widely accepted or utilized throughout the ICU.

A further important limitation in reporting the results from this study was that different methods of data collection for medical (structured interviews) and nursing (self-administered surveys) staff were used, due to the data collection process being carried out by a single individual (the principal researcher) who had limitations on the amount of time available. This difference in methods of data collection may have had an impact on response rates for the overall study, and may have allowed for a more informative and lengthier verbal response from medical respondents (who were interviewed) than from the nursing respondents (who provided written comments via a survey form). However, irrespective of the method of data collection, the qualitative data from respondents revealed a consistent account of why the change was not successful, with insights that the quantitative findings did not provide. Future research may benefit from additional
time and access to staff members for the assessment of all ICU staff perceptions through structured interviewing.

As referred to in the procedure section of this chapter, it is clear that the development of the PMPP document was at times ad hoc, with a change occurring in the design and intention of the quality improvement initiative from a medical to both a medical and nursing staff handover. The original intention of the document was specifically for use in medical handover, although the final PMPP document was introduced as an interdisciplinary document for both medical and nursing staff. As this study had commenced before the change to an interdisciplinary focus, questions pertaining to interdisciplinary communication and the impact of the document on this communication between staff could only be introduced in the after-introduction assessment of staff.

Theoretical and practical implications

Firstly, the findings of the current study concerning the unsuccessful change initiative suggest that the ICU would have benefited from involving key stakeholders including the medical and nursing staff that were to be affected by the change, in the planning, development and implementation of the quality improvement initiative, in order to meet the needs of those staff who were to be directly impacted. Employee involvement and empowerment are seen as critical in the process of change (Gaucher & Coffey, 1993). It is apparent from the results of this study that staff did not perceive the PMPP document to be an effective solution, indicating that it was too cumbersome, too time consuming, not accessible, and involving double documentation. The fact that staff provided alternative suggestions for improving handover confirms the potential benefit of understanding staff perceptions and needs prior to planning, development and implementation.

Secondly, results of this unsuccessful change initiative suggest the potential benefits of using change management theory to choose strategies for change, such as education and communication, participation, facilitation, support, and negotiation (Kotter & Schlesinger, 1979). Research evidence suggests that
these strategies would assist in overcoming resistance to change, which is an important factor in healthcare, just as it has been found to be in the business and industry type organisations for which the strategies were originally developed. Furthermore, the use of the “Plan-Do-Study-Act” cycle as a tool to facilitate the process of change should be considered (Berwick & Nolan, 1998; Dawson & Palmer, 1995; Grol, Wensing, Hulscher et al., 2005). The change initiative attempted may have benefited from its initial implementation on a small scale to observe its effectiveness prior to larger scale implementation throughout the wider ICU.

In terms of quality improvement and change within healthcare, the present findings support the existing body of knowledge in that they strongly suggest that the quality improvement initiative may have benefited from wider consultation with both medical and nursing staff prior to the change process. This should have included the need for change, the kinds of changes needed, the method of implementation of these changes and the necessary evaluation following the implementation of change. Change may provide a challenge to established practices, such as the consultants and registrars reported use of scraps of paper as aide memoires to assist in handover, and this may have acted as a barrier to change. In particular, the literature emphasizes a resistance among physicians toward the use of, and compliance with, clinical protocols and standardisation of practice (Grol, 1990; Lawton & Parker, 2002; Tunis et al., 1994; Wachter & Shojania, 2004). The findings of the present study reveal a resistance to standardisation of practice revealing potential practical and policy implications of processes being based on local tradition and preference rather than demonstrated efficacy and reported need for improvement from Australian (AMA, 2006) and international (BMA, 2004) medical organisations.

Although there were no plans for future reviews of the handover process at the end of this evaluation, any future attempts at change within the ICU setting might also benefit from the involvement of external organisational consultants, who could be responsible for ongoing staff consultation and the planning, development, management, implementation and evaluation of any proposed quality improvement initiative. If this was not a feasible option for the ICU with
respect to financial costs, the involvement of a PhD or post-doctoral researcher on organisational behaviour might assist as an ‘active-participant’ in the staff consultation, planning, development, management, implementation and evaluation of any change process.

It is clear from this research that there is still a need to improve patient safety and quality within this healthcare setting. The results of the present study will hopefully act as a basis for continuing research and development within the area of handover, communication and quality improvement in healthcare.

**Future research**

Future research is required to increase our understanding of the handover process within the ICU setting. This could be done through the use of participant observation, surveys or interviews with staff to examine and report on handover processes and shift-to-shift transition of ICU medical and nursing information, prior to the planning, development and implementation of change. Involvement in and evaluation of this by prior consultation with staff would help to ensure that the change process was driven by specific issues relevant to the ICU setting as well as best practice. Future quality improvement initiatives might also benefit from considering issues associated with change affecting different staff within the ICU setting, including both medical and nursing staff. Clear ownership of the change process is required for each of the staff sub-groups to ensure that the intended change occurs successfully, with ongoing management of the human, organisational, managerial and political issues associated with any of these subgroups in any change process.

As has been recommended in previous research (Miller, 1998), future research and quality improvement initiatives concerning ICU handover may also benefit from a regular review of the handover process using both medical and nursing staff. Future attempts at change may need to consider the importance of culture and the preferred practice of consultants and registrars of making notes on scraps of paper to be used as *aide memoires*, as this may be difficult to overcome. This is important as research highlights the need for physician involvement in
quality improvement as essential, although difficult to attain (Botwinick et al., 2006).

The introduction of an electronic CIS for documentation of patient clinical information has been suggested by the respondents in this study and by studies in the research literature (Cheah et al., 2005). However, electronic systems of handover are not without their limitations (Fraenkel, 2003) and a thorough evaluation of the needs of the handover process, including communication within and between disciplines, would still be necessary.

Summary

The results of this study revealed the failure of a quality improvement initiative implemented in an ICU. The findings revealed resistance to, and criticisms of, the introduction of a handover document as a quality improvement initiative within the ICU, such that the use of the document for ICU handover was subsequently discontinued. ICU medical staff resumed their previous handover process, with the traditional verbal handover and notes on scraps of paper. CCRN staff subsequently implemented a separate document specific for their own needs. Although there were no plans for future reviews of the handover process at the completion of this evaluation, the acknowledged need for improvement, the negative evaluation of the change, and its discontinuation all suggest that any future attempts at change within the ICU setting might benefit from the involvement of qualified organisational change consultants who could assist with staff consultation, and the planning, development, implementation and evaluation of any proposed quality improvement initiative. The findings of this study highlight the importance of the application of change management theory and practice to improve quality within healthcare (Ramanujam et al., 2005).
Chapter 5

Withdrawal of Treatment in an Adult Intensive Care Unit: The Impact of an Advance Care Plan Document

5.1 Overview

This chapter reports on the before and after-introduction assessment of the impact of a hospital-wide formalized Advance Care Plan (ACP) document on the documentation of the process of withdrawal of treatment in an adult intensive care unit (ICU). A request was made from the ICU staff to the principal researcher, via contacts between the Royal Adelaide Hospital and the School of Psychology within the University of Adelaide, to assess the impact of the ACP document. This study involved an audit of patient medical records involving the decision to withdraw treatment and interviews with staff concerning the withdrawal process and evaluation of the ACP document. The findings of this study reveal that the document was underutilised within the ICU, with a lack of acceptance by staff. The use of the ACP document for documentation of the withdrawal process has subsequently been discontinued and the previous process for documentation within the patients’ medical records has been reinstated. This chapter focuses on medical record documentation, with and without the use of the ACP document, and seeks to explain why the ACP document was not used. Insights are drawn largely from the empirical qualitative data provided from the interviews with ICU staff and through consideration of organisational change management theory and processes.

Introduction

The objective of the ICU is to save the lives of critically ill patients. Despite the intense treatment (Taylor & Cameron, 2002) not all patients benefit and 15 to 20 percent of patients die. The majority of these deaths follow withdrawal of treatment (Prendergast & Luce, 1997). Patients within the ICU are generally critically ill and rarely sufficiently competent to participate in the decision regarding withdrawal of treatment (RAH, 2003a, 2003b); so that the principle of patient autonomy can not be directly applied to the majority of ICU patients (Carlet et al., 2004). Variability exists between hospital ICUs within and
between different countries regarding the end-of-life care process, with differences in physician attitudes, practice and culture (Miccinesi et al., 2005; Sprung & Eidelman, 1996; Yaguchi et al., 2005). Research focusing on understanding and improving end-of-life care in the ICU is limited (Clarke et al., 2003; Rubenfeld & Curtis, 2001). Furthermore, there is a dearth of literature focussing on the medical record documentation of the end-of-life process and the withdrawal of patient treatment in terms of when and how the process should be recorded (Carlet et al., 2004; Melltorp & Nilstun, 1996). Recent literature has called for a focus on quality improvement initiatives and system changes that focus on improving the quality of end-of-life care in the ICU setting and the development of a standardized form of documentation (Carlet et al., 2004; Curtis, 2005; Keenan et al., 1997; Kirchhoff, Anumandla, Foth, Lues, & Gilbertson-White, 2004; Rubenfeld & Curtis, 2001; Treece et al., 2004). This is intended to act as an aide memoire and a checklist to assist staff in improving documentation of the process.

The importance of withdrawal of treatment and documentation of the process

Withdrawal of treatment definition and description

The process of withdrawal of patient treatment involves the removal of various medical interventions that are no longer desired or do not provide comfort to the patient, with the expectation that the patient may die as a result (RAH, 2003a, 2003b; Rubenfeld & Crawford, 2001). The withdrawal of aspects of patient treatment from, and end-of-life care of, critically ill patients within the ICU setting involves the transition from curative to palliative care.

There are no accepted guidelines in Australia for the withdrawal of aspects of patient treatment (Young & King, 2003). Within the Royal Adelaide Hospital involved in this study, the withdrawal process within the ICU is an intensive care medical consultant responsibility, requiring medical consensus of at least two ICU consultant staff, a parent clinic representative, and acceptance of the decision to withdraw treatment by the patients’ family/carer (RAH, 2003a, 2003b). There is
also an understanding that there be acceptance of the process and plan by staff involved in the treatment of the patient. Documentation of the consensus for the decision and a description of the process is also required (RAH, 2003a).

Recommendations with respect to the development of local policy on end-of-life care decision-making, including minimum standards for documentation of a decision to withhold or withdraw treatment, have been made in the literature (ANZICS, 2003; NSW Health, 2005). The Australian and New Zealand Intensive Care Society (ANZICS) statement indicates that the ethical principles informing medical practice, including respect for human life and dignity, patient autonomy, justice, beneficence and non-maleficence, may be in conflict in particular circumstances, and should be weighted against the burden of pain, suffering and the compromise of patient dignity (ANZICS, 2003). The competent adult patient may consent to the withholding or withdrawing of treatment (ANZICS, 2003). Any decision to withhold or withdraw patient treatment firstly requires the consensus of the intensive care team and the primary medical or surgical team (i.e. “parent clinic” representative), followed by consensus from the competent patient or patient’s legal representative and/or family (ANZICS, 2003). In the case of persistent disagreement between the healthcare team and the patient’s family, the ANZICS (2003) statement indicates that the involvement of other non-health professionals, clinical ethics committee or legal processes may be considered.

The NSW Department of Health (2005) guidelines for end-of-life decision making emphasise the importance of communication and encourage compassionate and appropriate treatment decisions. The guidelines indicate that documentation pertaining to end-of-life care should include: the medical facts regarding the patient’s condition and prognosis; individuals involved in the discussion and consensus; the patient’s wishes (if known); goals of treatment; patient management plan including treatments to be withheld or withdrawn and specific details of palliative/comfort care (NSW Health, 2005).
Advance Care Planning (ACP)

With an ageing population and an increase in medical knowledge and technological advances, physicians are capable of substantially extending the lives of some patients (Taylor & Cameron, 2002; Vinen, 2002). With the emphasis now placed on patient autonomy, there is an increased focus on the role of advance care planning (ACP). ACP offers respect for patient autonomy and an opportunity for a prospective documentation of an individual’s wishes and information pertaining to treatment limitation at the end-of-life in order to improve patient care (Lee, Heland, Romios, Naksook, & Silverster, 2003; Taylor & Cameron, 2002; Tulsky, 2005). Although the majority of ICU patients are not sufficiently competent to participate in decisions regarding their care (Prendergast & Luce, 1997), the improvement of communication with patients and documentation of end-of-life care, such as withdrawal or withholding of treatment, may provide ICU medical and nursing staff with an understanding of the patient’s previously expressed wishes. ACP’s are intended to standardise the documentation of decisions, discussions and consensus for withdrawal of treatment. The patient’s preference for life-sustaining treatments may change over the time of their illness and with changing circumstances (Carlet et al., 2004).

Factors and critical problems affecting the documentation of the withdrawal process

Documentation in the patient medical records is required for the assessment and evaluation of patient care, for quality improvement, and for research purposes (Kirchhoff et al., 2004), and can provide a reference for any future concerns that may arise (Carlet et al., 2004). In particular, the literature highlights the importance of clear and comprehensive documentation of the withdrawal process to provide greater transparency and accountability (NSW Health, 2005). The decision needs to be, and should be seen to be, open, transparent and justifiable (Butler et al., 2003). More specifically, documentation in the medical record of the decision-making process, the rationale for the decision and the identification of all those involved in the consensus process is important (ANZICS, 2003; Ferrand, Robert, Ingrand, & Lemaire, 2001; Holzapfel, Demingeon, Piralla, Biot, & Nallet, 2002; NSW Health, 2005). The
Literature also indicates the need for clear documentation of the discussion(s) with the patient and/or the patients’ family concerning the decision to withdraw treatment and the time and date of discussion these, with thorough documentation of family consensus (Carlet et al., 2004; NSW Health, 2005; Oh, 2003; Truog & Burns, 2002). Regarding the importance of documentation of the decision and discussion(s) with the patients’ family, researchers have indicated that although it is important to document family consensus for the decision, there is little to be gained from requesting the patient’s family to sign a document consenting to the withdrawal or withholding of life support (Holzapfel et al., 2002; Truog & Burns, 2002). Also, thorough documentation of the patient management plan is considered important, specifying treatments to be withdrawn or withheld and the provision of comfort care (ANZICS, 2003; Ferrand et al., 2001; NSW Health, 2005). It is clear from the literature that a well documented, comprehensive account of the withdrawal of patient treatment process is imperative.

An increase in shift pattern rosters within the healthcare setting results in many staff caring for a single patient (BMA, 2004); therefore, effective communication is essential. Since all staff responsible for a patient’s treatment must be aware of the decisions, consensus and an agreed management plan, clear and comprehensive documentation are vital, particularly when nursing or medical staff not involved with the decision or with the discussion process involved in implementing the care plan (NSW Health, 2005; Rubenfeld & Crawford, 2001).

**Evidence of poor documentation**

Although the literature emphasizes the importance of documentation of the withdrawal of treatment process, research has indicated that poor documentation is common (Ferrand et al., 2001; Kirchhoff et al., 2004). End-of-life care, including decisions, goals, processes and discussions with the family, is often poorly documented (Ferrand et al., 2001). Poor documentation in patient medical records is a correctable weakness that exposes medical staff to complaints and litigation (Panting, Lazarus, & Stearn, 2001). A Swedish study looked at the documentation of decisions to forego life-sustaining treatment in an ICU (Melltorp & Nilstun, 1996). Of the 600 medical records audited in the study, 34
(6%) included documentation of the decision to forego life-sustaining treatments (Melltorp & Nilstun, 1996). Poor prognosis was the main reason for the foregoing of life-sustaining treatment. However, the specific treatment(s) were often only vaguely described and the content of documentation was at times insufficient or “rather scanty”, with only half of the medical records documenting that the patient’s family had been informed of the decision (Melltorp & Nilstun, 1996).

A content analysis of end-of-life care forms, guidelines and other related materials (e.g. protocols, pathways) was carried out in 15 adult ICU’s in the US and Canada. Only two ICU’s had policies describing standards for physician communication with patients and families, and no specific end-of-life interdisciplinary policies were found that addressed patient and family centred decision-making, communication, continuity of care, or emotional, practical and spiritual support (Clarke et al., 2004). The identified shortcomings of such material indicate a need for improved documentation of end-of-life care, with provision of practice guidelines directing staff behaviours in improving the quality of practice for end-of-life care (Clarke et al., 2004).

In their study of documentation of withdrawal of life support in an adult ICU, Kirchhoff et al. (2004) found that end-of-life care documentation was lacking. In their audit of 50 medical records involving the withdrawal of life support, 30% (n= 15) included no documentation of the participation of care providers (ICU physician or nurse) in the withdrawal of life support (Kirchhoff et al., 2004). The study recommended the development of customised forms for documentation of end-of-life care to assist staff to improve documentation and provision of care (Kirchhoff et al., 2004).

A review of 138 medical records of patients who died following the withholding or withdrawal of life support revealed a substantial variability in physicians’ involvement, with physicians documented to be involved in 77% of discussions with patient or patients’ families regarding the withdrawal of life support. This suggested that physicians may not consider the documentation of these discussions to be necessary (Hall & Rocker, 2000). The involvement of a registered nurse in the family discussions was documented in only 43% of medical
records, and the involvement of an ICU resident in only 34% of medical records (Hall & Rocker, 2000).

A Swedish audit of 318 patients’ medical records that had involved a withdrawal of treatment revealed that 78% (n= 247) of cases involved both the ICU and admitting physician as well as a family member (Nolin & Andersson, 2003). However, a mutual decision between both the ICU and admitting physicians was found in only 48 (15%) cases, and discussions involving the patient, family, ICU physician and admitting physician in only 21 cases (7%) (Nolin & Andersson, 2003). Therapeutic failure and poor prognosis were the most common reasons for the withdrawal of medical treatment (Nolin & Andersson, 2003). Only 6% (n= 18/318) of cases involved patient autonomy.

A retrospective review of 293 ICU patient deaths involving a withdrawal or withholding of treatment revealed that nurses’ involvement in family discussions concerning the decision to withhold or withdraw treatment was documented in only 14-19% of cases. The most common reason for withdrawal of life support was poor prognosis for the patient (Keenan et al., 1997). Of the 211 cases where a withdrawal of life support was documented, discussions with patient or family were not documented in 3 (1.4%) cases and in a further 4 (1.9%) cases the documentation reflected a decision made by the medical staff member without discussion with the patient or the patient’s family (Keenan et al., 1997).

**Importance of and need for interdisciplinary communication**

There is a need for ICU medical and nursing cultures to transcend the “discipline silos” that exist and to work together, focusing on interdisciplinary communication and collaboration to improve ICU end-of-life care (Curtis et al., 2006b). There is a clear need to improve communication and collaboration between ICU medical and nursing staff concerning the planning and delivery of patient care in order to achieve improved patient outcomes and appropriate withdrawal of treatment in the ICU setting (Baggs et al., 1999; Carlet et al., 2004; Curtis & Shannon, 2006a; Ferrand et al., 2003; Melia, 2001; Oberle & Hughes, 2001; Pronovost et al., 2003; Truog & Burns, 2002; Zwarenstein & Reeves,
Carlet et al. (2004) indicate that the exclusion of team members from the process can lead to dissatisfaction, and accordingly advocate for the involvement of nursing staff in decisions to limit care. The literature reveals the nurse’s role in the withdrawal process as an advocate and facilitator for the patient and the patient’s family (Carlet et al., 2004; Heland, 2006; NSW Health, 2005). It has also been recommended that nurses should attend discussions with patients and patients’ families concerning decisions to withdraw treatment (Carlet et al., 2004; NSW Health, 2005).

A recent qualitative Australian study further identifies the role of the nurse as: mediator between the medical staff and the patient’s family; educator to explain and demystify information concerning the process and related matters; professional who ensures the patient is comfortable and generally provides a ‘good death’; and comforter in providing support for the families during this process (Heland, 2006). Furthermore, it was found that senior nurses with more experience and knowledge were more likely to contribute to the process than junior nursing staff, who were described as being unfamiliar with the ICU culture (Heland, 2006).

A qualitative study of medical and nursing staff perceptions of ethical issues in end-of-life decision-making in acute care revealed the following themes: ‘hierarchical processes’ being apparent to nursing staff which related to their ‘lower’ position in the hierarchical structure; not being listened to by medical staff; remaining silent when witnessing wrong choices; being unable to influence decisions made; and having a moral concern with an inability to reduce a patient’s suffering (Oberle & Hughes, 2001). For medical staff the issue of ‘hierarchical processes’ pertained to the overall hospital hierarchy supporting them in the decisions they made in end-of-life care for a patient (Oberle & Hughes, 2001). More recent Australian research reveals a distinct hierarchy, with ICU nurses indicating that the responsibility for end-of-life decision making is the role of the
physician. Nurses also indicated that they did not always have the opportunity to contribute to, and inform the medical decision making process (Heland, 2006). Previous research has also reflected nurse dissatisfaction with their level of involvement (Ferrand et al., 2003).

**Palliative care**

The ICU is literally an “intensive care” setting and the withdrawal of life support does not mean the withdrawal of care (Stroud, 2002). The provision of comfort care measures and palliation are often introduced or continued as part of the patient treatment plan following the decision to withdraw treatment (Curtis & Rubenfeld, 2001a; Rubenfeld & Curtis, 2001). Palliative care representation within the ICU setting for the medical care of such patients has been recommended in the US (Mularski, Bascom, & Osborne, 2001; Rubenfeld & Curtis, 2001) and more recently here in Australia (Glare et al., 2003).

**Variability in the process of withdrawal of treatment**

As indicated earlier, there is no universal legal framework for compliance with guidelines in Australia for the withdrawal of patient treatment (Young & King, 2003). Reports and literature indicate that end-of-life decisions are the responsibility of the physician (Baggs & Schmitt, 2000; Benbenishty et al., 2006; Oberle & Hughes, 2001). Professional autonomy is a foundation of medical culture (Carroll & Quijada, 2004). Studies have reported variability in the withdrawal process dependent on the biases, attitudes and perceptions that individual medical staff bring to the process of withdrawal of treatment in the ICU setting (Asch & Christakis, 1996; Asch, Faber-Langendoen, Shea, & Christakis, 1999; Christakis & Asch, 1993; Cook et al., 1995; Faber-Langendoen & Bartels, 1992; Poulton, Ridley, Mackenzie-Ross, & Rizvi, 2005). Moreover, physician preferences and variability have been reported with respect to the frequency with which a decision to withdraw treatment is made, the timing of the withdrawal of treatment, the order and manner in which treatment is withdrawn, and the treatment plan (Asch & Christakis, 1996; Carlet et al., 2004; Heland, 2006; Winter & Cohen, 1999). Choices also reflect other moral, social and clinical goals; for
example, whether the withdrawal of treatment is rapidly fatal, emotionally demanding, or invasive (Asch & Christakis, 1996). Further research reflects on the issue of competing values, with nurses perceiving that doctors act on their own values in decision-making at the end-of-life for a patient, rather than acting on the patient’s or the patient’s families values (Oberle & Hughes, 2001). Physician concerns about malpractice suits and litigation when making a decision to withdraw treatment have also been revealed, creating a potential barrier to communication during the process, and influencing the amount of information documented in the medical record, as well as the amount of information given to the family (Ferrand et al., 2003).

Regarding both the withdrawal and withholding process and the documentation of the process, a prospective review of 807 patients, in which the decision to limit patient treatment occurred (Ferrand et al., 2001), revealed that only 42% of the decisions to limit life support were documented in the medical record; and 12% of decisions were made by a single physician, without consultation with other medical or nursing staff (Ferrand et al., 2001).

International differences in ICU physician attitudes to end-of-life care have also been noted, with a survey of physicians from around the world reporting geographic variation in nursing staff involvement in end-of-life decision-making (Yaguchi et al., 2005). Although little research has focused on the role of the nurse in the end-of-life care process in the adult ICU, it is clear that differences exist between nurses and physicians regarding the professional values relating to the dying process (Baggs & Schmitt, 2000; Ferrand et al., 2003). Discrepancies were identified between ICU medical and nursing staff regarding decisions to forego life sustaining treatments, based on responses of 3156 nursing staff and 521 physicians from 133 French ICU’s (Ferrand et al., 2003). Nursing staff were significantly less satisfied than physicians with the process, and while most physicians believed they considered the opinion of nursing staff regarding the patients treatment, only a third of nursing staff felt that their opinions were considered (Ferrand et al., 2003). In addition, the presence of the ICU nurse at the family conference was considered necessary by 56% of nurses but only 36% of physicians.
Attempts to improve documentation of the withdrawal process

Although there is only limited literature regarding the withdrawal process and related documentation, it has indicated that poor documentation is common (Butler et al., 2003; Castle, Owen, Kenward, & Ineson, 2003; Ferrand et al., 2001; Kirchhoff et al., 2004). There have been some quality improvement initiatives aimed at standardising and formalising documentation of withdrawal or withholding of treatment to improve patient care (e.g. Do Not Attempt Resuscitate (DNAR) orders), with most of the literature providing evidence of positive outcomes with improvement of documentation of withdrawal or withholding of treatment.

To standardise the withdrawal process and DNAR orders, an aide memoire and checklist were introduced in two Canadian medical-surgical ICU’s (Hall & Rocker, 2004). Documentation of the discussions regarding the withdrawal process completed by physicians remained high for both the before and after evaluation periods, and 80% of nursing staff felt that the checklist resulted in a more consistent process with much clearer orders from medical staff (Hall & Rocker, 2004).

A further quality improvement initiative conducted in the US involved a before and after study to assess the development, implementation and evaluation of a withdrawal of life support order form to improve care in an ICU (Treece et al., 2004). The audit revealed that the withdrawal of life support order form was used in 71% (54/76) of patients (Treece et al., 2004) indicating a reasonable level of utility. Ninety-eight percent of physicians (60/61) and 84% (61/73) of nurses considered the order form to be helpful (Treece et al., 2004), suggesting that a standardised order form for the withdrawal of treatment can be regarded as an improvement.

A further study specifically evaluating DNAR orders involved a before and after study to assess the impact of the introduction of a standardised order form for DNAR documentation (Butler et al., 2003). Although the before audit
revealed poor documentation, there was an improvement in documentation after the implementation of a standardised order form (Butler et al., 2003). In particular, the findings revealed a reduction in decisions made by junior medical staff, with an improved rate of consultant-authorised decisions (before: 37.2% (35/94); after: 80.6% (56/62)) (Butler et al., 2003). Furthermore, an improvement in documentation of involvement in DNAR decisions by nursing staff from 68.1% (before) to 93.5% (after) was noted following the introduction of the standardised order form (Butler et al., 2003).

Finally, a before and after study was conducted to assess the impact of a pre-printed order form for improving the documentation of DNAR orders, with results reflecting mixed findings (Castle et al., 2003). The order form was found to improve the documentation of the DNAR order and the clarity of the justification for the order, the date of the decision, the signature of the clinician involved, and clear documentation of the senior clinician involved in the decision (Castle et al., 2003). However, the findings also revealed that involvement of the patient in the decision to withhold cardio-pulmonary resuscitation (i.e. DNAR) was not significantly improved by the introduction of the pre-printed order form (Castle et al., 2003). Although the documentation of the decision and reason for the decision to withhold treatment are important (Castle et al., 2003), further improvement is required in the communication and discussion of decisions with the patient.

The present study

The research highlights a clear need to improve comprehensive documentation of the withdrawal process. It also reveals that quality improvement initiatives aimed at standardising and formalising the documentation of the process can be effective in improving documentation. Although documentation may not accurately reflect the clinical practice associated with the withdrawal process due to legal or ethical concerns and/or poor documentation (Carlet et al., 2004), medical record audits can be a valuable source of information concerning the withdrawal process in the ICU setting.
The current study involved a before and after design that sought to examine the introduction of a new hospital-wide ACP document. This document, in part, was developed as a risk management response for the overall hospital, and in particular for intensive care, where the decision to withdraw treatment is common. There were two main reasons for the development and introduction of a new ACP document: 1) adverse publicity on the front page of the local newspaper, “The Advertiser” (Kemp, 2004; Kemp & Scala, 2004), concerning uncertainty surrounding the withdrawal of treatment of a patient in New South Wales which involved a newly appointed ICU consultant specialist to the Royal Adelaide Hospital; and 2) a risk management initiative for the overall hospital, as according to the Director of ICU and the Head, Department of Anaesthesia and Intensive Care at the time this study was completed, “not for resuscitation” orders and end of life decisions were inconsistently applied and poorly managed in the hospital. When the adverse publicity cited above occurred, there was a directive from the CEO of the hospital to re-establish a transparent, explicit process which could withstand external scrutiny by, for example, the coroner. The dearth of literature concerning the withdrawal of patient treatment and the documentation of this process in the Australian ICU setting also provided an impetus for this study.

**ICU initiative to hospital-wide initiative**

Improving the documentation regarding end-of-life decisions and withdrawal of treatment was initially a specific ICU initiative. According to the Director of ICU and the Head, Department of Anaesthesia and Intensive Care at the time this study was completed, ongoing discussion for improving documentation of end-of-life decisions had been on and off the agenda of ICU formal meetings for nearly twenty years. The hospital Treatment Ethics Committee was developing an ACP document for the overall hospital to standardise the documentation of end-of-life decisions (Clinical Practice Manual, 2005). In order to avoid overlap and the existence of two separate documents for the same or similar purpose(s), the development of the documents was merged. In this way the initial output of the quality improvement initiative was specific to the ICU, and then it became hospital-wide. The document continued to be developed but the development became a joint effort by key stakeholders from the wider
hospital environment, the hospital Treatment Ethics Committee, and input from ICU consultants via the Head, Department of Anaesthesia and Intensive Care.

Throughout the development stage, draft copies of the ACP document were disseminated locally to both ICU consultant and senior nursing staff at unit level meetings for comments. The Director of ICU and the Head, Department of Anaesthesia and Intensive Care further indicated that there were in excess of twenty ICU weekly meetings that included discussion and revision of the APC document during the development stages. The meetings provided a forum for input from ICU consultants. The development of the ACP document was also discussed at an interdisciplinary level with senior nursing staff to facilitate input from, and feedback to, the ICU nursing staff. Although input from the ICU staff members was sought, the final development of the ACP document occurred at the level of the Safety and Quality of Practice Committee of the hospital, with input from the hospital Treatment Ethics Committee, providing different historical perspectives and additional contributions to those of the ICU alone. This is an important aspect of the change process to note, as the idiosyncratic history specific to the ICU would be expected to be different to that of the wider organisation, so that the introduction of the ACP document as a quality improvement initiative might well have evoked different responses to those of other areas of the hospital.

**Previous history and experience**

It is important to note that the ICU in this study had had experience with a previous attempt to formalize documentation of the process of withdrawal of treatment and end-of-life care within the ICU. In 1989 a “Revision of Treatment” document was introduced in response to problems with the withdrawal of treatment processes and the inadequate involvement of a second ICU consultant, parent clinic consultant, and the patients’ relatives. The “Revision of Treatment” document required the consensus and signatures of two ICU consultants and a parent clinic consultant, together with a check list of conferring parties to be completed. According to the Director of ICU and the Head of the Department of Anaesthesia and Intensive Care at the time this study was completed, this
document was later used as evidence on two occasions in the Coroner’s Court and criticisms were made by the Coroner concerning the inadequate usage of the document. On one occasion the document remained incomplete and on the second occasion a single ICU consultant signed for himself as well as on behalf of the other two specialists also. It is important to note there was no criticism of the document itself. However, because of these criticisms (of the practice, not the document), although the “Revision of Treatment” document continued to be available for use within the ICU for documenting withdrawal of treatment decisions, the document was rejected and ceased to be used by ICU consultant staff. According to the Director of ICU and the Head of the Department of Anaesthesia and Intensive Care, this was apparently based on an informal decision (not communicated to the Head of Department) to stop using the document. This decision was later presented as a “fait accompli”.

A description of the Advance Care Plan document

The ACP document was developed by the Safety and Quality of Practice Committee (of which the Head of the Department of Anaesthesia and Intensive Care was a member), with input from the hospital Treatment Ethics Committee and the ICU consultants, with its objective being: to standardise the documentation of end-of-life decisions when aspects of patient treatment were to be withheld or withdrawn (Clinical Practice Manual, 2005); to obtain specific minimum documentation to pre-empt issues being raised for which the ICU staff were defenseless in the absence of adequate documentation (i.e. litigation); and to act as an aide memoire. The documentation acknowledged that the decisions should be discussed and understood by all involved in the process (Clinical Practice Manual, 2005). The ACP document was developed with due consideration of the associated Guidelines for an ACP and was based on the Consent to Medical Treatment and Palliative Care Act 1995 (Palliative Care Act, 1995), and the ANZICS Statement on Withholding and Withdrawing Treatment (ANZICS, 2003).

The ACP document was to be located in every inpatient’s medical record. Within the ICU, the ACP document (see Appendix 5.1) requires specific
minimum information regarding the process of withholding or withdrawal of patient treatment, including documentation of the decision, consensus, family conference discussions and relevant summary comments in free prose. More specifically, within the ICU setting the ACP document requires the signatures, date and time of the following (see Appendix 5.1):

- An intensive care medical consultant on duty responsible for the clinical care of the patient;
- A second intensive care medical consultant to confirm that the plan is appropriate;
- A senior medical representative from the parent clinic;
- The registered nurse responsible for the ward in consultation with the bedside nurse in care of the patient to concur and witness that appropriate discussions have involved the patient and or guardian, relatives, carers or friends and that the nurse(s) understand and accept the plan; and
- The patient (whenever possible) or an agreed spokesperson for the guardians, relatives, carers or friends of the patient, to acknowledge that they understand and accept the plan.

The requirements of the ACP document were contained within a single page and an additional page was provided (the Continuation Sheet), which was essentially blank for the inclusion of a free text summary. The Continuation Sheet was to contain: a description of the patients’ medical condition; the decision and justification/rationale for the decision to withhold or withdraw treatment; clear and unambiguous formal instructions regarding the patient management plan; a description of the discussions that took place and with whom (stating the name of the patient and or patients’ guardian, relatives, carers or friends, and specifying their roles/relationships to the patient).

Although the ACP document included the documentation of both withholding and withdrawal of patient treatment, this study will only focus on the documentation of the withdrawal of patient treatment, as the decision and/or
patient/family discussion to withhold patient treatment was difficult to identify in
the patient medical records. This study did not include patient brain death and
only focused on the impact of the ACP document within the ICU setting. Further
research would be required to examine the impact of the ACP document in other
areas of the hospital.

**Aim of the study**

This study opportunity arose through the principal researcher’s involvement in assessing the patient safety culture in the ICU (see Chapter 3). An invitation was extended to the principal research by ICU staff to evaluate the impact of an organisational change program designed to improve the documentation of the withdrawal of treatment process. The evaluation of this program provided a further opportunity to assess the relative success of the change and relate the outcomes to the evaluation of the patient safety culture completed in Chapter 3.

The aim of this study was to investigate the impact of a new Advance Care Plan document on the documentation of withdrawal of treatment in an adult ICU. This study set out to investigate the impact of a hospital-wide ACP document on the documentation in the patients’ medical records of the decision, discussion and consensus for the withdrawal of treatment for ICU patients. The ACP document required documentation of the names of those involved in the decision, and the recording of discussion and consensus and comments in free prose regarding the withdrawal of treatment. The major research question concerned whether the implementation of an ACP document would improve the documentation of the process of withdrawal of treatment in an adult ICU.

A triangulated method of data collection was undertaken to assist in the overall interpretation of results (Adamson, 2005; Mays & Pope, 2000; O'Cathain & Thomas, 2006) In particular, this research project used a mixed methods approach, involving both qualitative and quantitative methods, with data collected through a patient medical record audit and also through interviews with consultant, registrar and nursing staff within the ICU. The study involved an audit
of a total of 72 intensive care patient medical records involving an explicitly
documented medical decision and/or discussion and/or plan to withdraw aspects
of patient treatment before (n= 46) and after (n= 26) the introduction of an ACP
document. The study also involved qualitative interviews with a purposive sample
of ICU consultant, registrar and nursing staff concerning the process of
withdrawal of treatment and the documentation of this process. The interview data
were also used to help interpret and place in context the findings of the medical
record audit. Interview data served to further inform the interpretation of the data
in the patient medical records, provide an understanding of staff perceptions
concerning the introduction and impact of the ACP document, and to identify any
differences between the three staff groups
5.2 Method I: Medical Record Audit

Medical record audit

Medical record audit before the ACP document was introduced

A retrospective audit of intensive care patient medical records involving an explicitly documented medical decision and/or discussion and/or plan to withdraw aspects of patient treatment, with patient death occurring in the ICU, was conducted prior to the introduction of the ACP document. As initial discussion and planning of the document occurred in 2004-05, an audit of patient medical records before this time period was chosen to reflect prior staff documentation practices.

The ICU had a total of 1332 patient admissions between 1 January 2003 and 31 December 2003. The total number of patient deaths in the unit for that year was 261, indicating a 20% mortality rate for the unit. Sixty-two ICU medical records of patients who died were randomly selected, accounting for 24% of the total deaths in the ICU for that year.

Of the 62 randomly selected patient medical records, 46 (75%) had a documented medical decision and/or discussion to withdraw aspects of patient treatment.

Advance Care Plan

The ACP document was introduced into the ICU and throughout the wider Hospital, on 1 October 2005.

Medical record audit after the ACP document was introduced

The medical record audit was then repeated, examining a three month period after the introduction of the ACP document, between 1 October 2005 and 31 December 2005. All patient medical records that involved an explicitly documented medical decision and/or discussion and/or plan to withdraw patient treatment during this time period were included in the study.
The ICU had a total of 1567 patient admissions between 1 January 2005 and 31 December 2005. The total number of patient deaths in the unit for that year was 292, indicating a 19% mortality rate for the unit. Sixty-three ICU patient deaths occurred between 1 October 2005 and 31 December 2005, accounting for 22% of the total deaths in the ICU for that year.

Of the 63 patient deaths, 52 patient medical records were retrievable at the time of the study, the available sample accounting for 18% of the total deaths in the ICU for that year. Of the 52 patient death medical records, 36 (69%) of the selected sample involved a documented medical decision to withdraw aspects of patient treatment. Twenty-six (72%) of the overall 36 selected patient medical records that involved the medical decision to withdraw aspects of patient treatment were included in this study. Ten medical records were excluded because one or both of the two ICU consultants involved in this research project (i.e. the principal researchers ICU supervisors) were documented in the medical record as having been involved in the care of the patient.

Procedure

Permission to access and review the patient medical records was granted by the RAH Research Ethics Committee. Current and recent patient medical records were available from the hospitals Medical Records Department and the State Coroner’s Office. The audit also required ICU specific patient details from an existing ICU patient database including a severity of illness measure (Acute Physiology Age and Chronic Health Evaluation - APACHE II), estimated mortality risk (range= 0-100%) and ICU length of stay (LOS). The severity of illness measure, APACHE II, is a physiologically based classification system for measuring severity of illness in critically ill patients (range= 0-71), whereby an increasing score is correlated with subsequent risk of hospital death (Bersten et al., 2003; Knaus, Draper, Wagner, & Zimmerman, 1985).

The medical record audit was conducted by the principal researcher and a senior intensive care consultant within the ICU using a pro-forma developed
specifically for this study (Appendix 5.2). In the event of any discrepancies, these were adjudicated and resolved by consensus (e.g. in the event of illegible handwriting; or through search of an entire patient medical record to ensure that audit inclusion or exclusion criteria were met and/or not overlooked).

**Data Analysis**

A mixed methods research design was used for this study, with both qualitative and quantitative data collection and analysis. An audit of intensive care patient medical records involving an explicitly documented medical decision and/or discussion and/or plan to withdraw aspects of patient treatment before and after the introduction of an ACP document was conducted, extracting both quantitative (e.g. age, gender, APACHE II score) and qualitative (e.g. medical staff summary text regarding discussion with patient/patient’s family) data from the patient medical records.

**Measures**

Data were recorded using a pro-forma developed specifically for this study. Age, gender, ethnicity, and religion were noted. The source of admission, ICU admission diagnosis, length of stay (LOS), severity of illness score (APACHE II score; range = 0-71), estimated mortality risk (range = 0-100%), date and time of death and cause of death were also noted.

The presence or absence of documentation concerning the medical decision to withdraw patient treatment was noted, including: any existing pre-hospital patient advance directive; the date the decision was made; any explicitly documented consensus for the decision by staff; a parent clinic medical representative consensus for the decision; and the reason for the decision for withdrawal of patient treatment. The patient medical record audit conducted after the introduction of the ACP document also noted the use of the document and the presence or absence of required and desirable details (see ACP document, Appendix 5.1).
An audit of both ICU medical and ICU nursing staff documentation of the family discussion was noted. Although discussions with the patient’s family concerning the withdrawal of patient treatment might happen on more than one occasion, the audit focused on the documented discussion with the patient’s family during which family consensus was achieved for the withdrawal of patient treatment. The audit noted the presence or absence of documentation concerning the family discussion and documentation of those involved, including: the staff position of the person who documented the family discussion details; the date of the family discussion regarding the medical decision to withdraw patient treatment; the patient and/or patient’s family/carers involved in the family discussion and the family member’s relationship to the patient; the ICU medical, nursing and/or other staff involved in the family discussion; and additional staff involved in/present at the family discussion (i.e. a parent clinic representative, social worker, clergy, or others).

The summary text documented by ICU medical staff in the patient medical record describing the family discussion during which family consensus was achieved for the withdrawal of patient treatment was transcribed verbatim. The presence or absence of the following details within the summary text were noted, based on requirements of the ACP document and existing guidelines for the withdrawal of treatment (Clinical Practice Manual, 2005; NSW Health, 2005; RAH, 2003a):

1. The patient’s medical condition [Medical facts]
2. The patient’s prognosis
3. The patient’s wishes [Patient Autonomy]
4. The family’s wishes [Patient Surrogate]
5. The palliative care plan
6. The patient/patient’s family understanding of/consensus to the decision to institute a withdrawal/palliative care plan
7. Disagreement / resolution [Second medical opinion sought]
**Ethical considerations**

Consent to conduct this study was gained from two different ethics committees, the University of Adelaide, School of Psychology Human Research Ethics Committee and the Royal Adelaide Hospital Ethics Committee.

In accordance with the ethical guidelines of the University of Adelaide, School of Psychology Human Research Ethics Committee and the Royal Adelaide Hospital Ethics Committee, the data were stored in password protected files on the computer system of the School of Psychology, the University of Adelaide, only accessible by the principal researcher, to ensure confidentiality. Furthermore, details of the patient medical record were indexed in a manner that prevented identification of the patient, except by the principal researcher.

**Quantitative analysis**

The Statistical Package for the Social Sciences (SPSS) version 12.0.1 for Windows was used to conduct the quantitative management and analysis of data. Descriptive statistics were used to report the outcome of the audit. Chi-square analysis or t-tests were used to conduct comparisons between the before- and after- ACP introduction medical record data to identify any significant changes in documentation of the process of withdrawal of treatment. Results have been reported as percentage (%) increase or decrease where sample sizes were too small to test for statistical significance between before and after samples (Note: Chi-square analysis requires 25% of sample in order to conduct comparisons).

Independent samples t-tests were used to conduct comparisons between the before- and after- ACP introduction mean values (i.e. age, LOS, APACHE II, risk of death). Differences were accepted as statistically significant when $p < 0.05$. An adjustment for multiple testing was used in reporting the results of the comparisons between the before and after audit results ($p$-values). The step-down Sidak method for adjusting multiple testing was the preferred procedure for this analysis, rather than the more commonly used Bonferroni method, as the former procedure has been shown to provide tighter bounds for adjustment for multiple testing (Sidak, 1967; SPSS, 2003).
Qualitative analysis

The summary text documented by the ICU medical staff member(s) describing each family discussion concerning the withdrawal of patient treatment was analyzed using content analysis techniques (Stemler, 2001), which involved *a priori* coding using previously established codes developed from existing guidelines for the withdrawal of treatment (Clinical Practice Manual, 2005; NSW Health, 2005; RAH, 2003a). These codes were used to analyse the summary texts for the presence (1) or absence (0) of seven specific points of information (i.e. codes), previously listed in the Measures section of this chapter.

Inter-rater reliability was tested to assess the effectiveness of the coding procedure utilised in the content analysis. The content analysis was first conducted by the principal researcher. Samples of twelve summary texts (six from the before audit and six from the after audit, comprising 13% and 23% of each audit respectively) were also analysed and coded by the senior intensive care consultant involved in the study, independent of the principal researcher. Using the seven codes developed for this medical record audit, each of the twelve summary texts were again analysed for the presence (1) or absence (0) of the seven specific points of information (i.e. codes). A total of 84 coding events were analysed (i.e. seven codes x twelve summary texts) for inter-rater agreement using Cohen’s Kappa (Dancey & Reidy, 2004; Stemler, 2001) (see Table 5.1).

<table>
<thead>
<tr>
<th>Counts</th>
<th>Coder 2 = 0</th>
<th>Coder 2 = 1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coder 1 = 0</td>
<td>35</td>
<td>3</td>
<td>38</td>
</tr>
<tr>
<td>Coder 1 = 1</td>
<td>1</td>
<td>45</td>
<td>46</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>48</td>
<td>84</td>
</tr>
</tbody>
</table>

Cohen’s Kappa was 0.90 (p < 0.01) (total 95% agreement), indicating a substantial inter-rater agreement for the analysis of the medical summary texts from the patients’ medical records using the seven *a priori* codes.
5.3 Method II: Interviews with ICU staff members

Participants

There were 14 participants in this study: seven medical staff, including four consultants and three senior registrars, and seven critical care registered nurses (CCRN), all of whom were working within the ICU (see ‘Procedure’ for participant selection process).

ICU consultants and senior registrars

Seven medical staff participated in the study, including four consultants and three senior registrars. This represented 40 per cent of the overall intensive care consultants within the unit and approximately 15 per cent of the overall number of registrars (not all senior status) working within the ICU at that time.

Of these, three were female and four were male. Three of the participants had worked between eleven to fifteen years in their specialty of intensive care medicine, two had worked six to ten years, and the remaining two had worked one to five years in their current specialty of intensive care. With respect to years worked in the hospital ICU in particular, two participants had worked eleven to fifteen years, three had each worked for six to ten years, one had spent one to five years in the hospital ICU and the final participant had worked less than one year within the unit. Five participants worked 40 hours or more per week and the remaining two participants worked between 20 to 39 hours per week.

Critical Care Registered Nurses (CCRN)

Seven critical care registered nurses (CCRN) participated in this study, one level 1 CCRN and six level 2/3 CCRNs staff. Of the seven participants, four were female and three were male. Three of the participants had worked six to ten years in their current specialty of intensive care nursing; two had worked eleven to fifteen years, one had worked sixteen to twenty years and finally one participant had worked twenty-one years or more in the specialty of intensive care nursing.
With respect to years worked in the hospital ICU in this study, two participants had worked one to five years, one had worked six to ten years, two had worked eleven to fifteen years, and one participant had worked twenty one years or more. Six CCRN participants worked 40 hours or more per week, and one participant worked less than 20 hours per week.

The before-introduction sample included interviews with five senior registrars. However, due to the time delay between the before- and after-introduction interviews and the rotation of registrar staff throughout the hospital, only three of these senior registrars were still working within the unit at the time the post-introduction interviews were carried out. Although their interviews did not differ from the others, it was decided to exclude the before-introduction interviews for the two senior registrars that were no longer working within the unit at the time the final (after-introduction) interviews were conducted. Only one of the three level one critical care registered nurses (CCRN) that participated in the before-introduction interviews was available to participate in the after-introduction interview. Of the seven level two/three CCRN’s that participated in the before-introduction interviews, six participants were still working within the unit and available to participate in the after-introduction interview. Only those participants were included for whom both before- and after-introduction interview data were collected.

The analysis of results therefore only included those 14 respondents who participated in both the before- and after-introduction interviews (as reported above, the 7 medical staff participants and 7 CCRN participants).

**Interview protocol**

The semi-structured interviews were conducted by the principal researcher. All interviews were conducted within the ICU setting, either in the office space of the participant or within one of the available tutorial or meeting rooms. Each interview lasted approximately thirty minutes.
An Information Sheet (see Appendix 5.3) provided to participants outlined the purpose of the research, the procedure, and confirmed the confidentiality and anonymity of their responses. As the use of a consent form was discontinued for the overall research project (as discussed in Chapter 3), all participants were asked to provide verbal consent at the commencement of the interview recording, indicating that they were aware of, and comfortable with, the interview being recorded. Participants were informed that only the principal researcher would listen to, transcribe and de-identify the interview recordings. No participants refused the recording of their interview.

The same interview protocol was designed and used for consultants, registrars, and critical care registered nurses. With the assistance of a senior intensive care consultant working within the unit, a series of interview questions was developed focusing on the specific ICU process of withdrawal of treatment, documentation of process and the impact of the ACP document (after-introduction). The interview questions, along with the Information Sheet, were then reviewed by the ICU Director of Nursing and ICU Unit Clinical Manager to ensure the appropriateness and acceptability of the questions for CCRN staff. The information sheet and interview protocol were both piloted on one intensive care consultant for suitability of questions for medical staff (consultant and registrar staff). As a result, two additional questions were included in the ‘before’ interview protocol. These questions were concerned with details conveyed to the family during the family conference and the impact of economic or resource concerns on the withdrawal decision (Question 12 and 13, see Appendix 5.5). The interview protocol was reviewed by the ICU Unit Clinical Manager for suitability of questions for nursing staff; no further changes were made.

Participants were asked thirteen questions in the before-introduction interview. A full listing of the before-introduction interview questions is provided in Appendix 5.5. Questions sought staff perceptions of the:

- Current process of withdrawal of patient treatment within the ICU and the documentation of the process;
Advantages and disadvantages of the process of withdrawal of patient treatment;

Involvement and level of satisfaction with the decision making process, the family discussion process, and the practical activities involved in the withdrawal of patient treatment;

Adequacy of instructions for nursing staff and registrars involved in the process;

Possibility of allegations of malpractice or litigation that may occur; and

Other relevant comments or suggestions.

In the after-introduction interview, participants were asked twelve questions, similar to the before-introduction questions. However, questions were also posed in relation to the impact of the new ACP document. A full copy of the after-introduction interview questions is provided in Appendix 5.6 (After-introduction interview questions). Questions sought staff perceptions of the:

- Advantages and disadvantages of the process of withdrawal of patient treatment;
- Documentation of the process following the introduction of the ACP document;
- Involvement and level of satisfaction with the decision making process, the family discussion process, and the practical activities involved in the withdrawal of patient treatment;
- Impact of the ACP document on the role of the ICU nurse in this process;
- Impact of the ACP document on the adequacy of instructions for nursing staff and registrars involved in the process;
- Possibility of allegations of malpractice or litigation and the impact of the ACP document;
- Education and training of staff regarding the process and preparedness and onus of responsibility (senior registrars only);
- Consideration of palliative care consultation and involvement with the withdrawal of treatment process;
• Staff perceptions regarding the ACP document and the introduction of the document; and
• Other relevant comments and/or suggestions.

A short demographic survey was also used requesting each respondent’s details pertaining to gender, years worked in current intensive care specialty, years worked in the RAH ICU and the hours worked per week (see Appendix 5.7).

**Ethical considerations**

Ethics approval for this study was obtained from the Human Research Ethics Committee of both the University of Adelaide and the Royal Adelaide Hospital. Interviews were recorded using a digital Sony Voice Recorder and were transferred to computer files for further transcription and analysis. In accordance with the ethical guidelines of the University of Adelaide, School of Psychology Human Research Ethics Committee and the Royal Adelaide Hospital Ethics Committee, the interview recordings were stored in password protected files on the computer system of the School of Psychology, the University of Adelaide, only accessible by the principal researcher to ensure confidentiality. Furthermore, details of the interview recordings were indexed in a manner that prevented identification of the individual participants, except by the principal researcher. Of the medical staff members who were approached to participate in the study, only one member declined to be involved in the study, and this was stated to be for “personal reasons”.

Interviews were transcribed, with each transcript assigned an identifying index, which included: C (consultant), R (registrar), RN (registered nurse level 1 and level 2/3 combined for analysis) and each interview was numbered chronologically within each category (Example: “RN4” refers to the fourth registered nurse to be interviewed). The identifying index also included B (before) or A (after) to indicate interview before or after the introduction of the ACP document. Interview transcripts also included line numbers to assist in the analysis of data and enable referencing of quotes used when reporting results (Example:
“RN4 AL124” refers to the fourth registered nurse and line 124 of the after interview transcript).

**Procedure**

**Sampling**

Staff were selected using a stratified random sampling method. The unit staff listings from each of the sub-samples were used to accomplish this sampling process (consultants, registrars and CCRN levels 1, 2, and 3). Although this method is generally reserved for quantitative research, the available sub-sample populations were relatively small and all were from one ICU. Accordingly, the stratified random sampling method was chosen to ensure local (unit) level anonymity and confidentiality for participants within the unit. The overall structure of the study sought to ensure an adequacy of sampling ethics, as the sensitivity of raw data collected from interviews with participants required this further caution (Boyatzis, 1998).

A stratified random sample of nine intensive care consultants and senior registrars was contacted via work mobile phones by the principal researcher. A brief description of the study and the interview protocol was provided; a request was made for their voluntary participation in the study, and if they volunteered to participate, a date and time were chosen for the interview to be conducted in person.

A sub-sample of critical care registered nursing (CCRN) staff were selected (n= 101) for involvement in the study, from the overall ICU RN staff population (n= 249). The decision to include only CCRN staff was made in consultation with the ICU Director of Nursing and Unit Clinical Manager. As the study was based around the introduction of the ACP document involving the signature of “the registered nurse responsible for the ward in consultation with the nurse(s) assigned to the care of the patient” (ACP document: see Appendix 5.1), the CCRN sub-sample was considered the most appropriate, as the CCRN
staff held the senior nursing roles and would therefore be involved in the completion of the ACP document (required to sign the document).

An expression of interest letter (see Appendix 5.4) and a copy of the information sheet (see Appendix 5.3) were posted to a stratified random sample of fifty CCRN staff informing them of the research and requesting they contact the principal researcher if they wished to volunteer to participate in the study.

**Outside observation**

As the study was conducted in an organisation outside of the university, it was important to be seen as a neutral outside observer (Buchanan et al., 1988). The role of the principal researcher for this study was as a ‘neutral outside observer’, as she was not involved in the development or implementation of the quality improvement initiative, nor was she there to guide the process or influence outcomes, but instead was only involved in the evaluation of the impact of the ACP document as a quality improvement initiative.

**Data Analysis**

**Quantitative analysis**

The Statistical Package for the Social Sciences (SPSS) version 12.0.1 for Windows was used to conduct the quantitative analysis of data, with frequency analyses used to explore the demographic data.

**Qualitative analysis: Coding of the interview data and the development of a comprehensive codebook**

Choosing a method of analysis appropriate to the research question is important (Braun & Clarke, 2006). This study involved a qualitative process of content analysis to examine ICU staff perceptions concerning the process of withdrawal of treatment and the associated documentation of this process. It involved an interactive process of inquiry through semi-structured interviewing. For the purposes of the study an inductive or data-driven content analysis
approach was chosen (Boyatzis, 1998) for the analysis of the interview transcripts with intensive care consultants, registrars and critical care nurses. Data-driven analysis was chosen because research concerning end-of-life care and the withdrawal of treatment in the ICU setting is relatively new, with the existing published research largely conducted in the United States and Europe, and focusing on different facets of the end-of-life care process. Accordingly, existing codes from previous literature were not available, and as this study was specifically focused on the local ICU withdrawal process and the impact of a quality improvement initiative, a specific code book was developed.

The principal researcher considered several possible approaches to undertaking the data-driven analysis of the qualitative interview data, including thematic analysis, framework analysis and grounded theory approach, all commonly used as methods of analysis in healthcare research (Green & Thorogood, 2004; Pope et al., 2006).

A modified grounded theory approach was considered the most appropriate method of analysis for this study as it is a systematic approach to data-driven analysis and identification of emerging themes. A modified grounded theory approach was used due to time constraints of the PhD candidature and the mixed methods approach was used to provide additional quantitative and qualitative data derived from the medical record audit. The content analysis and coding of data were undertaken to provide a ‘rich description’ of the data, rather than a full grounded theory approach that involves the analysis of the data through to the development of a theory. Several other researchers have successfully used grounded theory and modified grounded theory techniques to analyze qualitative data in the area of ICU end-of-life care research (Carline et al., 2003; Cook, Giacomini, Johnson, & Willms, 1999; Melia, 2001; Oberle & Hughes, 2001; West, Engelberg, Wenrich, & Curtis, 2005).

The simultaneous collection and analysis of data to inform the progress of the study typical of the grounded theory approach was not possible. Instead, interview data were collected at the two time-points (before and after) and then analysed using a modified grounded theory approach. Other examples of this
modified grounded theory approach can be seen in the literature (Carline et al., 2003; Cook et al., 1999; Oberle & Hughes, 2001). It was considered important for the analysis of data to be ‘used and reported within an existing theoretical framework that anchors the analytic claims that are made’ (Braun & Clarke, 2006).

A grounded theory approach involves a process of coding the data. First, a content analysis of the interview data was conducted using the constant comparative method of the grounded theory approach (Charmaz, 2006; Glaser & Strauss, 1967). In order to develop the code book one respondent transcript from each of the sub-groups interviewed (consultant, registrar and registered nurse) was analysed initially. This analysis included both the before and after-introduction interview for each of the respondents. This provided a representation of each of the sub-groups interviewed and the two time periods (before- and after-introduction). The unit of analysis for content analysis and for coding of the data were sections of the text in sentence form from the transcripts, breaking the data down into conceptual ‘chunks’ (Charmaz, 2000), which served to inform the development of code labels and the detailed definitions of each code developed. The development of the codes and categories for the codebook involved a complex, iterative and grounded process of coding, memo writing and constant comparative method which was used to analyse the complete data set based on the interviews before and after the introduction of the ACP document. Code names were informed by the interview data included under each of the codes. The constant comparative method allowed for the comparison of participant responses before and after the introduction of the ACP document, and the comparison of data with other categories developed (Charmaz, 2000). Throughout the coding process the codes were revised and modified to more accurately reflect the interview data. At the end of this process all interviews were re-coded using the final version of the codebook.

In retrospect, questions 12 and 13 (see Appendix 5.5) from the before-introduction interview and questions 8, 8a, and 8b (see Appendix 5.6) from the after-introduction interview were not considered central to this thesis. Their responses were peripheral, and were therefore not analysed and reported in this
chapter. These questions were included upon the suggestion of a senior medical staff member relevant to the wider research project and were concerned with details conveyed to the family during the family conference and the impact of economic or resource concerns on the withdrawal decision from the before-introduction interview protocol (Questions 12 and 13). In addition, two questions from the after-interview protocol were considered peripheral and again were not included in the analysis; these were concerned with education, preparedness and onus of responsibility for registrar and nursing staff (Questions 8, 8a and 8b).

**Reliability and validity**

Inter-rater reliability was used to assess the trustworthiness of the coding and data analysis. The interview transcripts of both a registrar and a nurse, including the before and after interview transcripts for both, (this comprised approximately 15% of the total coded transcripts) were reviewed and coded for comparison by a second coder, who was experienced in qualitative analysis research and was independent of this research study.

The code book was used to analyse the participant interviews for the presence (1) or absence (0) of each of the 87 codes. The code book developed for this study was used by the second coder to code a total of 174 coding events (i.e. 87 codes x 2 participants), for inter-rater agreement analysis using Cohen’s Kappa (Dancey & Reidy, 2004; Stemler, 2001) (see Table 5.2).

<table>
<thead>
<tr>
<th>Counts</th>
<th>Coder 2 = 0</th>
<th>Coder 2 = 1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coder 1 = 0</td>
<td>90</td>
<td>16</td>
<td>106</td>
</tr>
<tr>
<td>Coder 1 = 1</td>
<td>11</td>
<td>57</td>
<td>68</td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>73</td>
<td>174</td>
</tr>
</tbody>
</table>

Cohen’s Kappa was 0.68 (p < 0.01) (total 85% agreement), indicating a moderate to substantial inter-rater agreement (Stemler, 2001), and that the code book was sufficiently developed and defined to be used effectively for the purposes of this study.
5.4 Results I: Medical Record Audit

Before and after the introduction of the ACP document

A comparison of patient characteristics

It can be seen from Table 5.3 that the patient characteristics did not differ significantly between the before- and after-introduction audit samples. There were slightly more male than female patients in both the before and after medical record audit. The mean age of patients of the before audit sample was slightly less than that of the after audit sample. The ethnicity of the majority of patients was Caucasian.

Table 5.3 Before- and after- introduction (n= 46 and 26 respectively) demographic characteristics and intensive care unit characteristics of the patients who had withdrawal of treatment

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Before (n= 46)</th>
<th>After (n= 26)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>30 (65)</td>
<td>14 (54)</td>
</tr>
<tr>
<td>Female</td>
<td>16 (35)</td>
<td>12 (46)</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>2 (4)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>30-39</td>
<td>0 (0)</td>
<td>1 (4)</td>
</tr>
<tr>
<td>40-49</td>
<td>3 (6)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>50-59</td>
<td>9 (20)</td>
<td>6 (23)</td>
</tr>
<tr>
<td>60-69</td>
<td>10 (22)</td>
<td>4 (15)</td>
</tr>
<tr>
<td>70-79</td>
<td>15 (33)</td>
<td>6 (23)</td>
</tr>
<tr>
<td>80-89</td>
<td>7 (15)</td>
<td>8 (31)</td>
</tr>
<tr>
<td>90-99</td>
<td>0 (0)</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>65.5 (14.7)</td>
<td>70.7 (14.1)</td>
</tr>
<tr>
<td>Range</td>
<td>(18-85)</td>
<td>(38-91)</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>45 (98)</td>
<td>25 (96)</td>
</tr>
<tr>
<td>Aboriginal</td>
<td>1 (2)</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roman Catholic</td>
<td>11 (24)</td>
<td>8 (31)</td>
</tr>
<tr>
<td>Anglican</td>
<td>7 (15)</td>
<td>2 (7.7)</td>
</tr>
<tr>
<td>Religious Affiliation</td>
<td>Observed</td>
<td>Missing</td>
</tr>
<tr>
<td>----------------------------</td>
<td>----------</td>
<td>---------</td>
</tr>
<tr>
<td>Lutheran</td>
<td>5 (11)</td>
<td>2 (7.7)</td>
</tr>
<tr>
<td>Uniting Church</td>
<td>5 (11)</td>
<td>2 (7.7)</td>
</tr>
<tr>
<td>Baptist Church</td>
<td>0 (0)</td>
<td>2 (7.7)</td>
</tr>
<tr>
<td>Other</td>
<td>6 (12)</td>
<td>3 (11.5)</td>
</tr>
<tr>
<td>Unknown</td>
<td>4 (9)</td>
<td>2 (7.7)</td>
</tr>
<tr>
<td>No Religion</td>
<td>8 (18)</td>
<td>5 (19)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Admission source</th>
<th>Observed</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward</td>
<td>15 (33)</td>
<td>9 (35)</td>
</tr>
<tr>
<td>Accident and Emergency</td>
<td>12 (26)</td>
<td>11 (42)</td>
</tr>
<tr>
<td>Other hospital</td>
<td>12 (26)</td>
<td>5 (19)</td>
</tr>
<tr>
<td>Operating Theatre</td>
<td>7 (15)</td>
<td>1 (4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Length of Stay</th>
<th>Observed</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU admission diagnosis</td>
<td>Mean (SD)</td>
<td>Median (IQR)</td>
</tr>
<tr>
<td>Non-trauma brain injury</td>
<td>4.54 (5.6)</td>
<td>3.33 (2.8)</td>
</tr>
<tr>
<td>Trauma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiovascular</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiac arrest/Hypoxic brain injury</td>
<td>7 (15)</td>
<td>2 (8)</td>
</tr>
<tr>
<td>Sepsis/MSOF</td>
<td>12 (26)</td>
<td>2 (8)</td>
</tr>
<tr>
<td>Other</td>
<td>3 (7)</td>
<td>8 (31)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Severity of illness (APACHE II Score) *</th>
<th>Observed</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (SD)</td>
<td>23.24 (9.76)</td>
<td>25.17 (7.48)</td>
</tr>
<tr>
<td>Median (IQR)</td>
<td>24.50 (16-28)</td>
<td>24.00 (19.00-32.50)</td>
</tr>
<tr>
<td>Range</td>
<td>24.00 (5-44)</td>
<td>24.00 (13-38)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Estimated mortality risk *</th>
<th>Observed</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (SD)</td>
<td>44.45 (27.61)</td>
<td>50.42 (23.87)</td>
</tr>
<tr>
<td>Median (IQR)</td>
<td>38.20 (22.65-61.18)</td>
<td>49.70 (30.55-66.80)</td>
</tr>
<tr>
<td>Range</td>
<td>44.45 (4.3-95.3)</td>
<td>49.70 (12.2-89.5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cause of death</th>
<th>Observed</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain</td>
<td>14 (30)</td>
<td>5 (19)</td>
</tr>
<tr>
<td>Respiratory</td>
<td>7 (15)</td>
<td>8 (31)</td>
</tr>
<tr>
<td>MSOF</td>
<td>21 (46)</td>
<td>13 (50)</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>4 (9)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

* Missing scores for APACHE II and Estimated mortality risk %: 12 (before) and 8 patients (after); MSOF = Multi System Organ Failure; ICU = intensive care unit
For both the before and after audit samples a substantial proportion of patients was admitted into the ICU from a ward within the hospital or from Accident and Emergency. Patient mean length of stay (LOS) was similar between the before and after medical record audits (before mean= 4.54 (5.6), after mean= 3.33 (2.8); p= .06). Patient LOS varied from 1-25 days (range) in the before audit and 1-10 days (range) in the after audit.

The majority of patients received an ICU admission diagnosis of sepsis / multi-system organ failure (MSOF), cardiovascular or non-trauma brain injury in the before audit sample. In the after audit sample a substantial proportion of patients was diagnosed upon admission into ICU with respiratory problems, cardiovascular or trauma related diagnosis. The mean APACHE II score (p= 0.32) and mean estimated mortality risk (p= 0.35) for ICU patients did not differ significantly between the two time periods. The most common cause of death in both the before and after audit samples was noted as MSOF.

### Use of the Advance Care Plan document

<table>
<thead>
<tr>
<th>Advance Care Plan</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not utilised</td>
<td>23 (88.5)</td>
</tr>
<tr>
<td>Incomplete</td>
<td>3 (11.5)</td>
</tr>
</tbody>
</table>

In the period following the introduction of the ACP document, the document was not used at all in 23 (89%) of the 26 medical records and remained incomplete in the remaining 3 (11%) medical records (see Table 5.4). Of the ACP documents that remained incomplete, details included the following: (Document 1) included the dates, and the names and signatures of two ICU consultants and an ICU registered nurse, with no other details; (Document 2) included the dates, and the names and signatures of two ICU consultants, with no other details; and finally, (Document 3) included the date and one ICU registrar name and signature, details of the family members spoken with, and a medical summary detailed on the continuation sheet, and no other details. The analysis and reporting of results for the before- and after-introduction audits therefore focused on the
The audit protocol included noting the presence or absence of a patient advanced directive (e.g. living will, legal advance directive document that explicitly documents the patient’s wishes prior to hospital admission). No medical record included in either the before or the after audit samples was found to have included any documentation of this kind.

**Before: Documentation of medical decision and consensus**

A mandatory requirement of the ICU Medical Manual (2003) is consensus for the decision to withdraw patient treatment by at least two intensive care consultants and a medical representative from the parent clinic. The new ACP document required the discussion, consensus and signatures of two intensive care medical consultants and a senior medical representative (consultant or registrar/advanced trainee) from the parent clinic (see ACP document, Appendix 5.1). For this reason the before- and after-introduction audits noted the presence or absence of the documentation of consensus (before and after) and signatures (after) of at least two ICU consultants and a senior medical representative from the parent clinic. Table 5.5 and Table 5.6 include the before- and after-introduction findings respectively, and Figure 5.1 provides a comparison of the before and after audit findings (see also Table 5a, Appendix 5.8).

Of the 46 medical records, 41 (89%) included the required documentation of the medical decision to withdraw aspects of patient treatment. Three (7% of 46) of these involved active participation of the patient (i.e. patient autonomy, patient decision to withdraw treatment), and 5 (11% of 46) patient medical records did not include documented details of the ICU medical decision to withdraw patient treatment and related ICU medical consensus.

The before-introduction findings indicate a very low compliance by ICU medical staff with requirements of the ICU Medical Manual (RAH, 2003a). Less than half of the medical records (37%) included the documented consensus of at
least two ICU consultants and only 35% included the documented consensus of at least two ICU consultants and a parent clinic representative for the decision to withdraw treatment.

Table 5.5 Before-introduction documentation of medical decision-making: The documented details of who was involved in the medical decision to withdraw patient treatment in the adult intensive care unit (n = 46) *

<table>
<thead>
<tr>
<th>Documentation of ICU Medical Decision-making</th>
<th>Documented ICU Medical Consensus (n (%))</th>
<th>Total ICU Medical Decision</th>
<th>Parent clinic consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Consultant Consensus</td>
<td>Registrar Consensus</td>
<td>No documented ICU consensus</td>
</tr>
<tr>
<td>ICU Consultant</td>
<td>17 (36.9)</td>
<td>2 (4.4)</td>
<td>20 (43.4)</td>
</tr>
<tr>
<td>ICU Registrar</td>
<td>2 (4.4)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>No documentation</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Total</td>
<td>19 (41.3)</td>
<td>2 (4.4)</td>
<td>20 (43.4)</td>
</tr>
</tbody>
</table>

* Includes patient autonomy

In Table 5.5 the before-introduction audit revealed that 17 (37%) cases involved two ICU consultants’ consensus, 2 (4%) cases involved an ICU consultant as primary decision maker with registrar consensus, and 2 (4%) cases involved a registrar as primary decision maker with ICU consultant consensus. A total of 21 (46%) medical records included documented consensus of at least two ICU medical staff members. Twenty (43%) medical records did not include documentation of ICU medical consensus for the decision to withdraw patient treatment.

Of the 3 (7%) medical records in which the patient was competent enough to be involved in the decision to withdraw treatment (i.e. patient autonomy), documentation of medical consensus included: (1) one ICU consultant involved; (2) two ICU consultants’ consensus and parent clinic representative consensus; and (3) two ICU consultants’ consensus, parent clinic representative consensus, and involvement of a psychiatrist. Therefore, 2 of the 3 medical records involving a patient decision to withdraw treatment included documentation of two ICU consultants consensus and a parent clinic representative consensus.
After: Documentation of medical decision and consensus

Of the 26 medical records included in the after-introduction audit, 25 (96%) included documentation of the medical decision to withdraw aspects of patient treatment and one medical record included no documentation of the ICU medical decision and related ICU medical consensus. Three (12% of 26) of these medical records involved the active participation of the patient in the decision to withdraw treatment (patient autonomy).

Table 5.6 After-introduction documentation of medical decision-making: The documented details of ‘who’ was involved in the medical decision to withdraw patient treatment in the adult intensive care unit (n = 26)*

<table>
<thead>
<tr>
<th>Documentation of ICU medical decision-making</th>
<th>Documentation of ICU medical consensus (n (%))</th>
<th>Total ICU medical decision</th>
<th>Parent clinic consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Consultant consensus</td>
<td>Registrar consensus</td>
<td>No documented ICU consensus</td>
</tr>
<tr>
<td>ICU consultant</td>
<td>12 (46.2)</td>
<td>2 (7.7)</td>
<td>2 (7.7)</td>
</tr>
<tr>
<td>ICU registrar</td>
<td>5 (19.2)</td>
<td>0 (0.0)</td>
<td>4 (15.4)</td>
</tr>
<tr>
<td>No documentation</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Total</td>
<td>17 (65.4)</td>
<td>2 (7.7)</td>
<td>6 (23.1)</td>
</tr>
</tbody>
</table>

* Includes patient autonomy

In Table 5.6 the after-introduction audit indicated that 12 (46%) cases involved two ICU consultants’ consensus, and 2 (8%) cases involved an ICU consultant as primary decision maker with registrar consensus. Nine (35%) medical records involved an ICU registrar as the primary decision maker, with 5 (19%) cases including documented ICU consultant consensus, and 4 (15%) medical records did not include documentation of ICU medical consensus. A total of 19 (73%) medical records included documented consensus of at least two ICU medical staff members. Six (23%) medical records did not include documentation of ICU medical consensus for the decision to withdraw patient treatment.

Of the 3 (12%) medical records that involved the active participation of the patient in the decision to withdraw treatment (patient autonomy) seen in Table 5.6,
the medical consensus documentation included: (1) two ICU consultants, an ICU registrar and two parent clinic representatives; (2) two ICU consultants, two ICU registrars and a parent clinic representative; and finally (3) one ICU consultant and a hospital sign interpreter. Therefore, 2 of the overall 3 medical records involving a patient decision to withdraw treatment included documentation of two ICU consultants consensus and a parent clinic representative consensus.

**Comparison: Documentation of medical decision-making and consensus**

**ICU medical staff consensus**

Figure 5.1 (see $p$-values Table 5b, Appendix 5.8) suggests a slight increase in the documented consensus of at least two ICU consultants for the decision to withdraw patient treatment, although this was not a significant change. Moreover, the documented consensus of at least two ICU consultants occurred in less than half the medical records in both the before- and after-introduction samples, constituting systematic violation of the requirements of both the ACP document and ICU Medical Manual (RAH, 2003a).
Figure 5.1 Before- and after-introduction documentation of medical decision-making and consensus

Figure 5.1 also shows a slight but not significant increase from the before (46%) to the after (73%) introduction audit in the documentation of two or more ICU medical staff consensus (i.e. consultant and/or registrar consensus) regarding the medical decision to withdraw treatment.

Registrar involvement

Although both the ACP document and ICU Medical Manual (2003) require consensus by at least two ICU consultants for the decision to withdraw treatment, Table 5.5 and Table 5.6 (see p-values Table 5a, Appendix 5.8) show the documented involvement of an ICU registrar significantly increased ($p = .005$) from 9% (n= 4) in the before audit to 42% (n= 11) in the after audit. There was also a slight and almost significant decrease ($p = .051$) from the before to the after-introduction audit in the documented involvement of an ICU consultant as the
primary decision maker for the withdrawal of patient treatment, irrespective of ICU consensus being documented. A considerable percentage increase was found in the documented involvement of an ICU registrar as the primary decision maker for the withdrawal of patient treatment (before = 4.4%; after = 34.6%). Furthermore, a considerable percentage increase was also noted in the documented involvement of the ICU registrar as the primary decision maker for the withdrawal of patient treatment without documented ICU consensus (before = 0.0%; after = 15.4%). These results highlight the extent to which the ACP documentation requirements were being violated with documented consensus of at least two ICU consultants less than half the time. The increase in registrar involvement indicates a violation of the requirements of both the ACP document and ICU Medical Manual (2003).

**No documented consensus**

Figure 5.1 shows a slight but not significant decrease in the documented involvement of only one ICU medical staff member in the decision to withdraw patient treatment (i.e. no documented ICU consensus) (see also Tables 5.5 and 5.6).

**Parent clinic representative consensus**

Figure 5.1 shows a slight but not significant increase in the documented consensus of a parent clinic representative from the before to the after-introduction audit (see p-values Table 5b, Appendix 5.8). The after-introduction audit results reveal that over a quarter of patient medical records did not meet this requirement of documented parent clinic representative consensus for withdrawal of treatment.

**Both ICU medical staff and parent clinic representative consensus**

Concerning medical documentation, the new ACP document specifically required the documented consensus (signatures) of two intensive care medical consultants and a parent clinic representative, a requirement also reflected in the
process guidelines of the ICU Medical Manual (RAH, 2003a). As can be seen in Figure 5.1, the before and after audit findings revealed a slight but not significant increase in the medical records that included documentation of the medical decision and consensus by two ICU consultants and a parent clinic representative (see \( p \)-values Table 5b, Appendix 5.8). The results highlight that more than half of the medical records from both the before and the after audit failed to include the documentation requirements of the ICU Medical Manual (RAH, 2003a) and the ACP document; that is, the documented involvement and consensus of at least two ICU consultants and a parent clinic representative.

Taking into consideration the increase in documented involvement of ICU registrars, the documented medical consensus of two or more ICU medical staff (i.e. consultant and/or registrar) and a parent clinic medical representative was also noted, with a slight but not significant increase from before (37%) to the after (62%) audit (see also Table 5b, Appendix 5.8).

The findings of the after-introduction audit revealed consistent and substantial violations by ICU medical staff of the requirements of the ICU Medical Manual (RAH, 2003a) and the ACP document. Less than half (46%) of the medical records included the documented consensus of at least two ICU consultants and only 42% included the documented consensus of at least two ICU consultants and a parent clinic representative for the decision to withdraw treatment.
Comparison: Documented reason(s) for withdrawal of treatment

Table 5.7 Before- and after-introduction: Documented reason(s) for the withdrawal of aspects of patient treatment

<table>
<thead>
<tr>
<th>Main Reason</th>
<th>Before N (%)</th>
<th>After N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapeutic futility</td>
<td>17 (37.0)</td>
<td>5 (19.2)</td>
</tr>
<tr>
<td>Poor prognosis</td>
<td>18 (39.1)</td>
<td>14 (53.9)</td>
</tr>
<tr>
<td>Both</td>
<td>7 (15.2)</td>
<td>4 (15.4)</td>
</tr>
<tr>
<td>Autonomy</td>
<td>3 (6.5)</td>
<td>3 (11.5)</td>
</tr>
<tr>
<td>No reason stated</td>
<td>1 (2.2)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Total</td>
<td>46 (100)</td>
<td>26 (100)</td>
</tr>
</tbody>
</table>

(Both = therapeutic futility and poor prognosis cited as reasons)

The ICU Medical Manual (2003) requires that a description of the process by which the withdrawal decision was made must be recorded in the patient’s medical record. For this reason the presence or absence of the reason(s) for the withdrawal of patient treatment was noted in the before- and after-introduction audits (see Table 5.7). The two main reasons for withdrawal of patient treatment were poor prognosis and therapeutic futility. One ‘before’ patient medical record had no details of the reason(s) for the withdrawal of treatment.

Comparison: Medical documentation of family conference

It can be seen in Figure 5.2 that there was a slight percentage decrease in patient medical records that did not include documented details of the family conference from the before (24%) to the after (8%) audit (see Table 5c, Appendix 5.8).
Concerning the conference and discussion with the patient/family regarding the decision to withdraw patient treatment, the new ACP document stipulated the need for the ICU consultant to have had discussion(s) with the patient and/or the guardian/relatives/carers/friends and that they understand and accept all aspects of the plan to withdraw patient treatment. Overall there was a significant decrease \((p = .006)\) in the documentation of the family conference completed by the ICU consultant, whereas a considerable percentage increase was noted in registrars completing this documentation alone (before= 4.3%; after= 30.8%) or with an ICU consultant (before= 2.2%; after= 19.2%). Even accounting for the increase in documentation completed by both an ICU consultant and registrar, this still reveals a decrease in overall documentation completed by the consultant from the before \((n = 33; 72\%)\) to the after \((n = 13; 50\%)\) audit.
Medical documentation of ICU registered nurse involvement

The new ACP document required the signature of a senior registered nurse to document their presence as a witness to the family conference(s), to confirm that there was consensus for the decision, and to indicate their acceptance of the plan to withdraw treatment. Although a considerable percentage increase was noted in the documented involvement of the ICU registered nurse by ICU medical staff from the before- (4.3%) to the after- (30.8%) introduction audit, Figure 5.2 shows that two-thirds of after-introduction cases included no documented involvement of the ICU nurse.

Medical documentation of family members spoken to

The ACP document also required whenever possible that the patient name and/or the name of the guardian/relatives/carers/friends and their relationship to the patient should be noted, acknowledging that discussions with them have taken place and that they have understood and accepted the plan. The signature of the patient and/or guardian/relatives/carers/friends was considered optional (see ACP document, Appendix 5.1). A slight but not significant increase was noted in the documentation of the family member(s) and their relationship to the patient from the before- to the after-introduction audit (see also Table 5c, Appendix 5.8). The 23% of documentation in the after audit that did not include details of family spoken with regarding their understanding and acceptance of the plan to withdraw patient treatment indicated that there was still considerable room for improvement.

Patient decision to withdraw treatment

It can be seen in Table 5.7 that there were 3 (7%) medical records in the before- introduction medical records that involved a patient decision to withdraw treatment (patient autonomy). The patient and family conference details documented included: (1) an ICU consultant discussion with the patient; (2) an ICU consultant discussion with patient; and (3) an ICU consultant and hospital psychiatrist discussion and assessment of the patient. It can also be seen in Table 5.7, that there were 3 (12%) medical records that involved a patient decision to
withdraw treatment (patient autonomy) in the after-introduction medical record audit. The patient/family conference details documented included: (1) an ICU registrars discussion with the patient and patients family; (2) two ICU registrars and an ICU RN discussion with the patient, followed by one ICU consultant, two ICU registrars and an ICU RN discussion with the patient’s family; and finally (3) one ICU consultant, a hospital sign interpreter and an ICU RN discussion with the patient. These results indicate that those medical records involving a patient decision to withdraw treatment failed to include the required documentation of at least two ICU consultants, a parent clinic representative and an ICU RN.

**Comparison: Content analysis of medical documentation of family conference**

A content analysis of the medical documentation of the patient/family conference was completed. This was based on the requirements of the ACP document that the patient/family understand and accept the plan for withdrawal of treatment, and that the “Details of the progression of the discussions and rationale for any decisions should be recorded” (see ACP document, Appendix 5.1), and further existing guidelines for the withdrawal of treatment (Clinical Practice Manual, 2005; NSW Health, 2005; RAH, 2003a).

Thirty-five (76%) of the 46 ‘before’ patient medical records and 24 (92%) of the 26 ‘after’ patient medical records included some documented details of the patient/family conference. These cases were analysed to determine the presence or absence of documented details conveyed by ICU medical staff to the patient/family during the patient/family conference, with results included in Table 5.8.
Table 5.8 Before- and after- introduction content analysis of medical documentation of family conference

<table>
<thead>
<tr>
<th>Documentation in medical records containing information on:</th>
<th>Present N (%)</th>
<th>p-values ($\chi^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before (n= 35)</td>
<td>After (n= 24)</td>
</tr>
<tr>
<td>1. The patient’s medical condition</td>
<td>30 (85.7)</td>
<td>17 (70.8)</td>
</tr>
<tr>
<td>2. The patient’s prognosis</td>
<td>29 (82.9)</td>
<td>18 (78.3)</td>
</tr>
<tr>
<td>3. The patient’s wishes [Autonomy]</td>
<td>3 (8.6)</td>
<td>3 (13.0)</td>
</tr>
<tr>
<td>4. The family’s wishes [Surrogate]</td>
<td>27 (77.1)</td>
<td>18 (78.3)</td>
</tr>
<tr>
<td>5. The palliative care plan</td>
<td>22 (62.9)</td>
<td>20 (87.0)</td>
</tr>
<tr>
<td>6. The patient/family understanding and acceptance of the plan</td>
<td>28 (80.0)</td>
<td>19 (82.6)</td>
</tr>
<tr>
<td>7. Disagreement/resolution [eg. second medical opinion]</td>
<td>1 (2.9)</td>
<td>0 (0.0)</td>
</tr>
</tbody>
</table>

Note: Adjusted p-values reported  
-- = p-value not reported as $\chi^2$ analysis requires approx.25% of sample to compare

As indicated in Table 5.8, there was no significant change from before to the after audit in the documentation of the content analysed of the patient and/or family conference held.

Singularly, each point appears to be reasonably well documented. However, the content analysis of the medical documentation firstly concerned the family conference (that is, all those medical records not involving patient autonomy (3. The patients wishes)), and this revealed that less than a third of the medical records in the before (31%) and the after audit (30%) included a comprehensive documentation of all of points 1, 2, 4, 5 and 6 concerning details of the progression of the discussion and information conveyed to the family. These results indicate a failure to include documented details of the progression of the discussions with the patient’s family (surrogates) in the patient’s medical records.
Both the before- and after-introduction audits each included a total of three medical records that involved the patients’ wishes (patient autonomy). A content analysis was conducted on the medical documentation involving patient autonomy, and this revealed an increase in the percentage of the medical records including all of points 1, 2, 3, 5 and 6, from the before (33%) to the after (100%) audit, indicating a significant increase in the details of the progression of the discussion and information conveyed to the patient. These results indicate an improvement in the documented details by ICU staff concerning the progression of the discussions with the patient (patient autonomy) in the patient’s medical records.

The variability in the number of points and details included in the medical documentation concerning the patient/family conference documentation can be seen in examples of extracts from the before and after medical record audit of the ICU medical staff summary text, provided in Appendix 5.9.

**Comparison: Nurse documentation of family conference**

As can be seen in Figure 5.3, an increase was noted in documentation by an ICU registered nurse to indicate that a patient/family conference regarding withdrawal of treatment had occurred from before (39%) to the after (62%) audit, but this change was not significant (see $p$-values Table 5d, Appendix 5.8) and remains well short of the requirements of the ACP document. In the before and the after audit, less than a third of the documentation completed by an ICU registered nurse included details of the ICU medical staff member involved in the family conference.
Figure 5.3 Before- and after- introduction ICU registered nurse documentation of family conference and staff involvement

A slight increase was identified in the documentation by an ICU registered nurse concerning the family member(s) spoken with and their relationship to the patient from the before (11%) to the after (31%) audit, although this was not a significant increase. However, even this latter percentage in documentation of family member(s) spoken with and their relationship to the patient did not reach an adequate level according to the requirements of the ACP document which requires details of the family member.

Of the 3 (6%) medical records that involved a patient decision to withdraw treatment (patient autonomy) in the before-introduction audit, the patient and family conference details documented by the registered nursing staff included: (1) no documentation; (2) a parent clinic consultant discussion with patient; and (3) no documentation. Of the 3 (12%) medical records that involved a patient decision to withdraw treatment (patient autonomy) in the after-introduction audit, the
patient/family conference details documented by the registered nursing staff included: (1) family meeting but did not include who (staff) was involved; (2) discussion with the patient but did not include who (staff) spoke with the patient; and finally (3) one ICU consultant, a hospital sign-interpreter discussion with the patient. Although this suggests a slight improvement in documented details by the ICU registered nurse of patient decisions to withdraw treatment, documented details were not specific regarding the medical staff responsible for patient care and discussion with the patient.

Analysis of content of the registered nurse staff documentation of family conference was not completed as the notes were insufficient, with documentation simply consisting of a statement indicating that a conference occurred and who was involved.

Summary

Overall there was little change in the documentation of the withdrawal process following the introduction of the ACP document, with the document remaining largely underutilised and the requirements of the ACP document not met. Both the before- and after-introduction audit results indicated a lack of compliance to the requirements detailed in the ICU Medical Manual (2003). In both the before and the after audit results less than half of the medical records included the documented consensus of at least two ICU consultants. The after audit revealed only 42% of medical records included the documented consensus of at least two ICU consultants and a parent clinic representative. In addition, the after-introduction audit findings also revealed an increase in the involvement of an ICU registrar in the documented decision to withdraw patient treatment, a violation of the required involvement of at least two ICU consultants as indicated in the ICU Medical Manual (2003) and the ACP document. Although a considerable percentage increase occurred in the documented presence of the nurse at the family conference, only 31% of medical records included this documentation in the after audit.
Overall, only 26% (n=12) of audited medical records completed by ICU medical staff met the requirements of the ICU Medical Manual (2003) in the before-introduction audit, including the documented consensus of at least two ICU consultants, a parent clinic representative, and details of the patient and or patients family spoken with and their relationship to the patient. Less than half (42%) of the audited medical records in the after-introduction audit met the pre-existing requirements of the ICU Medical Manual (2003).

Furthermore, only 19% (n=5) of medical records completed by ICU medical staff in the after-introduction audit met the requirements of the ACP document (the documented consensus of at least two ICU consultants, a parent clinic representative, nurse involvement and details of the patient and or patients family spoken with, and their relationship to the patient). Even with the inclusion of the nursing documentation indicating their involvement in the process, only 35% (n=9) of medical records in the after-introduction audit met the requirements of the ACP document. These findings and the overall results from the after audit indicate consistent violations of the requirements of the ACP document.
5.5 Results II: Interviews with ICU staff members

Content analysis of ICU staff interviews

The second part of this study involved a content analysis of the interview responses from ICU staff, in which respondents described their perceptions of the withdrawal of treatment process and its documentation. This analysis provided an understanding of staff perceptions concerning the introduction and impact of the ACP document. The interview transcripts were analysed and coded, as described in the Method II section of this chapter. The content analysis of the interview transcripts resulted in nine main conceptual categories containing a number of sub-codes (see Appendix 5.10 Codes: Responses (number and %) by group). These included the experiences and perceptions of respondents concerning the:

1  Process and old documentation of process
   1.1  Process of withdrawal: Description and understanding (Flow Chart)
   1.2  Attitudes to process
   1.3  Old documentation of the process: Description and understanding
   1.4  Attitudes to old documentation of process

2  Change process
   2.1  Issue of collective experience
   2.2  Attitudes toward impending change

3  New Advance Care Plan (ACP) document
   3.1  New ACP document development & implementation
   3.2  New ACP document
   3.3  Suggestions for Improvement

Appendix 5.11 provides a detailed Code Book and description of codes. The number and frequency of responses by respondent groups are presented in Appendix 5.10. The results that follow will be discussed under the headings of the nine conceptual categories.
Process and the old documentation of the process

Staff perceptions of the process of withdrawal of patient treatment within the ICU and the old documentation of the process were firstly examined, regarding their description of, and attitudes toward, the process and its documentation (Categories 1.1 to 1.4). The staff perceptions of the process of withdrawal of treatment will firstly be discussed, followed by their perceptions of the old documentation of this process.

5.5.1 Process of withdrawal: Description and understanding

In order to examine the documentation of the process of withdrawal of treatment, it was important firstly to gain an understanding of the process by which a withdrawal of treatment occurs within the local ICU setting. Although the intensive care staff were asked questions in both the before and after interviews regarding the process of withdrawal of treatment in addition to questions regarding the documentation of the process, the majority of staff indicated that the withdrawal process had not changed following the introduction of the ACP document. Responses to the questions regarding the respondents’ understanding of the process from both the before- and after-introduction interviews were therefore analysed to provide a summary description of the process of withdrawal of treatment, rather than this section of the interview transcripts being coded. A diagram of the resulting description can be seen in Figure 5.4. This flow diagram is very consistent with the model that has been described within NSW Health regarding end-of-life care (NSW Health, 2005).
Figure 5.4 Flow chart of the process of withdrawal of patient treatment in the adult ICU: Based on interviews with ICU staff consultants, registrars and critical care registered nurses
(Note: incorporating aspects of NSW Health model, p.11 (NSW Health, 2005))
Figure 5.4 provides a flow chart of the process of withdrawal of patient treatment based on the interviews conducted with consultant, registrar and critical care nursing staff. The medical decision making process involves consultation and consensus with both internal (ICU) and external (parent clinic) medical staff, relating to continuation of treatment being inappropriate and not in the best interests of the patient. The consensus of the ICU nurses is also sought at this stage.

As previously stated, the majority of staff indicated that the withdrawal process had not changed following the introduction of the ACP document. However, it is important to note that disparity existed in staff perceptions of the status of who should be involved in, and responsible for, the decision to withdraw patient treatment. For example, in the before interviews all the consultant respondents indicated that the decision to withdraw patient treatment was a consultant level decision and responsibility, involving at least two ICU consultants; that is, senior staff consultation and consensus. However, in the after interviews 50% of consultant respondents indicated that although ‘ideally’ it should be a consultant level responsibility, at times it may involve a registrar as the second medical staff member to concur with the decision. For the registrar respondents 67% stated that it was a consultant level decision and responsibility only, with only 33% of respondents suggesting the involvement of a senior registrar. Finally, all the nurse respondents indicated that this was a consultant level decision and responsibility; although 29% of them further indicated that the second medical opinion could at times be a senior registrar.

Once medical consensus for the decision to withdraw treatment is gained, a discussion (family conference) is then held with the patient and/or the patient’s family (i.e. family as an advocate for an incompetent patient), where the ICU consultant and/or ICU registrar discuss the reason(s) for the decision and the patient management plan, seeking the family’s agreement with the decision. The ICU nurse is also present as a witness to the discussion with the patient and/or patient’s family. After consensus is achieved between all key stakeholders, the patient management plan to withdraw treatment is carried out. The default option
is to continue treatment, if there is disagreement, conflict or doubt surrounding the decision to withdraw patient treatment. Ongoing patient assessment continues and the decision to withdraw patient treatment can be reversed if the patient begins to show improvement. Clear documentation of the process by the ICU senior medical staff member is then completed in the patient’s medical record.

5.5.2 Attitudes to process

Respondents’ attitudes toward the process by which a withdrawal of treatment occurs within the local ICU setting were also coded (Codes 1.2). In particular, analysis of interviews revealed 34 different codes (1.2.1 to 1.2.34; see Appendix 5.10 and 5.11) regarding their attitudes toward the withdrawal process. Each of the codes is described below, with an example of each.

5.5.2.1 Ethics committee involvement

All respondents expressed their perceptions regarding the possible involvement of an ethics committee in the process of withdrawal of treatment within the ICU. In particular, all consultant and registrar respondents and 86% of nurse respondents indicated the potential for ethics committee involvement in only a minority of cases (Code 1.2.1): “I think the reasons where you need to get ethics committee involved are the ones where there are ethical dilemmas. Ninety nine point nine, nine, nine, nine, nine percent of cases there are no ethical dilemmas, its clear cut” (C2 BL303-306). Further to this, 25% of consultants and 14% of nurse respondents expressed concerns regarding the impact of an uninformed ethics opinion (1.2.2): “I am concerned about the uninformed ethical opinion or the uninformed consumer opinion becoming a focus for this, and I think people need to actually be able to understand the difficulties that the family is facing in this particular process.” (C1 AL65-67). Moreover, 25% of consultant respondents perceived that the need to involve an ethics committee would reflect failure in the ICU process (Code 1.2.3): “I think if you have to call an ethics committee it’s a tragedy and we’ve all failed. Having said that, that will happen, there’s nothing you can do about it, if you’ve got to go to outside ethics committees, to me it’s almost as bad as having to get the lawyers involved, if we can’t achieve a decision, or can’t reach a decision” (C2 AL272-275).
5.5.2.2 Palliative care involvement

Of the respondents who expressed their perceptions regarding the involvement of palliative care consultation within the ICU, the majority of staff did not consider this to be useful. Moreover, only 67% of registrars and 29% of nurse respondents considered palliative care consultation to be useful within the ICU setting (Code 1.2.4): “I would say yes and it’s actually for selfish reasons, not because I think the patients would die better, but it’s for me to learn how to allow patients to die better” (R3 AL139-140). All consultants, 33 % of registrars and the remaining 71% of nurse respondents did not consider palliative care consultation to be useful within the ICU setting (Code 1.2.5): “Nope. It’s kind of insulting. There are more patients who die in the ‘name’ hospital intensive care every year than die in ‘name’ hospice” (C1 AL181-182) and “whenever we’re withdrawing on someone our main focus is always to go from treating the problem to just making the patient comfortable. So I don’t know that an actual formal palliative care consultation would actually benefit at all. I don’t think we have much of an issue with that, I think that’s managed fairly well” (RN5 AL201-205).

5.5.2.3 Role of the social worker

All consultant and registrar respondents and 86% of nurse respondents indicated that the role of the social worker is as an advocate and to provide a support role for the family (Code 1.2.6): “plus the social worker, who often is involved in a lot of counselling of the relatives afterwards” (RN1 BL107-108) and also “A social worker is almost always involved” (C3 BL95).

5.5.2.4 Role of the nurse

In describing the process of withdrawal within the ICU, respondents provided their perceptions of the role of the nurse in the process, with particular reference to their involvement with the patient’s family. All consultant, registrar and nurse respondents highlighted that the nurse’s role was to advocate, clarify and liaise with the patients’ family (Code 1.2.7): “I get involved with the families, more of a nursery, counsellor, interpreter sort of scenario, in a supportive manner and maybe help them through the process and tell them what maybe to expect”
(RN1 AL136-138), and also “I think the nurses are very important in the process and their role is as an advocate for that patient and the patient’s family and to provide sort of information about the family that I don’t have” (C4 BL141-144).

All consultant, registrar and nurse respondents also referred to the nurse’s role as a witness to the discussion/conference with the patient’s family regarding the decision to withdraw treatment (Code 1.2.8): “as far as the conference goes the nurses usually don’t participate at all, it’s just usually as a nurse you’re there to witness the conversation” (RN5 118-119). The nurse’s role to communicate to other nursing staff (Code 1.2.9) was mentioned by only 25% of consultant respondents, 33% of registrar respondents and 43% of nurse respondents: “I always take a nurse with me when I’m discussing things with the family, both as a witness and also so that that nurse can handover what’s happened in the discussion” (C4 AL106-108), and “Nurses actually in the discussion are very useful because they can come along and listen to all the things that are said and they can act as a bit of an arbitrator, translator in your absence” (R2 BL148-150), and finally “I’m also involved in supporting nursing staff and obviously communicating to nursing staff outcomes from that meeting [family discussion], but also providing some rationality to nurses as to why we are withholding or withdrawing treatment and particularly where junior staff are involved” (RN2 BL140-144).

Only 25% of consultant respondents specifically indicated the necessary involvement of a senior nurse in the process. However, 86% of nurse respondents indicated that a senior nurse was necessary (Code 1.2.10): “it needs to be a senior nurse involved in the discussion so they don’t feel intimidated or restricted, that they also act as the patient’s advocate to some degree and can contribute to discussions so that it’s not just a passive role” (RN2 AL101-104).

A total of 25% of consultants, 33% of registrars and 14% of nurse respondents indicated that nurses agree with medical decisions to withdraw patient treatment and rarely disagree (Code 1.2.11): “I always involve the nurses and rarely do nurses disagree in any real way” (R3 AL59-60). The importance of continuity of care was highlighted by 43% of nurses (Code 1.2.12): “I think
sometimes a disadvantage can be if different nursing staff, you know like if there’s family discussions over several days and you haven’t necessarily got the same nurse attending the family conference, you don’t have that continuity” (RN3 BL58-60).

Twenty-five percent of consultant respondents and 29% of nurse respondents stated that the nurse was not integral to the process (Code 1.2.13): “The discussion conversation, you have family and nursing staff [present], indeed but I don’t see them as integral to the process at all” (C2 AL144-145). In contrast, 75% of consultants, 67% of registrars and 86% of nurse respondents stated that nurse involvement was important in the process of withdrawal of treatment (Code 1.2.14): “It’s important that the nurse is there so they can emphasise or reiterate the points that are raised during the discussions. So their involvement is absolutely vital and also during a dying process the nurse is the one that ensures that the patient stays comfortable and ensures the patient dignity and supports the family through that process. So their involvement is absolutely imperative but I don’t think that they are equipped or should be given the responsibility for making the decision” (C3 AL145-150) and “Quite rightly the medical staff here have always involved the senior nurses and respected their opinions” (RN4 AL153-154).

Almost half (43%) of nurse respondents referred to the role of the nurse as to ensure that the process is adhered to (Code 1.2.15): “I believe my active part of the process is to ensure that the process is followed” (RN1 BL241-242). No consultant or registrar respondents stated this.

All consultant and registrar respondents, and 86% of nurse respondents, stated that the nurse lacks training and education to make and carry the responsibility of the decision to withdraw treatment (Code 1.2.16): “The nurses don’t have, with the best will in the world, I think they’re wonderful, but they’re nurses they’re not doctors, they don’t have the breadth of knowledge and experience that makes them able to make that decision. They don’t, they just don’t and that’s the way it is” (C2 BL404-407) and “Nurses don’t have the level of
knowledge to be able to determine whether in fact a particular illness, what their prognosis or outcome will be” (RN2 BL218-220).

5.5.2.5 Importance of comfort care

Regarding the process of withdrawal of patient treatment, the importance of comfort care for the patient was mentioned by 50% of consultant respondents and 29% of nurse respondents (Code 1.2.17): “Obviously the most important thing when a patient is in the process of dying is to make sure they’re comfortable and that’s something we can do very well in intensive care” (C3 AL114-116).

5.5.2.6 The decision process

Several respondents referred to the withdrawal process as an established process within the ICU setting. In particular, 75% of consultants, 33% of registrars and 14% of nurse respondents indicated that the process was well developed and established (Code 1.2.18): “I think the process is fairly good, it’s transparent, it’s easy to follow, and it makes sense. It’s always going to be a difficult process, but I think the process as is clearly stated in our medical manual and has been for many years… I think the process is probably as good as you get. I mean we thought long and hard about our process and I think our process should be reasonably robust” (C2 AL136-142). A third of registrar respondents perceived the decisions to be clear cut (Code 1.2.19): “I haven’t come across many difficult ones, the odd one every now and again but generally speaking they’re clear cut” (R1 BL67-69). No other consultant or nurse respondents commented on this.

5.5.2.7 Default to continue treatment

All consultant respondents, 67% of registrars, and 57% of nurse respondents indicated that in the event of conflict and/or doubt concerning the decision to withdraw treatment, the default is to continue patient treatment (Code 1.2.20): “We never withdraw on someone unless we’ve got full consensus” (C3 AL20-21) and “The process results, generally results in death at the end of it, it has a default to continuing aggressive therapy if there is conflict or doubt as to whether or not it is appropriate and given the nature of intensive care patients there is often deferment of decision until it becomes clear” (C1 BL20-24).
5.5.2.8 Importance of communication

The importance of communication in relation to the process of withdrawal of treatment within the ICU setting was highlighted by 50% of consultant respondents, 67% of registrar respondents and 57% of nurse respondents (Code 1.2.21) “The essence of the whole thing is communication. It’s how you communicate with the parent clinic, how you communicate with the family and how you communicate that in writing in the case notes. To me that’s what it’s all about, which is really what so much of what we do is about, is good communication” (C2 BL535-539), and “It’s about communication with people, both communication with the families, communicating with nursing staff, communicating with medical staff, it all comes down to communication I think” (RN3 BL375-377).

5.5.2.9 Importance of adhering to the process of withdrawal

Throughout the interviews with staff, reference was made to the overall importance of adhering to the process, of having a uniform approach to the process and ensuring adequate numbers of staff are involved in the decision.

The importance of adhering to the process (Code 1.2.22) was mentioned by 25% of consultant respondents and 29% of nurse respondents: “I think if we start skipping out on process then we could be opening ourselves up for a big can of worms that could be quite messy and ugly, so I think it’s important that process is followed and I think we, by and large, follow that kind of process very well” (RN1 BL85-88).

A total of 43% of nurse respondents indicated that the process of withdrawal of treatment requires a more uniform approach (Code 1.2.23): “Not everyone follows it exactly as per the protocol and that’s one of the reasons why we’re just trying to tidy up the form... it’s just another check procedure really” (RN4 48-49 + 54). However, no consultant or registrar respondents mentioned this.
Only 25% of consultant and 33% of registrar respondents stated that the process of withdrawal of treatment was at times individualised and dependent on the consultant involved (Code 1.2.24), but 86% of nurses did mention this: “I’m aware that there are people in the unit who are better or worse at this process and some of those people are quite senior” (C1 AL158-160), and “I think that there is no consistency with the concept of withdrawing of treatment still and that pretty much comes down to independent medical philosophy and I’m not sure whether the mood or paranoia or philosophy of the medical staff is relevant to the overall decision to withdraw treatment” (RN1 AL8-12).

A total of 43% of nurse and 25% of consultant respondents stated that the decision to withdraw treatment is perceived to occur on the basis of an individual medical decision rather than based on the consensus of a medical group (Code 1.2.25): “In terms of being the second opinion, sometimes I guess I represent one end of the spectrum of limiting therapy in this unit, that you are concerned when you do raise an objection and people continue anyway” (C1 BL132-135), and “The driving force behind the withdrawal of therapy can sometimes be too greatly influenced by an individual consultant, rather than a group consultant decision (RN1 BL47-48).

Regarding the process, 25% of consultants and 14% of nurse respondents stated that families lack an understanding of the decision to withdraw treatment (Code 1.2.26): “A lot of times they don’t understand what they’ve been told, the families, like they don’t quite, they come out [of the discussion] and they don’t really know what’s going on” (RNL1 BL28-30).

### 5.5.2.10 Ownership of advance care

Although not all respondents referred to this aspect of the withdrawal process, some respondents expressed the issue of ownership of the advance care process within the overall hospital setting and throughout society. In particular, a lack of hospital wide ownership of advance care planning was highlighted by 33% of registrar respondents (Code 1.2.27): “A lot of problems lies in the ward where the issues are not addressed, so they become our problem when they should be all
sorted out there” (R3 AL11-13). No consultant or nurse respondents commented on this issue.

However, half of the consultant respondents further commented that the process of withdrawal of treatment is not widely considered in society (Code 1.2.28): “One of the things with withdrawing is that this stays in the shadows because it’s not something people think about in our society. We don’t deal well with death and life decision making” (C1 BL105-107). This was not commented on by registrar or nurse respondents.

5.5.2.11 Satisfaction with the process of withdrawal

All consultant respondents, 67% of registrar respondents and 86% of nurse respondents indicated that they were satisfied with the process for the withdrawal of treatment within the ICU setting (Code 1.2.29). However, 50% of the consultant respondents and 29% of nurse respondents also commented that although satisfied, they would rather not have to be faced with the decision to withdraw patient treatment (Code 1.2.30).

5.5.2.12 Legal issues regarding the process of withdrawal

Referring to legal issues regarding the process, 75% of consultants, 67% of registrars and 71% of nurse respondents highlighted that the process of withdrawal of treatment was a medical decision and responsibility (Code 1.2.31): “The decisions lie with the medical practitioners, specifically consultant medical practitioners as they are the people with the expertise” (R1 BL34-35), and “It’s clearly a consultant medical decision to start the process” (RN4 BL234-235). Further to this, 25% of consultant and 67% of registrar respondents referred to the medical staff member’s moral and ethical obligations to the patient; non-maleficence, beneficence and social justice (Code 1.2.32): “The current process is based on a number of factors, those are beneficence, non-maleficence and social justice” (R1 BL7-8) and “the current process is based on the principle of providing best appropriate care to the patient” (C1 BL8-9). No nurses commented on this.
Statements that referred to staff understanding of their legal responsibilities and the potential for malpractice or litigation as serving to ensure awareness, time and active involvement in the process were made by all consultant and registrar respondents but only 57% of nurse respondents (Code 1.2.33): “I’ve just seen an example over this week where the medical staff spent an inordinate amount of time; several days in fact, getting the family to come round to a decision, giving them time, and it’s highly unlikely that there’ll be in litigation or malpractice as a consequence of that. And that’s because they didn’t rush into doing anything active because the decision wasn’t accepted” (R2 BL198-203).

The majority of consultant respondents (75%), and 29% of nurse respondents also indicated that the decision to withdraw treatment is a legal grey area (Code 1.3.34): “I guess one disadvantage is that although this is extremely common, and the reason for that is that deaths these days, it’s hard to have a natural death, because if patients are in hospital there’s always more that you can do, but sometimes it’s just not appropriate because they’re going to die anyway, so but, the disadvantage of this process is that we don’t have legal back up for it. So even though it’s very common, we are vulnerable in that any time someone could criticise us if it’s not handled particularly well, that could happen, and then we don’t have, you know, it’s not actually within any legal guidelines what we do” (C3 BL36-42). No registrar respondents made this point.

5.5.3 Old documentation of the process: Description and understanding

Respondents were also asked to provide a description and their understanding of the old documentation of the process of withdrawal of treatment (prior to the introduction of the ACP document) within the local ICU setting (Codes 1.3). A description of the content of medical record documentation (free prose) of the process of withdrawal of treatment was provided by interview respondents. As a whole these responses to the question regarding the respondents’ understanding and description of the documentation of the withdrawal process were analysed to provide a summary description of those aspects considered important to the old documentation of the process of
withdrawal, rather than this section of the interview transcripts being coded or an attempt made to quantify responses. Taken together these descriptions can be interpreted as including the following aspects as important:

- At least two ICU consultants’ consensus
- Home team specialist consensus
- Family members present at discussion
- Description of discussion with family and family consensus
- Name of witness (e.g. nurse present at family discussion)
- Reasons for the decision (i.e. why therapy is no longer appropriate)
- Patient management plan (including clear details of exactly what treatment is to be withdrawn or withheld)

It was also noted that some additional documentation may include: any causes for dissension; documentation completed by a medical representative of the parent clinic; documentation completed by the ICU social worker involved in the case; and/or documentation completed by the nurse involved in the withdrawal process.

Further to the description of the documentation of the process of withdrawal, analysis of interviews revealed 5 different codes (1.3.1 to 1.3.5; see Appendix 5.10 and 5.11) regarding respondents’ understanding of the documentation of the withdrawal process. Respondents also commented on who they perceived should do the documenting, the content of documentation, and any associated guidelines relating to the documentation of the process. Each of these codes is described below, with an example of each code provided.

5.5.3.1 Who should document

Several respondents referred to whom they perceived to be responsible for documenting the process of withdrawal of treatment within the ICU setting. A total of 50% of the consultant respondents, 33% of registrars and 71% of nurse respondents indicated that the documenting of the process for the decision to
withdraw treatment should ideally be completed by a consultant staff member but at times by a registrar (Code 1.3.1): “Current documentation should be by senior member of medical staff, ideally the consultant, though I must admit sometimes the registrars write the discussed opinion, which is probably not perfect” (C1 BL29-31), and “Usually it’s just one of the doctors, either the consultant or the registrar will document the conversation and the process of withdrawal that has been discussed with the family” (R1 BL17-19).

5.5.3.2 Content of free prose

Some respondents also detailed what they perceived to be important in documenting the process of withdrawal of treatment. In particular, each of the consultant and registrar respondents and 57% of nurse respondents specified the content of free prose (Code 1.3.2): “The current documentation process is one of prose written in the notes, which clearly outline maleficence, non-maleficence, beneficence, the wishes of the patient and their family, medical consensus, family consensus, as well as a clear indication of the reasons for withdrawal or withholding or therapy based on medical advice” (R1 BL12-16).

In relation to the content of free prose, 50% of consultant and 33% of registrar respondents commented on the use of specific catch-phrases and wording in documenting the process of withdrawal of treatment (Code 1.3.3), but no nurse respondents commented on this: “I also document the discussion with the family, the little sort of rubber stamp that I write in is that I’ve discussed the patients pathology, prognosis and management with the family. I write down who the family present were and I write down the name of one witness” (C4 BL39-43), and “There are catch phrases like any ongoing treatment would not be in this patient’s best interests, there are sort of catch phrases that you use” (C2 BL181-183).

5.5.3.3 Guidelines to inform the documentation

The majority of respondents mentioned that ICU guidelines to inform the documentation of the withdrawal process were not available within the ICU. Only 25% of consultant respondents and 43% of nurse respondents indicated that there were guidelines present within the ICU (Code 1.3.4), whereas 75% of consultants,
67% of registrars and 14% of nurse respondents mentioned that no such guidelines were present in the ICU (Code 1.3.5): “I think we probably should have written guidelines, which we don’t really have at the moment” (C3 BL36-37), and “The documentation is pretty much standard medical annotation of decisions made and who’s made them and its thrown in the notes (medical record), there’s no forms or guidelines or pro forma’s or algorithms I’m aware of” (R2 BL22-24), and “there’s no specific documentation, specifically nothing in regards to what should be stated in actually the progress notes in regards to making it understandable for all parties” (RN2 BL38-40).

5.5.4 Attitudes to old documentation of process

Respondents’ attitudes toward the old documentation of the process of withdrawal of treatment were also coded (Codes 1.4). In particular, analysis of interviews revealed 7 different codes (1.4.1 to 1.4.7; see Appendix 5.10 and 5.11) regarding their attitudes toward the old documentation of the withdrawal process. Each of the codes is described below, with an example of each.

5.5.4.1 Variability of old documentation

In regard to the old documentation of the process 75% of consultants, 33% of registrars and 57% of nurse respondents commented that variability existed (Code 1.4.1) in how clearly and/or comprehensively documentation was completed: “I would fully accept that there are always problems with documentation and sometimes we don’t document, I mean regularly doctors are the worst in the world for not documenting in the case notes” (C2 BL27-29), and “The documentation depends on the consultant as to how comprehensive, I mean it obviously depends on the consultant, and it may in fact be not ideal with regards to its clarity, particularly when you think the patients could well be transferred to wards, there is a tendency at times for it to be confusing. It’s rather broad too and non-specific in regards to who was there at the meeting, what family members were present, so it does lack some specifics” (RN2 BL19-24).

More specifically, 43% of nurse respondents noted variability in the documented details of what was to be withdrawn or withheld and who was
responsible (Code 1.4.2): “I just think sometimes people forget, they’re so used to giving verbal orders and saying to the nurse ‘we’ll put the oxygen down’ and they just forget to write the order, but it’s important they do remember to write it actually down” (RN4 BL219-222).

5.5.4.2 Importance of clear documentation

The importance of clear documentation (Code 1.4.3) was mentioned by all consultants, 33% of registrars and 29% of nurse respondents: “The documentation is obviously very important. I’m always fussy about writing in the notes and what I write in the notes is by what process the decision was made, so what was the basis for the decision, who participated in the decision, why we feel that therapy is no longer appropriate and what the management plan is going to be” (C4 BL32-37). Further to this, 57% of nurse respondents indicated the importance of written orders (Code 1.4.4) for nursing staff regarding the patient care plan details following the decision to withdraw treatment: “An order should be written so it’s clear about who made the decision” (RN6 BL240-241).

A perceived benefit and preference for documentation involving free prose in the patient’s medical record (Code 1.4.5) was mentioned by 50% of consultant and 33% of registrar respondents: “the advantages are clear documentation, supposedly clear documentation in the case notes, which is there, its kept for posterity, easily found once the case notes are found” (C2 BL187-189). However, this was not mentioned by nurse respondents in relation to the old documentation of the process.

Reported staff attitudes to the old documentation of the process also included comments by 50% of consultants, 33% of registrars and 29% of nurse respondents that there were sufficiently documented instructions relating to the withdrawal of treatment and patient care plan (Code 1.4.6): “Yep, it would be rare that there weren’t [sufficient instructions], which is the benefit of documenting prose in the notes” (R1 BL135-136). Fifty percent of consultant respondents, all registrars and 71% of nurse respondents indicated that the verbal exchange and communication of these instructions was common (Code 1.4.7): “I think most of our work is done at a verbal level and then documented in the case notes and that
seems to be a fairly standard approach” (R2 AL13-15), and “In ICU we’re quite a close unit so when a decision is made we convey verbally rather than, I mean not everyone’s handwriting is legible, you do know that, right?” (R3 AL67-69), and “If for some reason it [Not for resuscitation] hasn’t been charted it’s usually because the doctors have just forgotten to do it, so it’s usually up to us to chase them up to do that and that’s really important for us to make sure that that’s documented” (RN5 BL139-141).

Summary

These findings highlight the various understandings and attitudes that the ICU respondents had of the process of withdrawal of patient treatment and the old documentation of the process. The findings highlight that most respondents were satisfied with the withdrawal process, with little need for involvement of an ethics committee or palliative care consult. The role of the nurse was considered important as an advocate and liaison for the patient and patients family, as was the role of the social worker, providing a supportive role for the family. Respondents repeatedly emphasized that the decision to withdraw treatment was a medical decision and responsibility. However, the majority of consultants felt that the withdrawal of patient treatment process continued to be a legal grey area. Furthermore, the importance of clear documentation was noted by half of the respondents, although many respondents emphasized the issue of variability in the old documentation of the process.

Change process

Staff perceptions of the change process prior to the introduction of the ACP document were examined, regarding their attitudes toward the impending introduction of the ACP document (Categories 2.1 to 2.2; see Appendix 5.10 and 5.11).
5.5.5 Issue of collective experience

The pattern of consultant responses revealed reservations concerning the ACP document and a level of scepticism on the basis of previous experience and failure with a similar document. The majority of consultant respondents (75%) reflected on previous experience and a failed attempt to formalize the documentation of the withdrawal process in the past (Code 2.1), “The history is we have a form which the majority of us who have ever used the form think it’s a very bad form. We have dispensed with that form, pretty well, because of its badness and when it was tried in the coroner’s court, when it was used it didn’t stand up, it was criticised by the coroner.” (C2 BL1-4) and “We know that having a form that can not be filled out correctly has previously exposed us to problems with litigation.” (C1 AL271-272).

In comparison, only 33% of registrar respondents and 29% of nurse respondents referred to issues of collective experience (Code 2.1): “We’ve had previous forms in the past which have not done this or which have done it very poorly and so it is my opinion that the current process that we use is more than adequate and I don’t believe that you could replace that with a form.” (R1 BL23-26), and “originally there was a form but that has not been in existence for a couple of years” (RN2 BL18-19).

5.5.6 Attitudes toward impending change

All consultant respondents and only one registrar respondent expressed their attitude toward the impending change prior to the introduction of the new ACP document, with the remaining two registrar respondents unaware that a change in documentation was to occur. Most nurse respondents (86%) were aware of the impending document and expressed their views about the change.

5.5.6.1 Preference for descriptive not prescriptive

With regards to the impending change, a preference was expressed for a descriptive rather than prescriptive method of documentation (Code 2.2.1) by all consultant respondents and 33% of registrar respondents; for example: “There’s a suggestion that we have a form that we sign and I feel that if people just start
signing a form they’ll stop writing in the case notes and I think writing in the case
notes is extremely important, with a description of what you’re doing and why
you’re doing it.” (C3 BL228-231). No nurse respondents commented on this
issue.

5.5.6.2 Role of nurse to be defined

Only some nurses (29%) indicated the need for the impending document to
explicitly state the role of the nurse signature (Code 2.2.2): “I know there’s other
issues related to the nurse putting their signature on that form, what would that
represent?... the role of the nurse should not be related to the decision to
withdraw, so the wording needs to be really clarified” (RN2 BL333-334 + 337-
338). Many nurse respondents (43%) further highlighted the need for a senior
level nurse to be responsible for signing the document (Code 2.2.3): “There’s
been various discussions as to the level of nurse that should participate, there’s no
doubt that it’s Level Two or Three because of the seniority, the average Level One
that’s looking after the patient, one they may only be on that patient for one shift
and they may not have the ability or don’t feel confident in the ability to discuss
the issue with the family or in fact to go to the consultant” (RN2 BL321-325). No
consultant or registrar respondents commented on this issue.

5.5.6.3 Impending document may overcome variability with current
documentation

A total of 43% of nurse respondents anticipated that the impending
document might overcome variability and inconsistency in the current process and
documentation of the process (2.2.5): “I think the new form will be better because
then it will actually be documented and it will be clear, because sometimes it’s a
little bit difficult to know exactly, with documentation what’s actually going to
happen if they don’t write it clearly enough and you don’t know what your
parameters are” (RN7 BL220-223).

5.5.6.4 Requirements of documentation not consistent with process

Also regarding the impending change, 50% of consultants and 33% of
registrar respondents indicated concern that the requirements of the intended ACP
document were not consistent with the withdrawal process (Code 2.2.4): “the
problem is that it’s trying to formalize and legitimize a process. Now the process already exists… If you write a form it’s just a matter of ticking boxes, and that’s the problem.” (R1 BL237-238 + 243). No nurse respondents indicated this as a concern.

5.5.6.5 Suggestions for improvement

Twenty-five percent of the consultant respondents provided suggestions for improving the impending ACP document, particularly the need for the document to adequately reflect the actual withdrawal process (Code 2.2.7):

“Surely this form must apply at all times. It simply will not be possible at 2am or late on a Sunday, etc, to get the physician or surgeon to examine the patient. Decisions are often made by telephone consultation and this form needs to allow that to happen – i.e. it must apply in the real world and not just 8-6 Monday-Friday.” (C4 EL60-63). No registrar or nurse respondent indicated suggestions for improvement to the impending new document.

Summary

Consultant respondents made a particular point of mentioning previous experience with a document that was criticised by the coroner’s court. They accordingly expressed reservations concerning the ACP document and further highlighted their preference for descriptive free prose in the patients’ medical records rather than a prescriptive separate document requiring details of the process. Concern was also expressed that the impending document would not be consistent with the process of withdrawal within the ICU. Nurses also indicated concern with defining the role of the nurse signature on the impending new document.

New Advance Care Plan (ACP) document

Staff perceptions of the new ACP document were also investigated, regarding their attitudes toward the development and implementation of the document, and their attitudes toward the document in general. Also investigated were suggestions for improving the process, documentation of the process and
other related aspects of the withdrawal process (Categories 3.1 to 3.3; see Appendix 5.10 and 5.11).

5.5.7 New ACP document development and implementation

Respondent’s attitudes toward the new ACP document and its implementation were further examined (Codes 3.1). In particular, analysis of interviews revealed five different codes (3.1.1 to 3.1.5; see Appendix 5.10 and 5.11) regarding their attitudes toward this aspect of the new ACP document. Each of the codes is described below, with an example of each.

5.5.7.1 Lack of consultation and communication

A lack of consultation and involvement of key stakeholders and a failure to adequately communicate in the development of the new ACP document (Code 3.1.1) was reported by 75% of consultants, 33% of registrars and 57% of nurse respondents: “The fact that the hospital processes seem to occur without the ability of the people involved at the bedside to influence how things occur is, I guess concerning but not all that surprising… the process in which this has occurred has been worrying.” (C1 AL264-267), and another consultant indicated: “there were a number of occasions where we fed back, or tried to feedback that we didn’t have any faith in the form as it was originally constructed and that feedback was ignored, and unfortunately it wasn’t ignored by the people who were running the form. [The] Hospital Treatment Ethics Committee, who were writing the form, weren’t aware that we didn’t like it. There was a blockage between us and them and who knows where that blockage might have been… clearly none of our comments were actually fed back, so it reflected a problem in management and a failure to communicate. Which is the source of most problems” (C4 AL223-238). “A change for nursing like this to me should be a reflection of what’s going on in the masses but I really don’t think that the general consensus of the nurses will be that it’s time for this kind of change. And it’s coming from above and it’s being pushed for litigious reasons in terms of we being sued by someone recently and this is the reaction” (RN6 BL441-445).

5.5.7.2 Tension and distrust
Tension and distrust in the interaction within and between intensive care staff and management concerning the ACP document development and implementation (Code 3.1.2) was mentioned by 75% of consultants, 33% of registrars, and 43% of nurse respondents: “this whole process has been an absolute debacle, and it’s been hi-jacked by people, a person with an interest and an agenda, god knows what it is” (C2 AL419-420) and “It [ACP] doesn’t appear to [have taken off] because of some concerns of some consultants… I believe that there’s no doubt over the last few years because of medical politics and some disagreement between senior medical staff that this has impacted on new initiatives coming into the unit, because you’ve got divisions in the medical staff and you can have plans to bring in, which seem to be very good improvements to documentation and some aspects of care, but because of some dysfunctionality in the groups, that one group will completely oppose what another group tries to bring in, even though it can be seen as really an improvement, and that’s very disappointing from an external nursing point of view because it is in some way impeding the progress of improving care in the unit” (RN4 171-180). Furthermore, another nurse indicated “I think one thing that is important in the implementation of anything in this unit is to understand that the director of this unit, the broader director of this unit is a nurse and that is resented by the consultants. So that’s an underlying theme, which makes it incredibly different from most units around Australia. Because [in] most units around Australia it’s a medical person that’s the broader director. So as it is, our consultants can’t stand it because they don’t feel that their interests are being looked after. They feel they’re being told what to do by a nurse from a nurse’s point of view, and that no one’s protecting them” (RN7 AL340-348).

5.5.7.3 Perceived lack of external consultation

A perceived lack of external consultation and advice (Code 3.1.3) was indicated by 50% of consultant respondents and 29% of nurse respondents: “The hospital has failed despite requests to provide an adequate medico legal opinion regarding this process and clearly doesn’t see it as something they want to, I mean they’ve basically told us that it’s too expensive, which makes me sure that my role in this whole process is very expendable as far as the hospital is concerned.” (C1 AL119-122) and “I think that’s a massive change to have just
introduced without consultation of either the union or the Nurses Board” (RN6 AL288-289).

5.5.7.4 Need for education and information

Education concerning the ACP document was not mentioned by consultants or registrars. However, 71% of nurse respondents indicated a need for adequate education and dissemination of information regarding the introduction of the new ACP document throughout the hospital (Code 3.1.4): “If they’re [hospital] going to release any document it still probably needs a reasonable amount of consultation and education” (RN2 AL199-201).

5.5.7.5 Disagreement with nurse position level

Only 25% of consultant respondents indicated that disagreement was raised regarding the ICU stipulation that only the most senior ICU nurse on duty was to sign the ACP documentation (Code 3.1.5), whereas 36% of nurse respondents also indicated their disagreement: “we suggested that because of the nature of the treatment that we would stipulate that it had to be a senior member of staff… we stipulated that would be either one of the clinical nurses, clinical case managers or if after hours the unit coordinator. That caused a massive stink amongst a lot of the senior nurses” (RN1 AL153-158). No registrar respondents indicated this.

5.5.8 New ACP document

Staff perceptions concerning the new ACP document were also coded (Codes 3.2). In particular, analysis of interviews revealed 17 different codes (3.2.1 to 3.2.17; see Appendix 5.10 and 5.11) regarding their overall attitudes toward the new ACP document. Each of the codes is described below, with an example of each.

5.5.8.1 No change to documentation

The majority of consultants (75%), all registrars and over half (57%) of the nurse respondents commented that the ACP document had no impact on or change to the documentation of the process of withdrawal of treatment (Code 3.2.12), and
50% of consultants and 14% of nurse respondents indicated that variability in the documentation of the process remained (Code 3.2.1): “it’s still variable and I don’t think it’s altered since the advanced care plan document was introduced. It’s variable, varying from excellently documented to sometimes very poor” (C1AL104-105). In addition, 25% of consultants, 33% of registrars and 29% of nurse respondents mentioned confusion and ambiguity regarding the appropriate method of documentation (Code 3.2.2) of the withdrawal process following the introduction of the ACP document.

5.5.8.2 Lack of universal use, acceptance and ownership

Furthermore, 50% of consultants, 67% of registrars and 86% of nurse respondents indicated a lack of universal use, acceptance and ownership by medical and nursing staff of the new ACP document (Code 3.2.5): “Look, not everybody uses it. It is a good document, not everybody uses it” (R1 AL18-19) and “It’s not being used by people on the wards appropriately so that’s made it worse and the fact that we can’t agree on who should be signing it and on the process of the form, and that we weren’t given input into its design has not improved things” (C1 AL116-119), and nurse comments included: “The form has been as far as I am aware at the moment an absolute total and complete failure, because people aren’t supportive of it” (RN1 AL46-48).

5.5.8.3 Document inaccessible

Although 25% of consultant respondents perceived the document to be inaccessible (Code 3.2.13), this comment was not expressed by other consultants, registrars or nurse respondents. Also, 25% of consultant respondents, 33% of registrars, and 43% of nurse respondents indicated that the ACP document was cumbersome (Code 3.2.14).

5.5.8.4 Requirements of documentation not consistent with process

All consultants, 67% of registrars and 29% of nurse respondents perceived that the requirements of the ACP document were not consistent with the process (Code 3.2.4): “I think it’s really important firstly that a form try and address all the complexities, but I actually think that’s almost impossible, but secondly that the form’s practical and can be filled in fully at any time of the day or night, and
that means when doctors aren’t necessarily around, yes, so I’m afraid I don’t think this form does fulfil those requirements” (C3 AL70-74). And another respondent indicated: “This form also required that you have two intensive care consultants sign the form which is just not going to happen. At three o’clock in the morning if we withdraw therapy there won’t be two intensive care consultants there. Which either means that the patient’s got to be treated inappropriately or the form will fail, and our exposure to these forms in the past legally is that when it comes up in court it’s never filled out properly, so why set yourself up to fail?” (C4 AL75-82).

5.5.8.5 Risk of litigation

Half of the consultant respondents (50%), 33% of registrars and 57% of nurse respondents indicated a concern regarding risk of litigation surrounding the use of the ACP document (Code 3.2.11), with the perception that the document did not provide additional legal protection for staff involved in the process of withdrawal of treatment: “I actually feel that it’s increased my risk because I haven’t been happy to fill it in and I felt that if I did try to fill it in it would be extremely difficult to complete it and I think an uncompleted form is much more dangerous from a litigation point of view than no form… they’ve (the hospital) introduced a system which we’re not happy with and if we don’t follow that system then we are open to criticism” (C3 AL171-173 + 178-179).

5.5.8.6 Preference for descriptive not prescriptive documentation

In addition, 75% of consultants, all registrar respondents and 71% of nurse respondents continued to prefer descriptive free prose in the patients’ case notes to that of a separate prescriptive ACP document (Code 3.2.10), as previously expressed by all consultants in their attitudes toward impending change (see also Code 2.2.1): “we could try and come up with a form that fits all times, all places, all patients but it’s never going to be as good as writing a whole lot of stuff in the case notes” (C3 AL228-230), and “They’re [consultants] just doing what they always have done and I think that’s the thing, they’re happy to write in the notes about what they’ve discussed and I haven’t really seen the form at all” (RNL1 AL36-38).
5.5.8.7 ACP document detracts focus from patient care

The majority of consultant respondents (75%) and 33% of registrar respondents also mentioned that the new ACP document detracted focus from patient care (Code 3.2.3): “It should not stop us from the process because the whole idea is that sometimes we are doing things because of the letter of the law rather than the spirit of it. Sometimes we get constrained by all this detailed fill-in (ACP) that may hinder the process” (R3 AL28-31) and “we have now got a more confusing documentation process, and we’re focusing on a piece of paper instead of getting the process right, getting agreement with all parties, and I think that focus on the piece of paper has detracted from what we should be concentrating on” (C1 AL113-116). No nurses made comments regarding Code 3.2.3.

5.5.8.8 ACP presents a challenge to the hierarchy of staff involvement

A challenge to the hierarchy of staff involvement and/or responsibility relating to the introduction and impact of the ACP document (Code 3.2.6) was mentioned: “I don’t really agree with them [nurses] being involved in the decision. I haven’t ever asked them to sign the form. I’d be happy to ask them to sign a form if they were signing as a witness or to sign that they’d been involved in the support of the process, so if the wording were changed on that [ACP] I’d be happy to get them to sign, if they wanted to sign, but it would be up to them. I don’t want them to feel that they’re taking responsibility for a process when I don’t feel that that responsibility’s appropriate” (C3 AL153-158); and “someone like myself, I’m not a consultant; I go to all the efforts of getting the advanced directives sorted out, so I’m not actually eligible to sign the form, which is a bit strange. So I think that puts me slightly off-side with the form” (R2 AL37-40). Almost half (43%) of nurse respondents also commented on this challenge to hierarchy: “I know this is a hospital form and some of the medical staff resent the fact that being a hospital form it’s classified as being a nurse’s form and there is resentment from certain medical consultants to not take orders from nurses, and therefore they don’t like the form” (RN1 AL43-46). However, it is clear from the ACP document requirements regarding the nurse’s signature (Appendix 5.1) that the nurse is not required to be involved in the decision making, as this is a consultant responsibility.
5.5.8.9 Role of nurse and nurse signature

All consultant respondents, 33% of registrar respondents and 57% of nurse respondents indicated disagreement with the requirement of the nurse signing the ACP document (Code 3.2.8): “The nurse has no responsibility, it’s still a medical decision, the nurse carries no medical or legal or whatever responsibility, so why she’s got to sign the form is beyond us, and I think that the nursing staff need to look at that because I think it’s laying them open, potentially, for trouble down the track if it does become contested.” (C2 BL68-72); “The only sort of thing that I have any issues with are the fact that a nurse signs it and that’s sort of something that I don’t think is a particularly good idea. I don’t think they understand the implications of it, nor are they advised of the implications of it” (R1 AL12-15) and also “I don’t know how this document would be interpreted in a court of law and that is something that has concerned me from the very beginning, because I think you’re putting nurses into a situation that really they’re not the people that are in control of the situation” (RN3 AL144-147).

In contrast, 67% of registrars and 43% of nurse respondents commented that there was no change to the role of the nurse in the process (Code 3.2.9) following the introduction of the ACP document: “With regards to the nurses’ role, I don’t think it’s been impacted by this at all” (R3 AL56-57).

5.5.8.10 Optional family signature

All consultant respondents, 33% of registrars and 14% of nurse respondents indicated concern and disagreement with the ‘option’ of the patient’s family signing the ACP document (Code 3.2.7), both before and after the introduction of the document: “I do not believe it is necessary from a legal view point to ask the family to sign a form. I certainly don’t believe it appropriate from an ethical, social or psychological angle. I hate the concept of approaching the family in such a way – “sign this form so we can let your husband die, Mrs Jones”!” (C4 BL5-9); and “I remain sceptical that getting the relatives to sign a form is of any value both legally and potentially has the ability to provide harm” (C1 AL224-226).
5.5.8.11 ACP document a good idea, but…

Reflecting a positive response, 67% of registrars and 71% of nurse respondents described the ACP document as a good idea (Code 3.2.15), but did not perceive the resultant change to be suitable or beneficial. No consultant respondents indicated this. Twenty-five percent of consultants and 33.3% of registrar respondents commented that the new ACP document had increased awareness and discussion concerning the withdrawal of treatment and documentation of the process (Code 3.2.16): “The fact that the advance care planning document has resulted in considerably more discussion about the withdrawal and withholding processes has probably tightened up our processes and increased awareness of processes.” (C1 AL123-125). No nurses indicated this in their responses.

5.5.8.12 ICU alternative document in development

Further to the above, 75% of consultants mentioned that the ICU consultant staff had commenced development of an alternative document, to replace the ACP, to be specific for the ICU setting (Code 3.2.17): “The new version (new document specific to ICU after ACP) is looking at a documentation of the process as it exists, as it can occur twenty-four hours a day and we tried to streamline it” (C1 AL204-206). However, none of the registrars and only 14% of nursing respondents made reference to this alternative document.

5.5.9 Suggestions for improvement

Respondents’ perceptions were also examined concerning their suggestions for improvement regarding the withdrawal process overall, the new ACP document, other alternatives for documentation of the process, and other issues (Codes 3.3). Analysis of the interviews revealed eight different codes (3.3.1 to 3.3.8; see Appendix 5.10 and 5.11) regarding respondents various suggestions for improvement. Each of the codes is described below, with an example of each.

5.5.9.1 Documentation needs to be consistent with process

The majority of consultant respondents (75%), 33% of registrars and 14.3% of nurse respondents suggested that the requirements of documentation
need to be consistent with the process of withdrawal of treatment (Code 3.3.8), making reference to an ICU specific version of the document that was being developed at the time of the after-introduction interviews, for example: “The main thing is the practicality of being able to fill the form in completely and I think it’s really important if we have a form that we must be able to fill it in completely.” (C3 AL 276-277).

5.5.9.2 Need to overcome current variability

A total of 29% of nurse respondents emphasized the need to overcome variability and inconsistency in consultants’ attitudes to the current process of withdrawal of treatment (Code 3.3.6): “A lot of times they’ll [medical staff] self reflect some body else’s suffering and say “I wouldn’t like that to happen to my mum… and therefore go along the lines of coercion of the patient to get what they believe is the right treatment for them and I don’t necessarily think that’s right, I think the patients need to be given information fair and honest and it needs to be discussed prior to the fact that they get really sick, when they’re of sound mind” (RN1 AL268-275). No consultant or registrar respondents made this suggestion.

5.5.9.3 Audit of medical record documentation

Auditing case note documentation (Code 3.3.4) was suggested as an improvement by 50% of consultant respondents and 14% of nurse respondents: “What we should actually be doing is getting out the case notes on all of the withdrawals and withholdings, reviewing them and making sure that everything is clearly documented, so that if an outsider comes, and took the case notes, that they could see exactly what was happening.” (C2 AL509-512).

5.5.9.4 Improving medical record documentation

Further to this, 25% of consultant, 33% of registrar and 14% of nurse respondents indicated a need to focus on improving case note documentation (Code 3.3.5): “I think that the most important thing is the concept of documentation itself. It’s not necessary that you actually put it on a form, but rather that the written information in the notes reflects the content of the form.” (R1 AL19-21) and “I do believe that our documentation needs to be tightened up a little bit” (RN4 AL154-155). As a suggestion for improving documentation of
the process, 25% of consultant, 33% of registrar and 14% of nurse respondents indicated the need for guidelines for the specific content of documentation required (Code 3.3.1): “It would be helpful to have some written guidelines, which we all agree on, and then all try and follow.” (C3 BL231-232).

5.5.9.5 Ownership of advance care planning

Only nurse respondents, but many of them (43%) suggested the need for hospital-wide ownership of advance care planning for patients prior to admission into the ICU (Code 3.3.2): “There should be a hospital wide approach or a systems approach to advance care planning and that could well take place from ED [Emergency Department] or in fact on an elective basis when patients are admitted to this hospital” (RN2 AL38-41). Only 14% of nurse respondents, and no consultant or registrar respondents highlighted the need for promoting awareness of advance care planning in the community (Code 3.3.3): “A big part of the process that would be very helpful is if there was some kind of, I don’t know whether a media campaign or something like that, just an awareness in the community created where families discussed it [advance care planning] with each other, because at the moment there’s nothing to sort of spark that conversation apart from if someone in the family is interested to know. There’s nothing out there in the community that sort of generates that discussion and it’s a huge issue coming up with so many elderly people, and that population of elderly people is getting bigger” (RN6 AL142-149).

5.5.9.6 Provision of staff support

Further to this, 33% of registrar respondents suggested the provision of support for staff involved in the withdrawal of treatment process (Code 3.3.7): “What we don’t have though is any forum for getting together as a team without the patients and the families and discuss what we’re doing, how we’re doing it… Could we have done this better? Did we do anything wrong? Do you think that things went well?” (R2 AL233-241). No consultant or nurse respondents made this suggestion.
Summary

Overwhelmingly, respondents were negative about the development and implementation of the ACP document, with no perceived change in documentation noted. Concerns highlighted in respondents’ attitudes to the impending change (Codes 2.2) were reiterated following the introduction of the ACP document, including requirements of the document not being consistent with their perception of the process (2.2.4 and 3.2.4), referring to the “practicality” of required and optional signatures to be obtained, and the preference for descriptive medical record documentation (2.2.1 and 3.2.10). Overall, respondents revealed a lack of universal use, acceptance and ownership of the new ACP document. According to respondents there was a failure to adequately communicate the change process to key stakeholders, with many indicating a lack of consultation and involvement in the process of change. Tension and distrust were also revealed by all professions with divisions and dysfunctionality in the medical staff seen as an issue impeding progress in quality improvement. Several suggestions for improving the documentation of the withdrawal process were expressed by respondents, offering alternatives to the ACP document and these were largely focused on improving the current documentation in the medical records.
5.6 Discussion

Introduction

The majority of patient deaths within the ICU setting occur after a decision to withdraw or withhold treatment has been made (Prendergast, 2000). Patients within the ICU rarely have sufficient competency to participate in decision-making regarding their care and therefore the concept of patient autonomy cannot be applied to the majority of patients dying in this setting (Thompson et al., 2004). Variability exists between ICUs, with differences in physician preferences, practice and culture between Australia and other countries (Miccinesi et al., 2005; Sprung & Eidelman, 1996; Yaguchi et al., 2005). Furthermore, there is a dearth of literature focusing on the medical record documentation of the process of end-of-life care and the withdrawal of patient treatment in the intensive care setting, in terms of when and how the process should be recorded (Carlet et al., 2004; Melltorp & Nilstun, 1996). There has been recent acknowledgement internationally concerning the extreme importance of documentation of end-of-life care and recommendations with respect to the need for a clear documented record of proceedings to function as a reference for any future concerns that may arise (Carlet et al., 2004), and to enable greater transparency and accountability of the care provided (Butler et al., 2003; NSW Health, 2005). Recent research has further recommended the development of standardized forms of documentation for end-of-life care in the ICU to assist staff in improving the documentation and provision of care (Kirchhoff et al., 2004).

This highlights the importance of, and need for, research to further understand the withdrawal of patient treatment and the documentation of this process within the ICU. The current study attempted to address this limitation in the current body of literature and sought to investigate the impact of a hospital-wide ACP document on the documentation of decision-making, discussion and consensus for the withdrawal of treatment for patients within an Australian adult ICU setting. The data are informative in two ways. Firstly, the before- and after-introduction medical record audit assessed an attempted change in the practice of documentation of the process and the extent to which the change process and the
ACP document were effective. Secondly, interviews conducted with intensive care consultants, registrars and nursing staff concerning their perceptions of the withdrawal process, the documentation of the process and the development, introduction and impact of the ACP document offered insights, context and possible explanations for the findings of the medical record audit.

The purpose of this section is to discuss the results obtained in this study with respect to the current literature and the research questions and aims of the present study. As the qualitative empirical data from the interviews with ICU staff were so extensive, only the key findings relating to the research question will be discussed here, including differences between the sub-groups interviewed (i.e. consultants, registrars and nurses). The key findings of the study will also be discussed in relation to its practical and theoretical implications, followed by a discussion of the limitations of the study and directions for future research.

Discussion I: Medical Record Audit

Overview

The findings of this study highlight the ICU staff resistance to change following the introduction of the ACP document, despite demonstrating an understanding of the need for improved practice. The medical record audit findings reveal a resistance to compliance with the requirements of the ACP document, with staff continuing to prefer ad hoc descriptive documentation in the medical records, and a failure to use the ACP document. The audit results did show some significant changes in the documentation of the withdrawal process; findings clearly confirm the extent to which the requirements of the ACP document were not being met.

Advance Care Plan (ACP) document

The importance of evaluating the withdrawal of treatment process in the ICU as a quality improvement procedure has been clearly stated in the literature (Carlet et al., 2004; Rubenfeld & Crawford, 2001). In particular, the process of documentation and consensus building is described as important in the available
guidelines and statements for healthcare in general and, in particular, for intensive care professionals. The importance of understanding the withdrawal process and of the associated documentation of the process is further highlighted by the frequency with which the decision to withdraw treatment is made within an ICU setting. Similar to other recent studies (Hall & Rocker, 2000; Holzapfel et al., 2002; Keenan et al., 1997), the majority of patient deaths in the ICU in the current study, both before and after the introduction of the ACP document (75% and 69% respectively), occurred following the decision to withdraw aspects of patient treatment.

Results from the medical record audit revealed that the ACP document was essentially not used in the ICU, and failed to achieve the desired impact of formalizing documentation of the process, with a lack of acceptance and ownership reported by staff. The after-introduction findings indicate that the ACP document was not utilised in 89% of medical records and remained incomplete in the remaining 11% of medical records. These findings contrast with those of Treece (2004) who reported the success of a quality improvement initiative to standardize withdrawal of life support documentation, indicating that 71% (54/76) of patients had a withdrawal of life support order form used in the after-evaluation following its introduction. In the current study, in the 11% of ACP documents that were partially completed, not all the required signatures were obtained. Concerns about documents that had not been filled out correctly were expressed by respondents in reference to criticisms by the coroner of a previous failure to complete the documentation.

The ACP document was developed and disseminated for use throughout the wider hospital. Of the 26 patient medical records involving the decision to withdraw patient treatment, the patient was admitted from within the hospital (ward or operating theatre), in 39% of cases. Although this study focused on the documentation of the withdrawal process by ICU medical and nursing staff, it is worth noting that for the 10 (39%) patients admitted from within the hospital, the ACP document was not utilised in any of the 10 cases. This reflects under-utilisation of the ACP document by staff in other areas of the hospital and a lack of improvement in initiating discussions with competent patients regarding
advance care planning, at least prior to their admission to the ICU. This is similar to previous findings that reported that the introduction of a pre-printed order form for “do not attempt resuscitation” (DNAR) orders did not significantly improve the involvement of competent patients in the decision to withhold cardio-pulmonary resuscitation (i.e. DNAR) (Castle et al., 2003). No patient medical record included in the before- or after-introduction audit of the current study was identified as having any existing pre-hospital patient advance directive. This is not uncommon, with previous studies reflecting the absence of advance directives (Melltorp & Nilstun, 1996).

Although the document was essentially not used, the after-introduction audit of intensive care patient medical records was completed by focusing on the documentation of the withdrawal process in the form of free prose in the patients’ medical records. The ACP document was essentially not adopted in the ICU. A comparison of the documentation before and after the introduction of the ACP document revealed some changes in the medical and nursing documentation with respect to the requirements of the ACP document. These changes included a reduction in ICU consultant involvement and an increase in registrar involvement, suggesting a move away from the requirements of the process, which requires the involvement of two ICU consultants. A documented increased involvement of registrar staff, other than as supernumerary observer for learning purposes, was in breach of the document and hospital policy.

**Documentation of medical decision and consensus**

A medical decision to withdraw treatment was documented in most cases (before, 89%; after, 96%), but six medical records (before: n= 5 and after: n= 1) lacked clear documentation regarding the medical decision to withdraw treatment.

Intensive care medical consensus of at least two ICU consultants is considered mandatory for the decision to withdraw patient treatment (RAH, 2003a) and was a requirement of the ACP document. The results from the medical record audit clearly showed that this requirement was violated more than half the time. Documented consensus increased slightly (statistically insignificant), but it
continued to remain below 50% in both the before-introduction (37%) and after-introduction audit (46%). An increase was noted in the documented consensus of two or more ICU medical staff members but this was mainly represented by an increase in the documented involvement (consensus) of an ICU registrar. This violates the mandatory requirements of at least two ICU consultants being involved in the decision to withdraw patient treatment as stipulated by the ACP document and pre-existing ICU protocol (RAH, 2003a).

It is important to note that the after-audit revealed that ICU consultants were less likely to be documented as the primary decision maker, with a considerable percentage increase in the documented involvement of an ICU registrars as the primary decision maker for the withdrawal of patient treatment, with a considerable percentage increase also found of an ICU registrar being the primary decision maker with no documented ICU medical consensus. This is a clear violation of the pre-existing requirements of the ICU Medical Manual (RAH, 2003a), of those in the ACP document, and of hospital policy. A lack of documentation of the participation of care providers (i.e. ICU medical and nursing staff) in the withdrawal of treatment has been reported in previous studies (Kirchhoff et al., 2004), which formed part of the rationale for developing the ACP document. However, the increase in documented registrar involvement in the present study differs substantially from the findings of a before- and after- study conducted by Butler et al. (2003) who reported a reduction in decisions made by junior medical staff and an improvement in consultant authorised decisions following the introduction of a standardised order form for DNAR decisions.

Documented consensus of a parent clinic representative is also a mandatory requirement of the ACP document (see Appendix 5.1) and ICU Medical Manual (RAH, 2003a), reflecting external (parent clinic) concurrence with the medical decision to withdraw patient treatment. Results revealed that documented consensus of a parent clinic representative was reasonably consistent, although it was absent in over a quarter of medical records in both the before- and after-audit samples. This is inconsistent with the description of the process by staff, as displayed in Figure 5.1, which clearly denotes the very important role of
the parent clinic consensus in providing external validity for the decision to withdraw patient treatment.

Although the medical consensus of at least two ICU consultants and a parent clinic representative is considered mandatory and must be documented according to both the ACP document and the pre-existing protocol (RAH, 2003a), the audit revealed that both before (35%) and after (42%), less than half of the medical records included this documentation. This fails to meet the mandatory requirements of documentation of the withdrawal process according to the pre-existing ICU Medical Manual (2003), the ACP document, and hospital policy. Due to the inappropriate increase in registrar staff involvement, the audit also reviewed the documentation of at least two ICU medical staff members (i.e. consultant or registrar) and a parent clinic representative. The documented medical consensus of at least two ICU medical staff and a parent clinic medical representative increased from the before (37%) to the after (62%) introduction audit, indicating both internal (within ICU) and external (parent clinic) concurrence for the medical decision to withdraw patient treatment, although most of this increase was due to the inappropriate involvement of registrars.

**Reasons for withdrawal of treatment**

Findings from this study revealed that the most commonly documented reasons for the decision to withdraw treatment were poor prognosis and/or therapeutic futility. This is similar to other studies that report poor prognosis (Keenan et al., 1997; Melltorp & Nilstun, 1996; Nolin & Andersson, 2003) and therapeutic futility (Nolin & Andersson, 2003) as common reasons documented for the decision to withdraw treatment. Withdrawal at the patients’ own request (i.e. patient autonomy) was documented in 7% and 12% respectively for the before- and after-introduction audit of the present study, with other studies reporting similar findings; for example, 6% (n= 18/318) of cases involving this manifestation of patient autonomy (Nolin & Andersson, 2003).
Medical documentation of patient/family conference

Findings in this study showed there was a slight increase in patient medical records that did include documented details of the family conference. However, a significant decrease was found in documentation completed by the ICU consultant and a considerable percentage increase in the documentation completed by ICU registrars, indicating their having conducted the family conference. This fails to meet the requirements of the ACP document, which stipulates the need for the ICU consultant to have had discussion(s) with the patient and/or family members and to document that they (the family) understand and accept all aspects of the plan to withdraw patient treatment (see ACP document Appendix 5.1).

Hall and Rocker (2000) found substantial variability in medical staff involvement in documented discussions with the patient and/patient’s family, whereas Keenan et al. (1997) found that family discussions were documented in almost all cases, with only 1.4% (3/211) of medical records not including a record of discussions with patient or family.

In the present study, the after audit revealed a slight improvement in documentation of the family member(s) spoken with at the family conference and their relationship to the patient (before= 59%; after= 77%). However, it was not always clear in the medical records exactly which of the family member(s) were spoken to regarding the understanding and acceptance of the medical decision to withdraw patient treatment. This lack of documentation would have grave implications if a family member wishes to contest the decision of withdrawal of treatment.

In addition, findings from the current study indicated a considerable percentage increase in documentation revealing both an ICU consultant and registrar as present at the family conference. As previous research has emphasized (Tulsky, Chesney, & Lo, 1996), medical staff education concerning discussions of ‘do-not-attempt resuscitation’ orders and end-of-life care was predominantly through observation and experience. Therefore documentation revealing both ICU consultant and registrar presence at the family conference is both desirable and not
unexpected, although the increase in documentation of the registrar attending with the consultant at the family conference (2% to 19%) was not a requirement of the new ACP document or of the existing ICU Medical Manual (2003).

Results from the medical record audit revealed a considerable percentage increase in the documented presence of a nurse at the family conference (before: 4%; after: 31%). However, these findings also indicated that over two-thirds of medical records involving the decision to withdraw patient treatment did not include documentation of this aspect of the process. The findings from the current study violate the requirements of the ACP document which indicate that within the ICU “The registered nurse responsible for the ward in consultation with the nurse(s) assigned to the care of the patient” must document (i.e. provide name and signature) “…nursing concurrence and witness that appropriate discussions have involved the patient and/or guardian/relatives/carers/friends and that the nurses involved understand and accept the plan” (see ACP document Appendix 5.1). This was the main problem with the case which led to an ICU consultant appearing (quite inappropriately) on the front page of the local newspaper (Kemp, 2004; Kemp & Scala, 2004). Previous research has also reported low levels of documentation concerning the involvement of nursing staff in the family discussion about the decision to withdraw life support, with only 14%-19% of medical records including documentation of the presence of the nurse (Keenan et al., 1997).

Content analysis of the medical documentation of the family conference

The content of the medical documentation of the patient/family conference was analysed based on the requirements and existing guidelines for the withdrawal of patient treatment (Clinical Practice Manual, 2005; NSW Health, 2005; RAH, 2003a), and the need for patient/family understanding and acceptance of the plan to withdraw treatment. Variability was shown, with less than a third of all medical records in the before- (31%) and after- (30%) introduction audits providing summary documentation of the patient/family conference that conveyed the following points as having been discussed: patient’s medical condition; patient’s prognosis; family’s wishes; palliative care plan; and family
understanding/consensus with the plan. The remaining medical records provided quite variable free prose summaries concerning the information conveyed to patient and/or family during the conference. The analysis also revealed an improvement in the documented summary details of those cases (out of three in each instance) involving a patient decision to withdraw treatment, from only one to three cases documenting that the above points had been discussed with the patient.

**Nurse documentation of patient/family conference**

The ACP document was designed to include the signature of a senior registered nurse as a witness to the family discussions (conferences), to confirm that there was consensus for the decision, and acceptance of the plan by all concerned. Although the after audit revealed a slight but not significant improvement in documentation by nursing staff of the family conference regarding the withdrawal process (before= 39%; after= 62%), this remains short of the ACP document requirements. Butler et al. (2003) noted a substantial improvement in nursing staff documentation of DNAR decisions after the introduction of the standardised order form specifically for this documentation (before= 68%; after= 94%), far higher than in the present study. In their study, Butler et al.’s (2003) findings revealed that the standardised order form was in fact utilised. Although in the current study the new ACP document was not well utilised, it appears that the presence and/or knowledge of this requirement resulted in an increased awareness of nursing staff concerning the need to document their involvement in the withdrawal of treatment process. However documentation was still far below that required by the ACP document.

**Summary of medical record audit findings**

In summary, findings from the medical record audit before and after the introduction of the ACP document indicated that the document was essentially not used and in the few instances where the document was used it remained incomplete, with required signatures and details not included. The audit of medical records revealed that:
• Less than half of medical records in the before- (37%) and after- (46%) audit included the documented consensus of at least two ICU consultants;
• Less than half of medical records in the before- (35%) and after- (42%) audit included the documented consensus of at least two ICU consultants and a parent clinic representative;
• An almost significant decrease in an ICU consultant as the primary decision maker (85% to 46%);
• A significant increase \(p=.005\) in an ICU registrar involvement in the decision (9% to 42%);
• A considerable percentage increase in an ICU registrar as the primary decision maker (4% to 35%);
• A considerable percentage increase in an ICU registrar as the primary decision maker with no documented ICU medical staff consensus (0% to 15%);
• A significant decrease \(p=.006\) in the involvement of a consultant in the patient/family conference (70% to 31%);
• A considerable percentage increase in an ICU registrar involvement in the patient/family conference (4% to 42%);
• A considerable percentage increase in both ICU consultant and registrar involvement in the patient/family conference (2% to 19%);
• A considerable percentage increase in the documented involvement of an ICU nurse in the patient/family conference by ICU medical staff (4% to 31%); and
• A significant increase \(p=.035\) in the ICU nurses documenting the family member(s) who attended the family conference and their relationship to the patient (11% to 31%).

However, of all the significant changes described above, the ICU nurses documenting the family member(s) who attend the family conference and their relationship to the patient, was the only improvement relevant to the requirements of the ACP document. The remaining findings described above were inconsistent with the requirements of the ACP document and the clinical protocol in the ICU Medical Manual (RAH, 2003a).
Even with the improvements in documentation that were noted in the after-introduction audit, it is clear that documentation of the process of withdrawal of patient treatment following the introduction of the ACP document remained grossly inadequate in terms of the requirements of the ACP document, the pre-existing protocol in the ICU Medical Manual (RAH, 2003a) and hospital policy. Only 26% of the before-introduction audit findings met the requirements of the ICU Medical Manual (RAH, 2003a). Furthermore, only 19% of audited medical records completed by ICU medical staff met the requirements of the ACP document after its introduction, and only 35% of audited medical records met the ACP requirements when including the documentation completed by a nurse.
Discussion II: Interviews with ICU staff members

Overview

The introduction of the ACP document as a hospital-wide quality improvement initiative was not successful in changing the documentation of the withdrawal process within the ICU. ICU staff respondents indicated that the ACP document was essentially not used with a lack of acceptance by medical and nursing staff. Although the requirements of the document were consistent with the withdrawal process, perceptions of staff members revealed a clear preference for written documentation in the patient’s medical record, rather than the use of a prescriptive formalized hospital document. Although staff indicated this preference, and clearly understood and expressed the importance of documentation, results of the audit revealed that this was not reflected in the documentation required in the medical records.

The insights that follow in this discussion of why the quality improvement initiative was unsuccessful are based on the findings of a content analysis conducted on the qualitative data collected from interviews with ICU staff concerning their perceptions of the impact and effect of the ACP document within the unit. They provide possible explanations for the findings of the medical record audit previously discussed. This section includes a discussion of staff perceptions concerning the withdrawal process and the documentation of this process before and after the introduction of the ACP document, and reflects on the outcome of this change process in relation to existing literature and change management theory.

Although there had been discussions and intensive negotiation, predominantly with consultant and nurse management staff, of the impending changes prior to the introduction of the ACP document, definite resistance to change in the documentation of the withdrawal process was apparent. The majority of nursing respondents expressed a need for more adequate education and dissemination of information regarding the change. The concept of improving the documentation of the withdrawal process was considered by many respondents
as a ‘good idea, but…’, with the ‘but’ indicating that they did not perceive the resultant change to be suitable with respect to nursing staff involvement, or likely to achieve its purpose of improving documentation of the withdrawal process.

**Interview respondents’ descriptions of, and attitudes towards, the withdrawal process**

Staff responses presented a context for the withdrawal process and reflected a clear hierarchy of staff involvement, described in the following sections.

*Withdrawal of treatment is a consultant duty and privilege*

Overall staff responses revealed no perceived change to the withdrawal process following the introduction of the ACP document. Disparity was noted between staff perceptions of the status of medical staff who should be involved in the decision making and family discussions, and what was actually documented. Both registrars and nurses, correctly, were clear that the withdrawal process was a consultant responsibility, whereas some consultants, on the other hand, clearly expressed the view that the withdrawal process and related decisions and discussions were the responsibility of both consultants and senior registrar staff, contrary to unit and hospital policy.

*The role of the ICU nurse*

The introduction of the new ACP document required the signature of a senior registered nurse as a witness to the family conference, to confirm that there was consensus for the decision and acceptance of the plan. This study sought to understand perceptions of the nurses’ role in the withdrawal process.

Previous studies have shown significant differences between the perceptions of medical and nursing staff regarding the presence of ICU nursing staff at the discussion with patients’ families regarding end of life care (Ferrand et al., 2003). In line with previous recommendations (NSW Health, 2005), the
qualitative findings of this study indicate that consultant, registrar and nursing staff consider the documented presence of a nurse necessary at these discussions. However, findings of the after-audit indicated that less than a third (31%) of medical records documented a nurse’s presence at these discussions. There was no requirement that a nurse was to be involved in decision-making.

Heland’s (2006) recent study of interviews with nursing staff highlighted the role of the nurse in ‘medical futility’ as being an advocate, mediator, educator, facilitator, and comforter. Similar to Heland’s (2006) study, the findings from the present study reveal that ICU consultant, registrar and nursing staff respondents perceived the role of the ICU nurse as an advocate and liaison person for the patient and the patient’s family, and as the person with the most contact with the patient and family at the bedside. The nurse’s role included clarifying information and answering questions and concerns regarding the withdrawal process. Holzapfel et al. (2002) found in their study that nursing staff were involved in the decision in all cases. Interviews in the current study revealed that almost all respondents stated that nurses lacked the training and education to be responsible for the decision to withdraw patient treatment. However, the document clearly states that the nurse’s role was to act as a witness to the fact that the correct process had been carried out and that there was general nursing acceptance of the decision and the plan (see Appendix 5.1, ACP document), and there is no suggestion that the nurse is required to have a role in decision-making.

There was some disparity in the perceived role of the nurse. Almost half the nurse respondents saw their role as a ‘watch dog’ for the process to ensure that the withdrawal process was adhered to, whereas the consultant and registrar respondents considered the nurses’ involvement as important, but did not describe in detail the aspects of the nurses’ role they regarded as important.

Involvement and consultation with other clinical services

Very few respondents in the current study considered a palliative care consultation to be useful in the ICU, which was at variance with the United States recommendations for palliative care representation within the ICU setting.
of an ethics committee was considered relevant in only a small minority of cases. In contrast, almost all staff emphasized the involvement of a social worker as important for the withdrawal of treatment process, with particular reference to the supportive role they provided for patients’ families.

**Withdrawal of treatment as a legal “grey area”**

Consultant respondents predominantly emphasized that the withdrawal process was effective, well developed and had been well established over time within the unit. They expressed a belief that it was consistent with the ethical principles of non-maleficence, beneficence and social justice, but regarded the process as a legal “grey area”. This is not an unexpected finding as there are no accepted guidelines in Australia for the withdrawal of patient treatment (Young & King, 2003). In their European survey, Ferrand et al. (2003) reported that 23% of physicians were concerned about malpractice suits and litigation, with concern of litigation a common barrier to communication during the withdrawal process. In the present study, the respondents appeared to understand their legal responsibilities and the necessity to be seen to be involved in the withdrawal process. Yet even with this understanding of the medicolegal sensitivity of the process and a clear expressed understanding of the importance of adequate documentation, the medical record audit revealed violation of pre-existing guidelines, of the requirements of the ACP document and hospital policy regarding the documentation of the withdrawal process.

**Variability of the withdrawal process**

Only the nurse respondents expressed a belief that the withdrawal process required a more uniform approach. Almost all nurses, one consultant respondent and one registrar respondent commented on the variability of the process of withdrawal amongst consultants, which was perceived as being individualised and dependent on the consultant involved. Such variability and lack of transparency has been noted in earlier research (Asch & Christakis, 1996; Asch et al., 1999; Kollef & Ward, 1999; Poulton et al., 2005). In their study, Oberle and Hughes
(2001) reported that nurses felt doctors often acted on their own values in decision-making at the end-of-life for a patient rather than taking into account the values of the patient or the patient’s family members. Regarding the issue of variability, in the present study it was primarily nurse respondents who indicated that the decision to withdraw treatment was at times driven by an individual doctor rather than an ICU team consensus.

Communication has been highlighted in the literature as a fundamental part of the process of withdrawal of treatment and end-of-life decisions in ICU (Carline et al., 2003; Curtis, 2000; Curtis & Shannon, 2006a; NSW Health, 2005; Rubenfeld & Curtis, 2001). Over half the respondents in this study also highlighted the importance of communication within and between staff and the patient/patients’ family, and all those involved in the process of withdrawal.

**ACP document was not successful**

Results revealed that the desired outcome of the ACP document to improve documentation of end-of-life decisions did not occur within the ICU setting. Staff perceptions in the current study revealed poor compliance with the ACP document. The majority of consultants (75%), all registrars and over half (57%) of the nurse respondents perceived that there was no change to the documentation of the withdrawal process, although in fact there was a clear deterioration, with an inappropriate significant increase in registrar involvement.

In the before-introduction interviews, respondents indicated that variability existed in the old documentation of the withdrawal process, with a lack of documentation and a lack of clarity and detail when documentation was undertaken. Although the decision to withdraw treatment was considered to be a consultant responsibility, respondents regarded the documentation of the process to be the responsibility of either a consultant or a registrar. Medical staff indicated the advantage of free prose in the medical records, with examples of personally preferred ‘catch-phrases’ and specific wording for the documentation of the withdrawal process (e.g. “any ongoing treatment would not be in this patient’s best interests”). Although the importance of clear documentation, and more
specifically for the nurse respondents, of written orders, was emphasised by respondents, almost half stated that suitable guidelines did not exist to inform the documentation of the withdrawal process. This was in spite of clear guidelines in written form in the ICU Medical Manual (2003) and on the hospital intranet.

According to respondents, verbal exchange and communication of details appeared to be the manner in which instructions were conveyed rather than reliance on adequate documentation in the patient’s medical record. It is important to note that recent reports have stated that handover is person-dependent, with verbal exchanges of patient information being quite variable (ACSQHC, 2005b; BMA, 2004). In addition, the barrier of power gradients (Huczynski & Buchanan, 2001) between and within professional groups or subcultures (e.g. between consultants and registrars or medical and nursing staff), further emphasizes the need for clear documentation in the patient’s medical record and for prescribed roles for people of appropriate status. The findings of the present study show a significant increase in the involvement of ICU registrars as the primary decision maker in the documented decision to withdraw treatment, a violation of the pre-existing protocol (RAH, 2003a), the ACP document requirements and unit and hospital policy. In addition, the increased involvement of registrars in the process as providing the primary or secondary medical opinion for the withdrawal of treatment is quite inappropriate, as the power relationship that exists between senior (consultant) and more junior (registrar) medical staff may preclude registrar staff from questioning the hierarchy of authority. Previous research has shown that staff may be reluctant to acknowledge or question when something doesn’t seem right regarding patient care, if this involves disagreeing with or challenging a more senior person (Singer et al., 2003).

Following the introduction of the ACP document, consultant and nurse respondents perceived that variability continued in the documentation of the withdrawal process, with the document remaining incomplete and severely underutilised. Consultant, registrar and nursing staff perceived the document as far too cumbersome, although documentation was contained within a single page, with an additional page essentially blank (Continuation Sheet) for the inclusion of a free text summary. Although the ACP document included a free text
‘Continuation Sheet’ (see Appendix 5.1) to record details of the advance care plan, results show that the old documentation process was preferred by staff, particularly consultant staff, with a preference for descriptive free prose in the patient’s medical record. Thus, the desired outcome of a change to improve documentation of end-of-life decisions and discussions did not occur through the introduction of the ACP document. In the before-introduction interviews, the nurse respondents, predominantly, described variability between consultants with respect to the withdrawal process. Further suggestions by nurse respondents in the after-introduction interviews included a need to overcome variability and inconsistency in consultant attitudes to, and documentation of, the withdrawal process.

**Reasons why the ACP document was not successful**

Overall perceptions of staff following the introduction of the ACP document revealed quite an adverse response towards the document and the overall change process. Analysis of interview data revealed some possible explanations for the ACP document remaining largely underutilised and the barriers that staff perceived.

**Previous experience and history**

A prominent theme in the analysis concerned issues of collective experience and organisational culture as a factor affecting change. Researchers have highlighted that previous experience and history of failed quality improvement initiatives may result in staff developing a hardened scepticism toward quality improvement initiatives (Ramanujam et al., 2005). This is consistent with research showing the importance of taken-for-granted assumptions and routines within an organisation’s culture that are shaped by the ‘collective experience’ of past successes and failures (Johnson & Scholes, 2002). Consultant respondents stated that part of their concern and reservation concerning the ACP document was based on previous experience with a similar document leading to their being criticised in a coroner’s court. The coroner criticised the ICU consultant staff for failing to properly complete the document, therefore resulting
in exposure to possible litigation. Although the document itself was not criticised, ICU consultants unilaterally stopped using the document. Several nurse respondents also indicated scepticism on the basis of prior experience with a similar document. This pattern of responses suggests that their prior history and experience with a ‘failed change initiative’ and prevailing ‘folk lore’ appeared to bias staff negatively when viewing the implementation of the ACP document.

Although not expressed by registrar respondents, some consultant and nurse respondents perceived a lack of external consultation and advice in the development of the ACP document. Staff expressed concern regarding the potential risk of litigation and perceived a need for external (legal) consultation regarding the nature of the documentation and the signature requirements of the ACP to avoid unnecessary exposure to problems of litigation.

The majority of respondents also felt that there was a lack of ownership regarding the ACP document. In particular, the consultant and nurse respondents and to a lesser extent registrar respondents, perceived a lack of consultation and involvement of key stakeholders and staff at the ‘coalface’ in the development of the ACP document, with a lack of adequate communication regarding the change (Code 3.1.1), both before and after the introduction of the ACP document. Tension and distrust (3.1.2) were also indicated by respondents, with reference to “power and politics” existing between ICU staff and management pertaining to the planning, development and implementation of the document. Organisational research literature argues that power, politics and change are inextricably linked and very much a part of organisational reality (Buchanan & Badham, 1999). It is evident that staff did not perceive that they were adequately involved or had ownership of the quality improvement initiative; two key aspects in overcoming staff resistance to change and facilitating effective organisational change (Ramanujam et al., 2005). Research highlights the importance of communication and active consultation with staff, and the provision of education and information in managing effective change (Ramanujam et al., 2005). According to staff respondents, these aspects of effective management of change were not successfully incorporated in the change process.
In the present study, the introduction of the hospital-wide ACP document to improve documentation of end-of-life care provided a change in which a shift of power occurred from unit level to hospital level and from doctor to team. Analysis of the findings from the present study in the context of the hospital’s organisational structure provides further insight regarding the impact of the ACP document for consultant staff, in particular. Historically the hospital had moved from medical line-managers to multi-disciplinary line-managers, consisting of nursing and administrative staff above the medical director of the ICU. As the ACP document was generated by the hospital Treatment Ethics Committee as a hospital-wide document, these were some aspects of the existing organisational structure that perhaps impacted upon the consultant staff responses to the document and may offer further insight regarding their rhetoric of issues concerning the requirements of the document and their lack of ownership. This is grounded in the extract example from RN7 for Code 3.1.2 regarding tension and distrust (see Results II, Tension & distrust). Furthermore, respondents revealed a tension and distrust amongst ICU medical staff, with divisions seen to impede quality improvement within the ICU setting.

Clear preference for documentation in the patient’s medical records

Staff comments revealed that the requirements for signatures on the ACP document were not seen to be consistent with the existing process of withdrawal of treatment within the ICU. This was reflected in both the before (2.2.4) and after (3.2.4) interviews. However, the ACP document requirements were consistent with pre-existing guidelines in the ICU Medical Manual (2003) and the ANZICS (2003) position statement and staff comments may therefore reflect perceptions of their own preferred (unofficial) practices. This may reflect an example of a preference for, and reliance on, “mindlines” and collectively reinforced and constructed unofficial practices, over established guidelines and protocol (Claridge et al., 2006; Dopson et al., 2002; Gabbay & le May, 2004; Gollop et al., 2004)

Respondents argued that the ACP document detracted from patient care, with the requirements being inconsistent with the withdrawal process. Truog
(2002) has identified a failure to tie the treatment protocol to the goals of patient care as a flaw in research by Holzapfel et al. (2002), suggesting a similar difficulty in aligning requirements of documentation with the actual process. Respondents in the current study also highlighted the concern of treating patients inappropriately in order to seek required signatures of staff first. Other research has found that ICU staff were unwilling to unnecessarily delay the process of withdrawal on the basis of whether it was a weekend or week day (Keenan et al., 1997). In the current study staff commented that the requirements of the ACP document were not appropriate for use twenty-four hours a day, seven days a week, with appropriate staff not always available to sign the document as required.

Furthermore, although the ACP document included a free text ‘Continuation Sheet’ (see Appendix 5.1) to record details of the advance care plan, findings from both before (2.2.1) and after (3.2.10) the introduction of the ACP document revealed a clear preference for the old documentation of written notes in the medical records. There was a clear preference expressed by the majority of respondents for descriptive free prose in the patient’s medical record rather than a prescriptive document requiring documentation, in the form of signatures, of those involved in decision-making, consensus, discussion and free prose of withdrawal of treatment within a formalised ACP document. These same details of documentation were required for the ACP document and simply provided an identified place for documenting and accessing this information and making it easy to check that all the necessary steps had been taken.

**Disagreement with requirement of signatures**

The status quo of professional roles within the healthcare environment can be challenging to the implementation of change, with the potential for many medical staff to perceive proposed changes as inappropriate or unnecessary for improving patient safety (Ramanujam et al., 2005). Findings from this study highlight the presence of such status quo of professional roles in the withdrawal process within the ICU. The requirement of a nurse signature on the ACP document “to concur and witness that appropriate discussions have involved the patient and or guardian, relatives, carers or friends and that the nurse(s)
understand and accept the plan” (see ACP document, Appendix 5.1) was met with strongly expressed opposition from various medical staff participants, who did not perceive this to be necessary. This was in spite of a lack of such a signature having caused considerable distress, medico-legal risk and inappropriate adverse publicity for a colleague. This challenge to the existing hierarchy of ICU staff involvement in the process is an example of what Robbins (2003) refers to as a re-distribution of authority, which threatens long-established power relationships. As indicated by the Director of ICU and the Head of the Department of Anaesthesia and Intensive Care at the time of this study, the requirement of the nurse signature was seen not only as affirmation of the importance of the role of nurses in end-of-life care, but as a safeguard to ensure the correct steps had been taken and that there was general agreement amongst the nurses that the decision and plan were appropriate. In addition, this was also seen as important due to adverse publicity (Kemp, 2004; Kemp & Scala, 2004) and poorly managed documentation in the past.

Although the inclusion of family is seen as essential in the withdrawal process, researchers have emphasized that there is little to be gained legally from requesting that the patient’s family (i.e. patient’s surrogate) sign a document consenting to the withdrawal or withholding of life support. However, seeking their agreement and acceptance for the decision and thoroughly documenting this in the patient’s medical record is considered imperative (Holzapfel et al., 2002; Truog & Burns, 2002). This was also required by the existing protocol (ICU Medical Manual), the ACP document and hospital policy in the present study. Respondents from the present study expressed disagreement with an assumed need to request the patient’s family to sign the ACP document regarding the decision to withdraw treatment, although the signature of the patient’s family was ‘optional’, as can be seen on the ACP document (Appendix 5.1). Therefore, no one had to comply, and the option was included simply because occasionally the patient’s family expects or requests to sign a document indicating acceptance of the medical decision to withdraw patient treatment.

Although there was a clear lack of use of the ACP document by ICU staff, respondents commented that its introduction had raised awareness regarding the
process of withdrawal and the documentation of the process. However, the medical record audit findings clearly indicate that this ‘awareness’ did not result in documentation of the required details in the patients medical record. In response to the ACP document and their adverse reaction to it, some consultant staff had commenced the development of an ICU specific document, as an alternative to the ACP document. The alternative document included revisions that would allow for registrars to sign for the decision to withdraw patient treatment, a decision that is clearly a consultant responsibility and requires the mandatory consensus of at least two ICU consultants (RAH, 2003a). It also made the nurse’s signature optional.

**Respondent suggestions for improvement**

Suggestions were provided by respondents both before and after the introduction of the ACP document concerning ways to improve documentation of the withdrawal of treatment process. These suggestions provide a valuable source of information for future qualitative improvement initiatives that may focus on the withdrawal process and documentation of the process within the ICU setting. Suggestions included a need to improve the ‘old’ documentation, overcome the variability of free prose documentation in patients’ medical records and conduct regular audits of medical record documentation.

There was a clear preference for descriptive free prose in the medical record, and yet only 25% of consultants indicated a need to improve medical record documentation and only half suggested a need to audit medical record documentation. This finding, in conjunction with the lack of use and compliance with the ACP document and violation of unit and hospital policy revealed in medical record audit results, suggests that some consultants may lack insight into gaps or inadequacies in their own performance or that they may simply be unaware or reject that these gaps exist (Grol & Wensing, 2004). Even with clear violation of policy and inadequate documentation, consultant staff preferred the status quo of descriptive free prose in the medical records, with the ACP document being inconsistent with their self-reported attitudes and behaviours. This may represent an example of “cognitive dissonance” in response to
organisational change, with a conflict between the “old” and the “new” resulting in staff resistance to change manifesting in cognitive rationalisation in order to maintain the status quo (Burnes & James, 1994; Jones, 1990).

Development of specific ICU guidelines and a formalized policy for guiding staff documentation of the process of withdrawal of patient treatment and required content were also suggested by an equal number of consultant, registrar and nurse respondents, despite such guidelines already being available in the ICU Medical Manual (2003) and being implicit and explicit in the ACP document and on the hospital intranet (Clinical Practice Manual, 2005).

The majority of ICU consultants suggested that the requirements of documentation needed to be consistent with their own clinical withdrawal process and responded to the introduction of the hospital-wide ACP document by commencing development of an alternative document specific to the ICU setting. This focus on an alternative ICU specific document is in contrast to almost half the nurse respondents emphasizing a need for hospital-wide ownership of advance care planning. This was an issue also raised by Rubenfeld and Curtis (2001), who suggested the importance of a multidisciplinary approach to end-of-life care in the ICU and the need for quality improvement initiatives to target multiple levels of the organisation.

**Summary of interviews with ICU staff members**

The qualitative findings revealed the failure of ICU staff to implement and use the ACP document, in spite it being part of a hospital-wide policy, due to resistance to change at the time of its introduction. The ACP document has subsequently been discontinued in the ICU and the previous process of documentation of the withdrawal process in the patient’s medical records has been reinstated. Although attempts were made by some ICU consultant staff to develop an alternative ICU specific document for documentation of the withdrawal process, this had not been introduced at the time of reporting this study. There are no plans for future reviews of the documentation of the withdrawal process. The raised awareness of the need for improvement, the negative evaluation of the
change, and its discontinuation all suggest that any future attempts at change within the ICU setting might benefit from the involvement of qualified organisational change consultants who could assist with staff consultation, and the planning, development, implementation and evaluation of any new quality improvement initiative. The findings of this study highlight the importance of the application of change management theory and practice. The implementation process may have benefited from the concepts of the TQM/CQI model of change which advocate a smaller scale trial of the intended change in order to observe and assess its effectiveness, before making any necessary modifications and then engaging in widespread implementation.

5.7 Overall summary of Discussion I and II

This section of the chapter includes a discussion of aspects relating to both the medical record audit and the interviews with ICU staff members. It includes a discussion of methodological issues, theoretical and practical implications, limitations of the study and future research directions, and finishes with an overall summary of Discussions I and II.

Methodology

The documentation of the withdrawal process before and after the ACP document was supposed to consist of medical decision-making, consensus, communication and discussions with a competent patient and/or the family of an incompetent patient, plus some free prose. Therefore, data extraction was not only concerned with quantitative data (e.g. length of stay (LOS), APACHE II score, etc) but also involved extraction of qualitative summary text or free prose concerning the patients medical condition, prognosis, rationale for withdrawal of treatment and any associated discussion and consensus involved. For this reason it was important to extract and analyse quantitative and qualitative information documented in the medical records and the ACP document when it was used.

A number of different approaches could have been chosen for assessing staff perceptions of the changes in the withdrawal of treatment process, including
a quantitative survey, observation of the process, individual staff interviews, and focus group interviews. The use of semi-structured interviews to examine a purposive sample of staff perceptions was chosen due to the limited Australian research regarding withdrawal of treatment. Semi-structured interviews offered an opportunity for exploring perceptions of the withdrawal of treatment process within the ICU setting. Also, the sensitivity of the topic of end-of-life care meant that individual staff interviews, rather than focus group interviews, offered a better opportunity to explore evaluations of the process of withdrawal of treatment and the documentation thereof. The importance of the qualitative analyses can be seen in the codes developed inductively from the interview transcripts that revealed why the introduction of the ACP document was not successful.

Findings from the before- and after-introduction medical record audit provided an indication of the impact of the introduction of the new ACP document.

**Limitations of the study**

As with the “Handover” study (Chapter 4), the current study involved action research within an organisational setting and its limitations need to be considered when interpreting the findings. This study involved the assessment of a change in documentation of the withdrawal process within one adult ICU in a teaching hospital in South Australia. As this change was a hospital-wide initiative it would have been beneficial to evaluate the change process at the level of the hospital rather than the level of the ICU. However, resource and time constraints precluded such an approach. The involvement of only one ICU limited the available sample population. Nevertheless, the findings reveal unequivocally that the majority of ICU staff did not use the ACP document after its introduction.

A limitation of the medical record audit was that it involved a retrospective review of patient medical records rather than a prospective audit of the process of withdrawal of treatment, and was therefore reliant on documentation, with missing data and possible bias in the interpretation of the implications of these data, rather than an absolute observation/account of each case that could be provided from an
intensive direct observational study or detailed contemporaneous interviews. However, with prospective studies potential bias may arise from the knowledge that individuals’ actions are being observed; the “Hawthorne effect” (Mayo, 1933).

The after-audit was conducted during the first three months following the introduction of the ACP document. It is possible that knowledge of the after-introduction medical record audit may have impacted on staff compliance with the new ACP document and documentation of the process of withdrawal of treatment. However, the results clearly indicate that the ACP document was hardly used by the ICU staff sampled, suggesting that knowledge of the audit of documentation had little influence on the use of the ACP document. The interviews in this study involved voluntary participation of ICU staff and there may have been a self-selection bias in staff participation, as not all eligible staff members participated in the study and champions of the project were precluded as they were involved in the research.

**Theoretical and practical implications**

The results from the present study have provided a better understanding of the documentation of the withdrawal process within the ICU. They have also provided important insights into ICU staff perceptions concerning the process of withdrawal of patient treatment, a process that has not been widely researched.

Findings revealed that the requirements of the ACP document and the ICU Medical Manual (2003) to document consensus of at least two ICU consultants and a parent clinic representative were not met before or after the introduction of the document. Instead, in violation of the requirements and of hospital policy, an increase was found in the documented involvement of ICU registrar staff in the consensus and documentation of the withdrawal process.

Unlike the previous study (see Chapter 4) where the unsuccessful change initiative suggested that it may have been beneficial to more fully involve the medical and nursing key stakeholders within the ICU, to inform the planning,
development and implementation of the quality improvement initiative, there was extensive involvement of the ICU consultants during the planning and development stages of the ACP document (the Director of ICU and the Head, Department of Anaesthesia and Intensive Care indicated that ongoing meetings were held). It is unlikely that further consultation could have increased the possibility of a successful outcome of change. It is apparent from the findings of this study that staff did not perceive the ACP document to be an effective solution and there was an overwhelming lack of ownership and compliance by ICU staff overall. Staff also provided suggestions for improving the documentation of the withdrawal process, although these appeared to cover ground already dealt with by the new document (e.g. provision of guidelines available within the document and on the hospital intranet (Clinical Practice Manual, 2005)) and also covered in the present study (e.g. suggestions included an audit of documentation).

Findings of the current study are consistent with research suggesting that effective organisational change management is critical for quality improvement initiatives in healthcare, with the importance of eliciting the commitment of key stakeholders to be directly impacted by the change in order to overcome their resistance to change and provide an opportunity for ownership of the change process (Ramanujam et al., 2005). It is clear that conventional methods for facilitating changes, such as provision of education and communication, participation in the development of the document, and extensive negotiation (Kotter & Schlesinger, 1979; Wensing & Grol, 2005) failed to result in an effective change and cooperation. Consultant staff insisted that their existing practice was effective and that a document would not improve upon this practice. However, it is clear from the findings of the medical record audit that improvement in the documentation of medical decision-making, consensus, and discussions with a competent patient and/or the family of an incompetent patient, plus some free prose is necessary, and that staff perceptions are not aligned with reality.

There are several explanations by Schein (1985) for resistance to organisational change, many of which were relevant in this study, including: organisational politics (i.e. tension and distrust between staff and management);
employee suspicion of management intentions; challenges to institutionalised practices; and a lack of understanding, most obviously through a lack of effective communication. This lack of understanding may also relate to a lack of insight into the deficiencies in existing practice. Effective leadership is important for organisational change (Grol & Wensing, 2005; Ramanujam et al., 2005). The tension, distrust and perceived lack of consultation and ownership reflect the apparent implacable opposition to this initiative, in spite of a directive from the Chief Executive Officer (CEO), supported by arguments from the Director of Intensive Care and the Head of Anaesthesia and Intensive Care.

Change may provide a challenge to established practices, such as the consultants reported preference indicated by respondents in the present study for written documentation in the patient’s medical record over the use of a prescriptive formalized hospital document. Previous literature indicates a resistance among physicians toward the use of, and compliance with, clinical protocols and standardisation of practice (Grol, 1990; Lawton & Parker, 2002; Tunis et al., 1994; Wachter & Shojania, 2004). The findings of the present study reveal a resistance to standardisation of practice and non-compliance with an existing protocol (RAH Medical Manual) and with the new ACP document. This has potential practical and policy implications if documentation of process is based on tradition and preference, despite the existence of ICU and hospital protocols and an international acknowledgement of the importance of documentation of end-of-life care (Carlet et al., 2004) to enable greater transparency and accountability in the care provided (Butler et al., 2003; NSW Health, 2005).

The importance of organisation change management and getting change right the first time is apparent from the findings of this study, as the “issue of collective experience” will impact on the success of future change initiatives (Johnson & Scholes, 2002), highlighting the critical issue of the unit-level culture and the taken-for-granted assumptions and routines that are shaped by an organisations previous experience (Ramanujam et al., 2005). However, in this particular instance the problem was a past manifestation of an ongoing problem and the failure of consultant staff to adhere to policy.
Finally, the use of semi-structured interviews with individual ICU staff members also has important research implications, as it highlights the benefits of allowing respondents to communicate their own perceptions and attitudes. The information provided by respondents through the interviews undertaken in this study was beneficial in elucidating ICU staff member perspectives on the ICU process for the withdrawal of patient treatment, the documentation of the process, the implementation of the quality improvement initiative, and the management of the change. This would have been beneficial in developing any new document and implementing change within the ICU.

**Future research directions**

Further research is required to provide a more complete understanding of the resistance to standardisation and the use of, and compliance with, protocols within the ICU setting; in particular, for medical staff. There is a need for a large-scale prospective multi-centre study to assess the process and rationale for the withdrawal of treatment in ICUs, the decision-making, consensus and discussions involved, and the documentation of the process. Only through appropriate evaluation of the process of withdrawal of treatment and the associated documentation and systematically addressing deficiencies identified will the needs of patients, families, society and healthcare staff be met (Keenan et al., 1997).

Little is known regarding the comfort and satisfaction of patients’ families with respect to the withdrawal of treatment process. The scope of this study did not allow for an examination of the perceptions of the patient (in rare cases patients may survive withdrawal of treatment) and/or the patients’ families concerning the withdrawal of treatment. Further Australian research is necessary involving interviews with family members of ICU patients who have died following the decision to withdraw patient treatment, to identify family members’ satisfaction (or otherwise) with the process of withdrawal and their perceptions regarding end-of-life care in ICU. Research of this kind has been conducted in the United States {e.g. Abbott, 2001 #294}. Family members’ perceptions of the withdrawal process and their experiences would serve to inform and improve
upon the current process of withdrawal of treatment, offering a measure of outcome of care (Carlet et al., 2004).

Further research is also required into the interdisciplinary communication involved in the process of the medical decision to withdraw patient treatment, as in this study the medical decision to withdraw treatment requires consensus from both ICU medical staff at a consultant level and a parent clinic representative, and this was clearly frequently violated. This consensus requires interaction and communication with healthcare providers from different specialty areas, who may have differing perceptions concerning end-of-life decision-making and the withdrawal of treatment. This has also been highlighted in the literature as important for future research concerning ICU end-of-life care issues (Rubenfeld & Curtis, 2001). Rubenfeld and Curtis (2001) also highlight the importance of an understanding of the culture of intensive care and how this may impact on communication.

Finally, as suggested by some respondents in this study, there is a need to openly discuss with patients their plan for advanced care if it becomes necessary, prior to a patient being admitted to the ICU, and to have these discussions with the patients and/or their relatives on admission to ICU. A suggestion was made by an ICU nurse respondent in this study for discussions of advance care planning with patients upon admission to the hospital and for ensuring completion of document at these points of contact. This may not be possible for all patients admitted to the hospital, and may well be inappropriate for some. However, a regular practice of raising the issue and providing consumer-approved supporting information may well be appropriate for ICU admissions. The ACP document could be revised, with inclusion of a wider group of key stakeholders and external consultation in the planning, development, communication and implementation of the next quality improvement initiative. However, the culture will now consist of two prior failures of such documents therefore there is particular need to address culture issues, such as resistance to such change.
Summary

The current research findings report the failure of a quality improvement initiative implemented in an ICU. The findings revealed an overwhelming resistance to change following the introduction of an advance care plan (ACP) document for ICU and the wider hospital. The findings indicate that violations were more common than compliance with respect to the requirements of pre-existing guidelines, the ACP document and hospital policy.

The findings from the medical record audit provided good insights into the current practice of documentation of the withdrawal process within the ICU. Although results indicated poor pre-existing compliance and little commitment to the ACP document, the overall results from the medical record audit did indicate some changes in practice of the documentation process. For example, there was an increased documentation of nursing staff involvement in the family discussion. However, increased documentation completed by ICU registrar staff revealed not only a failure of compliance but also an increase in violation of a pre-existing protocol with which agreement was expressed at interview. Even with the changes that were found in the medical record audit (Results I), only 35% of medical records met the requirements of the ACP document, revealing a failure of staff to comply with hospital policy. There is a clear need for further research and a different approach to try to improve the documentation of information relating to the process of withdrawal of patient treatment. More specifically, the current study highlighted the need to be aware of the importance of managing the process of change to understand and manage staff resistance to change and ensure effective quality improvement.

The findings also provided insights into the perspectives of ICU staff members involved in the withdrawal process. Staff perceived the need for standardization and the importance of the process but results from the medical record audit reveal that documentation completed by the appropriate staff actually got worse. There was a clear failure to comply with hospital policy for documentation of the withdrawal of patient treatment both before and after the introduction of the ACP document.
Taken together these results showed a poor situation regarding documentation of the withdrawal of patient treatment and a real need for change. It is hoped that the findings of the present study will act as a basis for continuing research and development within the area of ICU documentation of the process of withdrawal of patient treatment and quality improvement within healthcare, and that such research will be translated into effective implementation of required improvements to ICU processes.
Chapter 6

Summary and Conclusions

The quality of healthcare is extremely important, particularly within an ICU where patients are critically ill and are being cared for by a multidisciplinary care team. Researchers have highlighted the extent of medical error and the need for quality improvement and a patient safety focus as priorities in patient care. Although the need to create and maintain a culture of safety has long been recognised as important in other high-risk organisations, such as aviation or offshore oil drilling, the need to promote a patient safety culture within healthcare has only recently become a focus of concern. Unlike these other high risk organisations, there has also been relatively little application of change management theory in the planning, development, implementation and evaluation of quality improvement initiatives in healthcare.

The present research addressed current limitations within the patient safety and quality improvement literature by conducting a series of three studies. The first study investigated the patient safety culture in an ICU setting. The second and third studies evaluated ICU staff perceptions of the impact of two quality improvement initiatives intended to improve communication and documentation within the ICU. The findings were examined in relation to organisational change management theory.

Study 1 (Chapter 3) sought to assess the patient safety culture within the ICU setting, using a newly developed safety culture survey instrument, and to evaluate staff perceptions regarding specific aspects of safety identified in the research literature as important within healthcare. Study 2 (Chapter 4) and study 3 (Chapter 5) employed both qualitative and quantitative techniques to assess the impact of two separate documents, the first designed to improve the handover of patient clinical information at ICU handover times, and the second designed to improve the documentation of the withdrawal of patient treatment process within the ICU. Due to the dearth of empirical research from an organisational psychology perspective within healthcare and more specifically ICU settings, the
current thesis sought to investigate important aspects of a patient safety culture within an ICU. The findings highlighted the importance of understanding change processes and staff resistance to such changes when introducing quality improvement initiatives.

In study 1 (Chapter 3), the use of the Hospital Survey on Patient Safety Culture (HSPSC) instrument (Sorra & Nieva, 2004) in the ICU identified some aspects of the culture that were adequate or modest strengths and some with potential for improvement. The results of the cultural analysis of patient safety revealed that overall, ICU staff considered teamwork as the strongest patient safety culture aspect within their ICU, both as a composite score (“Teamwork within units”) and for specific items within the patient safety culture composite. In addition, most staff perceived that the ICU was actively doing things to improve patient safety. However, results indicated that eight of the 12 composite scores were lower than 50%, thus meeting the criterion for potential for improvement. The majority (11 of 12) of the composite scores were also lower than the benchmark ICU scores provided in the US Comparative Database report (Sorra et al., 2007) and the remaining one was not significantly higher.

Further analysis revealed disparities between professional subgroups in the results. Results also suggested underreporting of errors and adverse events by staff. Qualitative findings from the open-ended questions also included in the survey instrument revealed that this may be due to a perceived lack of feedback concerning errors that are reported. The findings clearly revealed “Communication openness” as a hierarchical issue and a potential challenge within an ICU, with a disparity identified between the perceptions of ICU consultants and nurses, with consultants expressing a far more positive evaluation of the communication within the ICU than the nurses. Inadequacies were also indicated in the “Hospital handoffs and transitions” that occur between staff within the ICU and between the ICU and other units of the hospital. These inadequacies were rated as more serious by both consultants and registrars than nurses. The results strongly suggested that handovers and transitions of care require further improvement.
The findings reported in Chapter 3 regarding “Hospital handoffs and transitions” as a critical issue were further supported in the second study (described in Chapter 4), which examined a quality improvement initiative implemented in the ICU. This study evaluated the impact of the Patient Management Plan and Progress (PMPP) document, which was designed to improve the transfer of patient clinical information at ICU handovers.

The findings of this second study revealed such resistance to, and criticisms of, the change following the introduction of the PMPP document as a quality improvement initiative within the ICU, that the use of the PMPP document was subsequently discontinued. Findings revealed that staff perceived the document as too lengthy and time consuming to complete and there was a clear preference for verbal exchanges at handover, supplemented by individual staff members making notes on scraps of paper to be used as an aide memoire.

It is clear from the findings of the second study that this is a difficult area in which to effect change. Qualitative comments from staff in the study suggest that future attempts to improve ICU processes and procedures may benefit from wider consultation with the staff who will be affected. The implementation and evaluation of change might also be made on a smaller scale to observe its effectiveness so that it can be modified if necessary, before implementation on a larger scale. Although there were no plans for future reviews of the handover process at the completion of the evaluations in this thesis, the acknowledged need for improvement, the negative overall evaluation of the changes, and their discontinuation all suggest that such a review would be worthwhile. However, it is suggested that any future attempts at change within the ICU setting may benefit from the involvement of qualified organisational change consultants who could assist with facilitating the change process, consulting staff, and with the planning, development, implementation and evaluation of any new quality improvement initiative.
The final study (Chapter 5) sought to investigate the impact of a hospital-wide Advance Care Plan (ACP) document on the documentation of the decision-making, discussion and consensus for the withdrawal of treatment for ICU patients. Because the majority of patient deaths in the ICU occur following the decision to withdraw aspects of patient treatment, it is important to have an understanding of the withdrawal process and associated documentation. Results of an ICU medical record audit revealed that the ACP document was essentially not used and failed to achieve the desired impact of formalizing or improving documentation of the process, with a lack of acceptance and ownership reported by staff.

Interviews with ICU staff revealed a clear preference for written documentation in the patient’s medical record, rather than the use of a prescriptive formalized hospital document, like the ACP. While a clear understanding of the medicolegal sensitivity of the process and the importance of adequate documentation and compliance with guidelines were expressed by respondents, the medical record audit revealed non-compliance with the existing protocol and a failure to comply with hospital policy concerning the use of the ACP document for the documentation of the withdrawal process. The findings of this final study highlight the significant and contentious issue of change within the hospital setting pertaining to withdrawal of patient treatment.

Taken together, the findings reported in Chapters 4 and 5 highlight the need to understand the barriers to change in healthcare in general, and in ICUs in particular. Specific barriers to change need to be considered, such as past change failures which make it difficult to convince staff of the need to change. Change management theory must also be used in the planning, development, implementation and evaluation of quality improvement initiatives in healthcare. In particular, the findings highlight the need to use change management theory to manage staff resistance to change in order to achieve effective quality improvement in areas in which improvement of practice are vital.

A strength of the research reported in this thesis was the use of both quantitative and qualitative data, which provided a rich and more complete
understanding of the patient safety culture and the impact of the attempt at quality improvement in the ICU setting. Quantitative data collected through the use of surveys (Chapters 3 and 4) and an audit of patient medical records (Chapter 5), were enhanced through analysis of transcripts and extracts from both brief and in-depth interviews with ICU staff concerning the impact of change.

Overall, this research reveals the importance of understanding professional subcultures within healthcare and in particular the ICU. Although teamwork was identified as a patient safety culture strength, the findings of Study 1 (Chapter 3) identified a disparity between ICU consultant and nursing staff with respect to perceptions of communication openness within the ICU. The interactions between factors such as professional subcultures and communication openness within the ICU are particularly important as research has shown communication failures to be causally linked to the occurrence of medical errors and adverse events. Professional subculture differences in the perceptions of change and differing needs and concerns regarding the impact of quality improvement initiatives are further reported in Chapters 4 and 5. The disparity in consultant and nursing staff perceptions of communication openness have implications for the training that medical and nursing staff receive and the emphasis that is placed on effective communication, both between and within disciplines. There may also be implications for the organisational structures that exist for the various groups of staff within healthcare and ICUs, and their impact on communication openness within and between professional staff subgroups. Results of this study (Chapter 3) also suggest, in line with the organisational change literature, that assessing the culture of an organisation could be useful in further identifying key issues that may need to be dealt with in facilitating organisational change. As indicated by Martin (1995; 2002), the differentiationist perspective highlights the importance of identifying the differences in the perceptions, values, behaviour patterns between subcultures. Although time did not permit re-sampling the organisational culture within the ICU following the quality improvement studies reported in Chapter 4 and 5, a re-sampling of the organisational culture may be a consideration for future research.
This research also highlights the importance of understanding the organisational culture and the historical context of the ICU setting. The findings in Chapters 4 and 5 reveal the impact on the change attempts of the ICU staff’s collective experience concerning previous failed attempts to improve handover of patient clinical information and documentation of the withdrawal of treatment process. The studies reported in these chapters reinforce the culture of an organisation as an important factor in organisational change and, in particular, these studies highlighted the importance of professional subcultures in understanding communication, decision-making and other processes relevant to change within the ICU.

Respondents in Chapter 4 reported a lack of involvement of ICU staff in the planning, development, implementation and evaluation of the handover quality improvement initiative. The results are consistent with organisational change management theory, which emphasizes the importance of consultation and involvement of key stakeholders in order for successful change to occur. Respondents in Chapter 5 also reported a lack of involvement, in spite of many meetings and extensive negotiations regarding aspects of the proposed changes. In this instance there was widespread opposition to the use of a new document, which manifested in it not being used 89% of the time, and not being completed properly the remaining 11%. Of greater concern however, was the deterioration in the documentation of the process, such as registrars documented as being the primary decision makers and acting as the second “consultant”, instead of the mandatory involvement of at least two ICU consultants.

The introduction of both quality improvement initiatives in Chapters 4 and 5 represented a shift of power from the level of the individual doctor or nurse to the team level, and the final study (Chapter 5) also involved a shift of power from the unit level to the hospital level, with the introduction of the hospital-wide ACP document. Respondents in the final study revealed a tension and distrust amongst ICU consultant staff and between ICU staff and hospital management, which contributed to the dissatisfaction with the quality improvement initiatives. These findings are again consistent with organisational change management theory and
highlight the importance of an awareness of the power and politics involved in the implementation of change and the impact they may have on achieving successful change outcomes.

The findings of the research in both Chapters 4 and 5 underline the importance of understanding the existing organisation culture as critical to quality improvement within healthcare. Change may provide a challenge to established practices, as it did with the ICU consultants and registrars in this research, who preferred to use scraps of paper as aide memoires to assist in the transfer of patient clinical information and patient care (Chapter 4), and free prose in the patient’s medical record to document the decision to withdraw patient treatment (Chapter 5). The results reported in Chapters 4 and 5 reveal their resistance to the standardisation of practice and their lack of acceptance of new protocols designed to improve patient safety. This has practical and policy implications as practice continues to be based on tradition, habit and preference rather than demonstrated efficacy and acceptance of a need for compliance with the requirements for improvements in practice.

The current research findings identified some patient safety culture areas of strength but many more with potential for improvement. Also reported were the failures of two quality improvement initiatives. Taken together, these findings suggest that in order for patient safety and quality improvements to occur effectively in healthcare, and more specifically in an ICU, the following key organisational factors need to be considered: factors related to creating and maintaining a safety culture; effective leadership; involvement of key stakeholders in the process of the design and implementation of the organisational change; and an understanding and management of potential barriers and staff resistance to change and how these may be overcome. There were deficiencies in most of these elements in the attempt to introduce a handover document, but most were addressed in the attempt to improve documentation of the withdrawal of treatment process. Resistance to change and the use of protocols and checklists is widespread in healthcare. The application of principles of “responsive regulation” may need to be considered to address the problem of patients not receiving
recommended or expected healthcare nearly half the time. It is hoped that the findings of the present study will lead to further research and development in quality improvement and the implementation of change within healthcare, and that this research will help to guide future attempts to improve practice in areas that are clearly deficient.


Hall, R. I., & Rocker, G. M. (2000). End-of-life care in the ICU: Treatments provided when life support was or was not withdrawn. *Chest, 118*, 1424-1430.


Appendices

Appendix 2.1  Glossary of patient safety terms defined by the World Health Organisation

Appendix 3.1  Hospital Survey on Patient Safety Culture (HSPSC)
Appendix 3.2  Survey pre-notification letter
Appendix 3.3  Survey participant Information Sheet
Appendix 3.4  Survey participant Consent Form
Appendix 3.5  Hospital Survey on Patient Safety Culture (HSPSC) Construct validity
Appendix 3.6  Comparative results for Patient Safety Grade and Events Reported

Appendix 4.1  Patient Management Plan and Progress (PMPP) document
Appendix 4.2  Participant Information Sheet
Appendix 4.3  Before-introduction medical handover evaluation
Appendix 4.4  Before-introduction nurse handover evaluation
Appendix 4.5  After-introduction medical and nursing staff handover evaluation

Appendix 5.1  Advance Care Plan (ACP) document
Appendix 5.2  ICU medical record audit pro forma
Appendix 5.3  Participant Information Sheet
Appendix 5.4  Nurse expression of interest letter
Appendix 5.5  Before-introduction interview questions
Appendix 5.6  After-introduction interview questions
Appendix 5.7  Participant demographic survey
Appendix 5.8  \( p \)-values for Results I Medical record audit
Appendix 5.9  Tables of extracts of ICU medical staff summary of family conference
Appendix 5.10  Codes: Responses (number and %) by group
Appendix 5.11  Code book for the analysis of interviews
Appendix 2.1 Glossary of patient safety terms defined by the World Health Organisation

A number of terms relating to patient safety have been used in this thesis. These have been defined by the World Health Organisation (WHO) (see below) or a specific definition based on relevant literature has been used within the body of this thesis where relevant.

**PLEASE NOTE**

**Physician:** The term ‘physician’ has been used in this thesis in the sense that it is used in America and North America, meaning “doctor” rather than specialist internist, which is how the term is interpreted in Australian and other Commonwealth countries.

<table>
<thead>
<tr>
<th>Terms</th>
<th>Definitions</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incident</td>
<td>an event or circumstance which could have, or did lead to unintended and/or unnecessary harm to a person, and/or a complaint, loss or damage (ACSQHC). In the UK, the NHS National Patient Safety Agency defines ‘patient safety incident’ as “any unintended or unexpected incident that could have or did lead to harm for one or more patients receiving NHS funded healthcare”.</td>
<td>Australian Council for Safety and Quality in Health Care (ACSQHC) List of Terms and Definitions for Safety and Quality in Healthcare <a href="http://www.safetyandquality.org/articles/Action/definitions.pdf">http://www.safetyandquality.org/articles/Action/definitions.pdf</a></td>
</tr>
<tr>
<td>Violation</td>
<td>a deliberate -but not necessarily reprehensible-deviation from those practices deemed necessary (by designers, managers and regulatory agencies) to maintain the safe operation of a potentially hazardous system (Reason, 1990, p.195); appreciated by the individual as being required by regulation, or necessary or advisable to achieve an appropriate objective while maintaining safety and the ongoing operation of a device or system (Runciman, 2003).</td>
<td>Reason, J.T. (1990) <em>Human error</em>. Cambridge University Press. Runciman, W.B., Merry, A.F. and Tito, F. (2003) Error, blame, and the law in health care--an antipodean perspective. <em>Annals of Internal Medicine</em>, <strong>138</strong>, (12), 974-979.</td>
</tr>
</tbody>
</table>

### Instructions
This survey asks for your opinions about patient safety issues, medical error, and event reporting in your hospital and will take about 15 minutes to complete.

- **An “event” is defined as any type of error, mistake, incident, accident, or deviation, regardless of whether or not it results in patient harm.**
- **“Patient safety” is defined as the avoidance and prevention of patient injuries or adverse events resulting from the processes of health care delivery.**

### SECTION A: Your Work Area/Unit - ICU
In this survey, think of your “unit” as the work area, department, or clinical area of the hospital where you spend most of your work time or provide most of your clinical services.

Please indicate your agreement or disagreement with the following statements about your work area/unit. Mark your answer by filling in the circle.

<table>
<thead>
<tr>
<th>Think about your work area/unit in the hospital…</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. People support one another in this unit..........</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. We have enough staff to handle the workload ........</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. When a lot of work needs to be done quickly, we work together as a team to get the work done........</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. In this unit, people treat each other with respect........</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Staff in this unit work longer hours than is best for patient care............................................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. We are actively doing things to improve patient safety...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. We use more agency/temporary staff than is best for patient care................................................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Staff feel like their mistakes are held against them.......</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Mistakes have led to positive changes here .............</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. It is just by chance that more serious mistakes don’t happen around here........................................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. When one area in this unit gets really busy, others help out........................................................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. When an event is reported, it feels like the person is being written up, not the problem........................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. After we make changes to improve patient safety, we evaluate their effectiveness..........................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. We work in “crisis mode” trying to do too much, too quickly..........................................................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Patient safety is never sacrificed to get more work done....................................................................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Staff worry that mistakes they make are kept in their personnel file..................................................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. We have patient safety problems in this unit...............</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Our procedures and systems are good at preventing errors from happening........................................</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION B: Your Supervisor/Manager
Please indicate your agreement or disagreement with the following statements about your Clinical Nurse/Case Manager or person to whom you directly report. Mark your answer by filling in the circle.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. My supervisor/manager seriously considers staff suggestions for improving patient safety</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. My supervisor/manager overlooks patient safety problems that happen over and over</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

SECTION C: Communications
How often do the following things happen in your work area/unit? Mark your answer by filling in the circle.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Never ▼</th>
<th>Rarely ▼</th>
<th>Sometimes ▼</th>
<th>Most of the time ▼</th>
<th>Always ▼</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. We are given feedback about changes put into place based on event reports</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Staff will freely speak up if they see something that may negatively affect patient care</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. We are informed about errors that happen in this unit</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Staff feel free to question the decisions or actions of those with more authority</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. In this unit, we discuss ways to prevent errors from happening again</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Staff are afraid to ask questions when something does not seem right</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

SECTION D: Frequency of Events Reported
In your hospital work area/unit, when the following mistakes happen, how often are they reported? Mark your answer by filling in the circle.

<table>
<thead>
<tr>
<th>Mistake</th>
<th>Never ▼</th>
<th>Rarely ▼</th>
<th>Sometimes ▼</th>
<th>Most of the time ▼</th>
<th>Always ▼</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When a mistake is made, but is caught and corrected before affecting the patient</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. When a mistake is made, but has no potential to harm the patient</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. When a mistake is made that could harm the patient, but does not, how often is this reported?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
SECTION E: Patient Safety Grade
Please give your work area/unit in this hospital an overall grade on patient safety. Mark ONE answer.

A Excellent  B Very Good  C Acceptable  D Poor  E Failing

SECTION F: Your Hospital
Please indicate your agreement or disagreement with the following statements about your hospital. Mark your answer by filling in the circle.

Think about your hospital...

1. Hospital management provides a work climate that promotes patient safety .................................................. 1 2 3 4 5

2. Hospital units do not coordinate well with each other ..... 1 2 3 4 5

3. Things “fall between the cracks” when transferring patients from one unit to another................................. 1 2 3 4 5

4. There is good cooperation among hospital units that need to work together............................................. 1 2 3 4 5

5. Important patient care information is often lost during shift changes ...................................................... 1 2 3 4 5

6. It is often unpleasant to work with staff from other hospital units............................................................ 1 2 3 4 5

7. Problems often occur in the exchange of information across hospital units............................................... 1 2 3 4 5

8. The actions of hospital management show that patient safety is a top priority........................................... 1 2 3 4 5

9. Hospital management seems interested in patient safety only after an adverse event happens .................. 1 2 3 4 5

10. Hospital units work well together to provide the best care for patients.................................................... 1 2 3 4 5

11. Shift changes are problematic for patients in this hospital ................................................................. 1 2 3 4 5

SECTION G: Number of Events Reported
In the past 12 months, how many event reports have you filled out and submitted? Mark ONE answer.

a. No event reports  b. 1 to 2 event reports  c. 3 to 5 event reports  d. 6 to 10 event reports  e. 11 to 20 event reports  f. 21 event reports or more

SECTION H: Background Information
This background information will help in the analysis of the survey results. Mark ONE answer by filling in the circle.

1. How long have you worked in this hospital?
   a. Less than 1 year  b. 1 to 5 years  c. 6 to 10 years  d. 11 to 15 years  e. 16 to 20 years  f. 21 years or more

2. How long have you worked in your current hospital work area/unit?
   a. Less than 1 year  b. 1 to 5 years  c. 6 to 10 years  d. 11 to 15 years  e. 16 to 20 years  f. 21 years or more
SECTION H: Background Information Continued…

3. Typically, how many hours per week do you work in this hospital?
   ○ a. Less than 20 hours per week
   ○ b. 20 to 39 hours per week
   ○ c. 40 hours per week or more

4. What is your staff position in this hospital? Mark EACH answer that best describes your staff position/qualification.
   ○ a. GNP (1st Year)
   ○ b. Registered Nurse (2nd Year & above)
   ○ c. Honours (Nursing)
   ○ d. Critical Care Certificate
   ○ e. Graduate Diploma ICU
   ○ f. Other Graduate Diploma
   ○ g. Masters (Nursing)
   ○ h. Clinical Nursing Specialist
   ○ i. Clinical Nurse (Level 2)
   ○ j. Unit Assistant/Clerk/Secretary/Administration
   ○ k. Other, please specify: ____________________________

5. In your staff position, do you typically have direct interaction or contact with patients?
   ○ a. YES, I typically have direct interaction or contact with patients.
   ○ b. NO, I typically do NOT have direct interaction or contact with patients.

6. In your staff position, do you typically have direct interaction or contact with the patients’ relatives/friends?
   ○ a. YES, I typically have direct interaction or contact with patients’ relatives/friends.
   ○ b. NO, I typically do NOT have direct interaction or contact with patients’ relatives/friends.

7. How long have you worked in your current profession?
   ○ a. Less than 1 year
   ○ b. 1 to 5 years
   ○ c. 6 to 10 years
   ○ d. 11 to 15 years
   ○ e. 16 to 20 years
   ○ f. 21 years or more

8. How long have you worked in your current specialty?
   ○ a. Less than 1 year
   ○ b. 1 to 5 years
   ○ c. 6 to 10 years
   ○ d. 11 to 15 years
   ○ e. 16 to 20 years
   ○ f. 21 years or more

SECTION I: Your Comments

Please feel free to write any comments or suggestions for improvement about patient safety, error, or event reporting in your hospital.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Please comment if you believe there are any significant differences between the culture in your unit & the overall organisational culture of the hospital.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

THANK YOU FOR COMPLETING THIS SURVEY
Appendix 3.2 Survey pre-notification letter

HOSPITAL SURVEY ON PATIENT SAFETY CULTURE

To ____________.

As part of a PhD Research Project currently being conducted in the Intensive Care Unit, all staff will soon be receiving questionnaires concerning Patient Safety Culture. If you wish to participate in completing the survey, please find the details below regarding the distribution and return of the survey.

PURPOSE OF RESEARCH:
This research is being conducted as part of a PhD Psychology thesis at The University of Adelaide. It is designed to investigate the Patient Safety Culture within the Intensive Care Unit. While it is hoped that this research will contribute to improved patient safety, as with any research project, there is no guarantee that this study will result in a direct benefit to you.

PROCEDURE:
This investigation will involve you completing a brief survey concerning Patient Safety Culture, entitled the Hospital Survey on Patient Safety Culture (HSPSC). The survey should take no longer than 15-20 minutes to complete. The survey is anonymous, simply requiring a few demographic details to assist in analysis and interpretation of survey results. All responses will be kept strictly confidential.

The survey will be distributed Friday 7th May and all staff affiliated with the Intensive Care Unit will receive the survey via their In-Box. All completed surveys can be returned to the Drop-boxes located in the Tea Room and also near the Mailbox area.

This is a research project and your participation is voluntary. You are free to withdraw from the study at any time. A Consent Form will be attached to the survey. Your personal details will remain confidential and any information you provide will be presented only as group results, so you will not be identifiable from them.

I would very much appreciate your participation in this study.

Regards,

Stacey Panozzo  Prof. Bill Runciman
Principal Researcher  Supervisor

PEOPLE YOU CAN CONTACT:
If you have any questions or concerns regarding this research, you may speak with:
Stacey Panozzo  0438 804 899  Stephanie Creed  08 8222 4624
Dr Neil Kirby  08 8303 5739  Prof. Bill Runciman  08 8222 5374.
If you wish to discuss aspects of the study with someone not directly involved, please contact the Chairman, Research Ethics Committee, Royal Adelaide Hospital on ph. 08 8222 4139.
Appendix 3.3 Survey participant Information Sheet

INFORMATION SHEET


SUPERVISORS: Dr. Neil Kirby, PhD, Psychology Department, University of Adelaide.

Professor Bill Runciman, Head, Department of Anaesthesia & Intensive Care, RAH and University of Adelaide.

INVESTIGATOR: Stacey Panozzo, BSc (Hons), PhD Candidate, Psychology Department, University of Adelaide.

This is a research project and your participation is voluntary. You are free to withdraw from the study at any time.

PURPOSE OF RESEARCH:
This research is being conducted as part of a PhD Psychology thesis at the University of Adelaide. It is designed to investigate the Patient Safety Culture within the Intensive Care Unit (ICU). This research is not interested or concerned with staff members’ level of competence; it is specifically focused on the investigation of staff perceptions of the patient safety culture within the ICU at the Royal Adelaide Hospital, and perceptions about patient safety issues, medical error and event reporting.

While it is hoped that this research will contribute to improved patient safety, as with any research project, there is no guarantee that this study will result in a direct benefit to you.

PROCEDURE:
This investigation will involve you completing a brief survey concerning ‘Patient Safety Culture’. The survey should take no longer than 15 minutes to complete. Completed surveys can be returned to the Drop-boxes located in the Tea Room & also near the Mailbox area. Surveys are anonymous, simply requiring a few demographic details to assist in analysis and interpretation of survey results. All responses will be kept strictly confidential, with personal details remaining confidential and any information you provide will be presented only as group results, so you will not be identifiable from them.

PEOPLE YOU CAN CONTACT:
If you have any questions or concerns regarding this research, you may speak with Stacey Panozzo, on ph. 0438804899. Dr Neil Kirby can be contacted on ph. 08 8303 5739 and Professor Bill Runciman can be contacted on ph. 08 8222 5374.

If you wish to discuss aspects of the study with someone not directly involved, please contact the Chairman, Research Ethics Committee, Royal Adelaide Hospital on ph. 08 8222 4139.
Appendix 3.4 Survey participant Consent Form

CONSENT FORM


SUPERVISORS:
Dr. Neil Kirby, PhD.
Psychology Department,
University of Adelaide

Professor Bill Runciman,
Head, Department of Anaesthesia & Intensive Care,
RAH & University of Adelaide.
President, Australian Patient Safety Foundation.

INVESTIGATOR:
Stacey Panozzo, BSc (Hons),
PhD Candidate,
Psychology Department,
University of Adelaide

1. The nature and purpose of the research has been explained to me. I understand it and agree to take part.

2. I understand that I may not directly benefit from taking part in the study.

3. I understand that, while information gained during the study may be published, I will not be identified and my personal results will remain confidential.

4. I understand that I can withdraw from the study at any stage and that this will not affect medical care or any other aspects of my relationship with this hospital.

5. I understand that there will be no payment to me for taking part in this study.

6. I have had the opportunity to discuss taking part in this investigation with the investigator of the research and/or fellow employee’s.

Name of subject: __________________________________________

Signed: __________________________________________

Dated: __________________________________________

I certify that I have explained the reason for the study to the patient/volunteer and consider that he/she understands what is involved.

Investigator: __________________________________________
### Appendix 3.5 Hospital Survey on Patient Safety Culture (HSPSC) Construct Validity

<table>
<thead>
<tr>
<th>Patient Safety Dimensions</th>
<th>Mean (5-pt scale)</th>
<th>SD</th>
<th># items in scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Overall perceptions of safety</td>
<td>3.24</td>
<td>.71</td>
<td>4</td>
<td>(.a= .64)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Frequency of event reporting</td>
<td>3.01</td>
<td>.75</td>
<td>3</td>
<td>.36</td>
<td>(.a= .78)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Supervisor/Manager expectations &amp; actions promoting safety</td>
<td>3.51</td>
<td>.67</td>
<td>4</td>
<td>.41</td>
<td>.24</td>
<td>(.a= .68)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Organisational learning – continuous improvement</td>
<td>3.54</td>
<td>.57</td>
<td>3</td>
<td>.29</td>
<td>.12</td>
<td>.45</td>
<td>(.a= .57)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Teamwork within hospital units</td>
<td>3.60</td>
<td>.60</td>
<td>4</td>
<td>.44</td>
<td>.26</td>
<td>.41</td>
<td>.37</td>
<td>(.a= .70)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Communication openness</td>
<td>3.47</td>
<td>.68</td>
<td>3</td>
<td>.29</td>
<td>.14</td>
<td>.45</td>
<td>.41</td>
<td>.41</td>
<td>(.a= .69)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Feedback &amp; communication about error</td>
<td>3.20</td>
<td>.72</td>
<td>3</td>
<td>.34</td>
<td>.30</td>
<td>.42</td>
<td>.48</td>
<td>.31</td>
<td>.53</td>
<td>(.a= .66)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Nonpunitive response to error</td>
<td>3.23</td>
<td>.77</td>
<td>3</td>
<td>.31</td>
<td>.02</td>
<td>.35</td>
<td>.11</td>
<td>.37</td>
<td>.43</td>
<td>.06</td>
<td>(.a= .73)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Staffing</td>
<td>3.22</td>
<td>.63</td>
<td>4</td>
<td>.51</td>
<td>.00</td>
<td>.26</td>
<td>.09</td>
<td>.20*</td>
<td>.13</td>
<td>.00</td>
<td>.39</td>
<td>(.a= .50)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Teamwork across hospital units</td>
<td>2.98</td>
<td>.61</td>
<td>4</td>
<td>.44</td>
<td>.35</td>
<td>.37</td>
<td>.26</td>
<td>.39</td>
<td>.35</td>
<td>.44</td>
<td>.09</td>
<td>.19*</td>
<td>.40</td>
<td>(.a= .64)</td>
<td></td>
</tr>
<tr>
<td>12. Hospital handoffs &amp; transitions</td>
<td>2.78</td>
<td>.66</td>
<td>4</td>
<td>.50</td>
<td>.21*</td>
<td>.33</td>
<td>.22*</td>
<td>.20*</td>
<td>.29</td>
<td>.36</td>
<td>.17</td>
<td>.32</td>
<td>.40</td>
<td>.50</td>
<td>(.a= .80)</td>
</tr>
</tbody>
</table>

Shaded correlations significant at p < 0.01; * correlation significant at p < 0.05; all others not significant; a = Cronbach’s Alpha coefficient for 12 safety culture dimensions.
Appendix 3.6 Comparative results for Patient Safety Grade and Events Reported

**Table 3a** Patient Safety Grade comparative results

<table>
<thead>
<tr>
<th>Patient Safety Grade</th>
<th>Total ICU respondents N (%)</th>
<th>U.S. ICU Database N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Hospitals</td>
<td>1</td>
<td>215</td>
</tr>
<tr>
<td></td>
<td>123</td>
<td>5992</td>
</tr>
<tr>
<td>Excellent</td>
<td>16 (12.8)</td>
<td>899 (15)</td>
</tr>
<tr>
<td>Very Good</td>
<td>61 (49.6)</td>
<td>2876 (48)</td>
</tr>
<tr>
<td>Acceptable</td>
<td>43 (35.0)</td>
<td>1738 (29)</td>
</tr>
<tr>
<td>Poor</td>
<td>3 (2.6)</td>
<td>419 (7)</td>
</tr>
<tr>
<td>Failing</td>
<td>0 (0.0)</td>
<td>2 (120)</td>
</tr>
</tbody>
</table>

Overall p-value = 0.2495

**Table 3b** Comparative results for the number of events reported in past 12 months

<table>
<thead>
<tr>
<th>Number of events reported in the past 12 months</th>
<th>Total ICU respondents N (%)</th>
<th>U.S. ICU Database N (%)</th>
<th>p-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Hospitals</td>
<td>1</td>
<td>215</td>
<td></td>
</tr>
<tr>
<td>No. of Respondents</td>
<td>123</td>
<td>5992</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>35 (28.1)</td>
<td>1857 (31)</td>
<td>.547</td>
</tr>
<tr>
<td>1 to 2</td>
<td>61 (49.6)</td>
<td>2097 (35)</td>
<td>.001</td>
</tr>
<tr>
<td>3 to 5</td>
<td>24 (19.8)</td>
<td>1438 (24)</td>
<td>.248</td>
</tr>
<tr>
<td>6 to 10</td>
<td>1 (0.8)</td>
<td>419 (7)</td>
<td>.007</td>
</tr>
<tr>
<td>11 to 20</td>
<td>2 (1.7)</td>
<td>120 (2)</td>
<td>.767</td>
</tr>
</tbody>
</table>

Overall p-value = 0.0044
### PATIENT LABEL

- **Unit Record No.:**
- **Surname:**
- **Given Names:**
- **Date of Birth:**
- **Sex:**

<table>
<thead>
<tr>
<th>Hospital Admission Date:</th>
<th>ICU Admission Date:</th>
</tr>
</thead>
</table>

**Source:**
- [ ] Retrieval
- [ ] Other

**Source:**
- [ ] Theatre
- [ ] ED
- [ ] SDU
- [ ] Ward
- [ ] MET

**Home team Notified?**
- [ ] Yes

<table>
<thead>
<tr>
<th>Diagnosis/Presenting Complaint and clinical progress prior to ICU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Past Medical History:**

- [ ] Nil Known,

If patient has allergies, please complete an Alert Form (MR 0) and place in the patient's medical record.

**Relative Aware:**
- [ ] Yes
- [ ] No

If no, reason:

**Denture/Plate Present:**
- [ ] Upper
- [ ] Lower

- [ ] Caps/crowns
- [ ] Bridge
- [ ] Loose Teeth
- [ ] Front
- [ ] Back

**Disability:**
- [ ] Physical
- [ ] Intellectual

(if either box is ticked, please describe below)

**Hearing Deficit:**
- [ ] Yes
- [ ] No

**Aid:**
- [ ] R) Ear
- [ ] L) Ear

**Visual Deficit:**
- [ ] Yes
- [ ] No

- [ ] Glasses
- [ ] Contact Lenses

**Clothes List Number:**

**Services Required:**

**Contact Date**

- **Aboriginal Liaison Officer:**
- **Chaplain:**
- **Patient's Religion:**
- **Trauma Counsellor:**

**Language spoken:**

**Interpreter required:**
- [ ] Yes
- [ ] No

**Other Services:**

**Registered Nurse:**

**Signature**

**CLINICAL CASE MANAGER:**

**Speed Dial**
Invasive Catheters / Drains
(eg CVC, PICC, arterial catheters, PA catheters, dialysis catheters, pleural drains, ICP catheters, peripheral cannulae, etc)

<table>
<thead>
<tr>
<th>Type</th>
<th>Site</th>
<th>Insertion Date</th>
<th>Removal Date</th>
<th>Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Surgery Type and Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intubation</th>
<th>Intubation</th>
<th>Intubation</th>
<th>Intubation</th>
<th>Tracheostomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date In</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date Out</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td>I  II  III  IV</td>
<td>I  II  III  IV</td>
<td>I  II  III  IV</td>
<td>I  II  III  IV</td>
</tr>
<tr>
<td></td>
<td>DVT prophylaxis</td>
<td>Tet tox</td>
<td>Splenectomy</td>
<td>Spinal</td>
</tr>
<tr>
<td></td>
<td>Yes / No / NA</td>
<td>Yes / No / NA</td>
<td>Yes / No / NA</td>
<td>Yes / No / NA</td>
</tr>
<tr>
<td>Date Commenced</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## CT Scans / MRI

<table>
<thead>
<tr>
<th>Date</th>
<th>Investigation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May 2005</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Other Investigations
(eg Echocardiogram, Angiography, Ultrasound)

<table>
<thead>
<tr>
<th>Date</th>
<th>Investigation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Micro Sample</td>
<td>Result (organism, cell count, other)</td>
</tr>
<tr>
<td>------</td>
<td>--------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*ROYAL ADELAIDE HOSPITAL*

**ANTIMICROBIAL MANAGEMENT INTENSIVE CARE UNIT**

**PATIENT LABEL**

Unit Record No.: 
Surname: 
Given Names: 
Date of Birth: 
Sex: 

---

*ANTIMICROBIAL MANAGEMENT - INTENSIVE CARE UNIT*

D 18.2

*June 2006*
<table>
<thead>
<tr>
<th>Date &amp; ICU Day</th>
<th>DAILY PATIENT MANAGEMENT ISSUES and GOALS</th>
<th>OUTCOMES ACHieved</th>
<th>Doctor or Nurse's Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

June 2005
<table>
<thead>
<tr>
<th>Date &amp; ICU Day</th>
<th>DAILY PATIENT MANAGEMENT ISSUES and GOALS (document additional details in progress notes of medical record, including family discussions)</th>
<th>OUTCOMES ACHIEVED (also document in medical record)</th>
<th>Doctor or Nurse's Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>______________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>______________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>______________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>______________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>______________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>______________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>______________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>______________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>______________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>______________</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 4.2 Participant information sheet

INFORMATION SHEET


SUPERVISORS:  Professor Bill Runciman, Head, Department of Anaesthesia and Intensive Care, RAH and University of Adelaide. President, Australian Patient Safety Foundation.

Dr. Neil Kirby, PhD. Psychology Department, University of Adelaide.

Dr Arthas Flabouris, Intensive Care Medical Consultant, Department of Anaesthesia & Intensive Care, RAH.

INVESTIGATOR:  Stacey Panozzo, BSc (Hons), PhD Candidate, Psychology Department, University of Adelaide.

This is a research project and your participation is voluntary. You are free to withdraw from the study at any time.

PURPOSE OF RESEARCH:

This research is designed to investigate the process of Intensive Care Unit (ICU) handover, during which patient information is passed from one nurse to another. It is being conducted as part of a PhD Psychology thesis at the University of Adelaide.

The overall aim of this study is to examine nurses’ perceptions of the process of handover, with respect to communicating aspects of patient progress throughout the ICU admission, specifically key issues, events, investigations and decisions. The study will involve the before- and after- assessment of the introduction of a new handover document (‘Patient Management, Plan and Progress - Intensive Care Unit’), which aims to improve handover communication.
While it is hoped that this research will contribute to improved patient safety, as with any research project, there is no guarantee that this study will result in a direct benefit to you.

**PROCEDURE:**

This investigation will involve you completing a brief survey, seeking your level of satisfaction with the way information is provided during handover and your confidence in the comprehensiveness and accuracy of that information. The brief survey should take no more than 10 MINUTES to complete. Completed survey can be returned to the Drop-Box located in the **Tea Room**.

Each survey will be coded in order to enable a comparison of before- and after-survey responses. The survey is anonymous, simply requiring a few demographic details to assist in analysis and interpretation of results. The results of the survey will be analysed to assess overall staff opinions concerning this process of handover communication. This research is not concerned with staff members’ level of competence.

**PEOPLE YOU CAN CONTACT:**

If you have any questions or concerns regarding this research, you may speak with myself (Principal Investigator: Stacey Panozzo, 0438 804 899), or you can approach Deb Herewane, Professor Bill Runciman (0412 183 889), or Dr Arthas Flabouris (0418 857 127) within the unit.

If you wish to discuss aspects of the study with someone not directly involved, please contact the Chairman, Research Ethics Committee, Royal Adelaide Hospital on ph. 08 8222 4139.
Appendix 4.3 Before-introduction medical handover evaluation
Medical Staff Before-Introduction Evaluation

Handover: Patient Management Plan & Progress Intensive Care Unit

Handover is an important time during which patient information is passed from one doctor to another. That information is crucial to the flow of patient care, with communicating aspects of patient progress throughout the ICU admission, specifically key issues, intended management plans, events, investigations & decisions. The questions below pertain only to the periods of ICU handover.

These are:
- Morning handover at 0800 hrs
- Ward round at 1100 hrs
- Evening handover at 1830 hrs

With respect to these handovers, indicate your level of SATISFACTION with the way in which clinical information has been provided to you regarding your ICU patients (For example: How the information is documented or verbally delivered), for the following items:

(Satisfaction Scale of 1-10: 1=not at all satisfied; 5=moderately satisfied; 10=completely satisfied)

<table>
<thead>
<tr>
<th>Think about the clinical information for ICU patients you have been directly involved with.</th>
<th>SATISFACTION SCALE (Concerning the way information is provided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patients background (includes medical &amp; social history &amp; carers)..........................</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>2. Reason for ICU admission.............................</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>3. Circumstances of admission to ICU (ie. MET call, retrieval, OT, etc)....................</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>4. Nature of &amp; indications for:---------------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>a. Radiological investigations .......................</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>b. Surgery ..................................................</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>5. Results of the radiological investigations ..........</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>6. Planned/Booked, but not yet done, investigations ........................................</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>7. Duration of intubation...........................................</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>8. Nature &amp; duration of vascular access lines ..........</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>9. Type &amp; duration of antibiotics .........................</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>10. Microbiological results ....................................</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>11 Biochemical results..............................................</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>12 Haematological results .................................</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>13 Other blood results ...........................................</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>14 Family discussions ...................................................................</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
</tbody>
</table>
With respect to these handovers, indicate your level of **CONFIDENCE** concerning the accuracy and comprehensiveness of the clinical information provided regarding your ICU patients, for the following items:

*(Confidence Scale of 1-10: 1=not at all confident; 5=moderately confident; 10=completely confident)*

<table>
<thead>
<tr>
<th>Think about the clinical information for ICU patients you have been directly involved with.</th>
<th>CONFIDENCE SCALE (The comprehensiveness &amp; accuracy of information)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patients background (includes medical &amp; social history &amp; carers)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>2. Reason for ICU admission</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>3. Circumstances of admission to ICU (ie. MET call, retrieval, OT, etc)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>4. Nature of &amp; indications for:</td>
<td></td>
</tr>
<tr>
<td>a. Radiological investigations</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>b. Surgery</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>5. Results of the radiological investigations</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>6. Planned/Booked, but not yet done, investigations</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>7. Duration of intubation</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>8. Nature &amp; duration of vascular access lines</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>9. Type &amp; duration of antibiotics</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>10. Microbiological results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>11. Biochemical results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>12. Haematological results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>13. Other blood results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>14. Family discussions</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
</tbody>
</table>

How would rate the consistency of the transfer of patient clinical information at ICU handover?

_________________________________________________
_________________________________________________
_________________________________________________
_________________________________________________
_________________________________________________
### Demographic Details:

- a. Female
- b. Male

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How long have you worked in the RAH ICU?</td>
<td>a. Less than 1 year</td>
</tr>
<tr>
<td></td>
<td>b. 1 to 5 years</td>
</tr>
<tr>
<td></td>
<td>c. 6 to 10 years</td>
</tr>
<tr>
<td></td>
<td>d. 11 to 15 years</td>
</tr>
<tr>
<td></td>
<td>e. 16 to 20 years</td>
</tr>
<tr>
<td></td>
<td>f. 21 years or more</td>
</tr>
<tr>
<td>2. How long have you worked in ANY ICU (prior to working in RAH ICU)?</td>
<td>a. Less than 1 year</td>
</tr>
<tr>
<td></td>
<td>b. 1 to 5 years</td>
</tr>
<tr>
<td></td>
<td>c. 6 to 10 years</td>
</tr>
<tr>
<td></td>
<td>d. 11 to 15 years</td>
</tr>
<tr>
<td></td>
<td>e. 16 to 20 years</td>
</tr>
<tr>
<td></td>
<td>f. 21 years or more</td>
</tr>
<tr>
<td>3. Typically, how many hours per week do you work in this hospital?</td>
<td>a. Less than 20 hours per week</td>
</tr>
<tr>
<td></td>
<td>b. 20 to 39 hours per week</td>
</tr>
<tr>
<td></td>
<td>c. 40 hours per week</td>
</tr>
<tr>
<td>4. What is your staff position in this hospital? Mark ONE answer that best describes your staff position/qualification.</td>
<td>a. Consultant</td>
</tr>
<tr>
<td></td>
<td>b. Registrar</td>
</tr>
<tr>
<td></td>
<td>c. Registrar/ICU Trainee</td>
</tr>
<tr>
<td></td>
<td>d. Resident</td>
</tr>
<tr>
<td>5. Please indicate your specialty area of practice in this hospital.</td>
<td></td>
</tr>
<tr>
<td>6. How long have you worked in your current profession?</td>
<td>a. Less than 1 year</td>
</tr>
<tr>
<td></td>
<td>b. 1 to 5 years</td>
</tr>
<tr>
<td></td>
<td>c. 6 to 10 years</td>
</tr>
<tr>
<td></td>
<td>d. 11 to 15 years</td>
</tr>
<tr>
<td></td>
<td>e. 16 to 20 years</td>
</tr>
<tr>
<td></td>
<td>f. 21 years or more</td>
</tr>
<tr>
<td>7. How long have you worked in your current specialty?</td>
<td>a. Less than 1 year</td>
</tr>
<tr>
<td></td>
<td>b. 1 to 5 years</td>
</tr>
<tr>
<td></td>
<td>c. 6 to 10 years</td>
</tr>
<tr>
<td></td>
<td>d. 11 to 15 years</td>
</tr>
<tr>
<td></td>
<td>e. 16 to 20 years</td>
</tr>
<tr>
<td></td>
<td>f. 21 years or more</td>
</tr>
</tbody>
</table>
Appendix 4.4 Before-introduction nurse handover evaluation

Nurses’ Before-Introduction Evaluation

Handover:

Patient Management Plan & Progress Intensive Care Unit

Handover is an important time during which patient information is passed from one nurse to another. That information is crucial to the flow of patient care, with communicating aspects of patient progress throughout the ICU admission, specifically key issues, events, investigations & decisions. The questions below pertain only to the information provided concerning patients during the periods of ICU handover. These are:

- Morning handover at 0700 hrs
- Afternoon handover at 1500 hrs
- Evening handover at 2245 hrs

With respect to these handovers, indicate your level of SATISFACTION with the way in which clinical information has been provided to you regarding your ICU patients (For example: How the information is documented or verbally delivered), for the following items:

(Satisfaction Scale of 1-10: 1=not at all satisfied; 5=moderately satisfied; 10=completely satisfied)

<table>
<thead>
<tr>
<th>Think about the clinical information for ICU patients you have been directly involved with.</th>
<th>SATISFACTION SCALE (Concerning the way information is provided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patients background (includes medical &amp; social history &amp; carers)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>2. Reason for ICU admission</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>3. Circumstances of admission to ICU (ie. MET call, retrieval, OT, etc)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>4. Nature of &amp; indications for: a. Radiological investigations</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>b. Surgery</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>5. Results of the radiological investigations</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>6. Planned/Booked, but not yet done, investigations</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>7. Duration of intubation</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>8. Nature &amp; duration of invasive catheters/drains</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>9. Type &amp; duration of antibiotics</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>10. Microbiological results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>11. Biochemical results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>12. Haematological results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>13. Other blood results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>14. Family discussions</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
</tbody>
</table>
With respect to these handovers, indicate your level of **CONFIDENCE** concerning the accuracy and comprehensiveness of the clinical information provided regarding your ICU patients, for the following items:

(Confidence Scale of 1-10: 1=not at all confident; 5=moderately confident; 10=completely confident)

**Think about the clinical information for ICU patients you have been directly involved with.**

**CONFIDENCE SCALE**
(The comprehensiveness & accuracy of information)

<p>| | | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patients background (includes medical &amp; social history &amp; carers)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>2. Reason for ICU admission</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>3. Circumstances of admission to ICU (ie. MET call, retrieval, OT, etc)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>4. Nature of &amp; indications for:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Radiological investigations</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>b. Surgery</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>5. Results of the radiological investigations</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>6. Planned/Booked, but not yet done, investigations</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>7. Duration of intubation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>8. Nature &amp; duration of invasive catheters/drains</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>9. Type &amp; duration of antibiotics</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>10. Microbiological results</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>11. Biochemical results</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>12. Haematological results</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>13. Other blood results</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>14. Family discussions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

What do you think of the current process for handing over patient clinical information in this ICU?

________________________________________________________________________

________________________________________________________________________

Do you perceive a need for changes in the present handover process? **Yes / Maybe / No**

Please comment on:

a. What kind of changes?

________________________________________________________________________

________________________________________________________________________

b. Why they are needed?

________________________________________________________________________

________________________________________________________________________

c. What outcomes they may produce?

________________________________________________________________________
Demographic Details:

☐ a. Female
☐ b. Male

1. How long have you worked in the RAH ICU?
   ☐ a. Less than 1 year  ☐ d. 11 to 15 years
   ☐ b. 1 to 5 years      ☐ e. 16 to 20 years
   ☐ c. 6 to 10 years     ☐ f. 21 years or more

2. How long have you worked in ANY ICU (prior to working in RAH ICU)?
   ☐ a. Less than 1 year  ☐ d. 11 to 15 years
   ☐ b. 1 to 5 years      ☐ e. 16 to 20 years
   ☐ c. 6 to 10 years     ☐ f. 21 years or more

3. Typically, how many hours per week do you work in this hospital?
   ☐ a. Less than 20 hours per week
   ☐ b. 20 to 39 hours per week
   ☐ c. 40 hours per week or more

4. a. What is your staff position in this hospital?
   ☐ a. Registered Nurse (Level 1)
   ☐ b. Registered Nurse (Level 2)
   ☐ c. Registered Nurse (Level 3)

4. b. Please mark EACH of the nursing qualifications that you have obtained.
   ☐ a. Honours (Nursing)
   ☐ b. Masters (Nursing)
   ☐ c. Critical Care Certificate
   ☐ d. Graduate Diploma ICU
   ☐ e. Other Graduate Diploma
   ☐ f. PhD (Nursing)
   ☐ g. Other, please specify: _________________________

5. Please indicate where you undertook your general nurse training?
   ☐ a. Hospital based
   ☐ b. University based

6. How long have you worked in your current profession?
   ☐ a. Less than 1 year  ☐ d. 11 to 15 years
   ☐ b. 1 to 5 years      ☐ e. 16 to 20 years
   ☐ c. 6 to 10 years     ☐ f. 21 years or more

7. How long have you worked in your current specialty?
   ☐ a. Less than 1 year  ☐ d. 11 to 15 years
   ☐ b. 1 to 5 years      ☐ e. 16 to 20 years
   ☐ c. 6 to 10 years     ☐ f. 21 years or more
Appendix 4.5 After-introduction medical and nursing staff handover evaluation

Handover:
Patient Management Plan & Progress Intensive Care Unit

Medical & Nursing staff After-Introduction Evaluation

Demographic Details:

- a. Female
- b. Male

1. How long have you worked in the RAH ICU?
   - a. Less than 1 year
   - b. 1 to 5 years
   - c. 6 to 10 years
   - d. 11 to 15 years
   - e. 16 to 20 years
   - f. 21 years or more

2. How long have you worked in ANY ICU (prior to working in RAH ICU)?
   - a. Less than 1 year
   - b. 1 to 5 years
   - c. 6 to 10 years
   - d. 11 to 15 years
   - e. 16 to 20 years
   - f. 21 years or more

3. Typically, how many hours per week do you work in this hospital?
   - a. Less than 20 hours per week
   - b. 20 to 39 hours per week
   - c. 40 hours per week or more

4. What is your staff position in this hospital?
   Mark ONE answer that best describes your staff position/qualification.
   - a. Consultant
   - b. Registrar
   - c. Registrar/ICU Trainee
   - d. Resident

5. Please indicate your specialty area of practice in this hospital: ________________________________

6. How long have you worked in your current profession?
   - a. Less than 1 year
   - b. 1 to 5 years
   - c. 6 to 10 years
   - d. 11 to 15 years
   - e. 16 to 20 years
   - f. 21 years or more

7. How long have you worked in your current specialty?
   - a. Less than 1 year
   - b. 1 to 5 years
   - c. 6 to 10 years
   - d. 11 to 15 years
   - e. 16 to 20 years
   - f. 21 years or more
Handover:

Patient Management Plan & Progress Intensive Care Unit

Handover is an important time during which patient information is passed from one doctor to another. That information is crucial to the flow of patient care, with communicating aspects of patient progress throughout the ICU admission, specifically key issues, intended management plans, events, investigations & decisions. The questions below pertain only to the periods of ICU handover.

These are:

Morning handover at 0800 hrs
Ward round at 1100 hrs
Evening handover at 1830 hrs

With respect to these handovers, indicate your level of SATISFACTION with the way in which clinical information has been provided to you regarding your ICU patients (For example: How the information is documented or verbally delivered), for the following items:

(Satisfaction Scale of 1-10: 1= not at all satisfied; 5= moderately satisfied; 10= completely satisfied)

<table>
<thead>
<tr>
<th>Think about the clinical information for ICU patients you have been directly involved with.</th>
<th>SATISFACTION SCALE (Concerning the way information is provided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patients background (includes medical &amp; social history &amp; carers)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>2. Reason for ICU admission</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>3. Circumstances of admission to ICU (ie. MET call, retrieval, OT, etc)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>4. Nature of &amp; indications for:</td>
<td></td>
</tr>
<tr>
<td>a. Radiological investigations</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>b. Surgery</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>5. Results of the radiological investigations</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>6. Planned/Booked, but not yet done, investigations</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>7. Duration of intubation</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>8. Nature &amp; duration of vascular access lines</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>9. Type &amp; duration of antibiotics</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>10. Microbiological results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>11. Biochemical results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>12. Haematological results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>13. Other blood results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>14. Family discussions</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
</tbody>
</table>
With respect to these handovers, indicate your level of CONFIDENCE concerning the accuracy and comprehensiveness of the clinical information provided regarding your ICU patients, for the following items:

(Confidence Scale of 1-10: 1= not at all confident; 5= moderately confident; 10= completely confident)

Think about the clinical information for ICU patients you have been directly involved with.

<table>
<thead>
<tr>
<th>Think about the clinical information for ICU patients you have been directly involved with.</th>
<th>CONFIDENCE SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patients background (includes medical &amp; social history &amp; carers)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>2. Reason for ICU admission</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>3. Circumstances of admission to ICU (ie. MET call, retrieval, OT, etc)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>4. Nature of &amp; indications for:</td>
<td></td>
</tr>
<tr>
<td>a. Radiological investigations</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>b. Surgery</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>5. Results of the radiological investigations</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>6. Planned/Booked, but not yet done, investigations</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>7. Duration of intubation</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>8. Nature &amp; duration of vascular access lines</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>9. Type &amp; duration of antibiotics</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>10. Microbiological results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>11. Biochemical results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>12. Haematological results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>13. Other blood results</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>14. Family discussions</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
</tbody>
</table>

Questions:

1. What did you think of the education / introduction sessions for the ‘Patient Management Plan and Progress’ document?

________________________________________________________________________________________

2. What do you think of the new document for handing over patient clinical information in this ICU?

________________________________________________________________________________________

3. Do you consider that the process of ICU handover has been improved?  Yes / Maybe / No
Please comment and provide examples on:

Those aspects that have improved

________________________________________________________________________________________
Those aspects that have **not** improved

What you consider to be the most important change(s) resulting from the new document

4. How do you perceive the current interdisciplinary communication within the ICU?

5. Has the introduction of the new document changed interdisciplinary communication? Yes / No    Why / why not?

6. Do you have any suggestions for improving the process of handover? Yes / No
If yes, what improvements could be made?
It is accepted practice under appropriate circumstances† to withhold or withdraw aspects of medical treatment. A competent adult patient is entitled to withhold or withdraw consent for any treatment at any time, even if this may shorten their life. Patients may have completed one of a range of advance directives while they were competent and then subsequently lost capacity to make their own decisions. Where the person has completed an Anticipatory Direction, this guides treatment decisions when the patient becomes incompetent. If the person has appointed a legal representative (a Medical Agent or an Enduring Guardian) or the Guardianship Board has appointed a legal Guardian, the relevant clinical staff should seek agreement to treatment decisions from this person when the patient has lost capacity.

If none of these exist, as is commonly the case, agreement should be between the relevant clinical staff and relatives, carers or friends deemed the most appropriate to represent the patient. Details of the progression of the discussions and rationale for any decisions should be recorded in this plan. The overriding principle is to act in the best interests of the patient and to try to do what the patient would have wished, had they been competent.

Where a competent patient indicates they do not wish to discuss withholding or withdrawing aspects of treatment, such as in certain palliative care and advanced chronic disease circumstances, and relatives, carers or friends are unavailable for discussion, a plan may be made with respect to withholding or withdrawing aspects of treatment. The rationale underlying this plan must be recorded together with a description of the extent of medical treatment to be offered.

The extent of medical treatment that is to be offered, including comfort care measures and any treatment that is to be withheld or withdrawn, needs to be recorded on the Advance Care Plan in a clear and unambiguous manner*. The focus should be on respect for the dignity and comfort of the patient as well as support and care for their relatives, carers or friends. It should be noted that the use of medication for the control of patient symptoms in this setting is appropriate, even if this may shorten life. All aspects of treatment to be withheld or withdrawn must be discussed and agreed upon by the parties listed in this Advance Care Plan.

If the patient is in the Intensive Care Unit, the relevant orders to enact these measures must be made by the Intensive Care Consultant on duty [see over page (3)]. When a patient is transferred elsewhere from the Intensive Care Unit after aspects of treatment have been withdrawn, the measures that are or are not to be undertaken must be clearly documented in the discharge summary. Communication with the home clinic medical team needs to occur to ensure that the team understands and accepts the plan. A member of the Intensive Care Unit caring team should hand-over and introduce any available relatives, carers or friends of the patient to the new caring team.

† The "Statement on Withholding and Withdrawing Treatment" of the Australian & New Zealand Intensive Care Society and the Joint Faculty of Intensive Care Medicine provide a synopsis of the principles underlying this document.

* Descriptive examples are provided in the 'Guidelines for an Advance Care Plan' found in the Clinical Practice Manual on the RAH IntraNet. These guidelines are informed by the Statement on Withdrawing and Withholding Treatment, Consent to Medical Treatment and Palliative Care Act 1995 and Guardianship and Administration Act 1993.
The following information from the agreeing parties is required. Discussion and agreement should occur and be obtained in the sequence listed below to ensure that there is medical and nursing consensus before patients and their representatives are approached.

Before proceeding, determine if any of the following are in place as these take legal precedent (refer Guidelines):
- Anticipatory Direction  Y / N
- Medical Agent  Y / N
- Enduring Guardian  Y / N
- Guardian appointed by Guardianship Board  Y / N
- Copy placed within the patient's medical record  Y / N

REQUIRED DETAILS:

1. A senior medical representative (consultant or registrar/advanced trainee) from the 'home' medical clinic.

   Print name: .................................................  Signature: .................................................

   Date/time: .................................................

   Details of contact: .................................................


DESIRABLE DETAILS: where appropriate - refer local processes or procedure

2. The registered nurse responsible for the ward in consultation with the nurse(s) assigned to the care of the patient.
   **NB.** This is to document nursing concurrence and witness that appropriate discussions have involved the patient and/or guardian/relatives/carers/friends and that the nurses involved understand and accept the plan.

   Print name: .................................................  Signature: .................................................

   Date/time: .................................................

3. The Intensive Care medical consultant on duty who is responsible for the clinical care of the patient, has had discussions with the relevant medical and nursing staff and the patient and/or guardian/relatives/carers/friends and is cognisant that they understand and accept all aspects of the plan to withhold or withdraw aspects of treatment.

   Print name: .................................................  Signature: .................................................

   Date/time: .................................................

4. A second Intensive Care medical consultant to confirm that the plan is appropriate.

   Print name: .................................................  Signature: .................................................

   Date/time: .................................................

**NB.** For patients in Intensive Care (2), (3) and (4) must be completed.

5. The patient, whenever possible, or an agreed spokesperson for the guardians, relatives, carers or friends of the patient whoever is deemed most appropriate.
   **NB.** This is to acknowledge that discussions with staff have involved the patient and/or guardians/relatives/carers/friends and that they understand and accept the plan.

   Print name: .................................................  Signature (optional): .................................................

   Date/time: .................................................

   Relationship with patient: .................................................

Record details of the Advance Care Plan on the following Advance Care Plan Continuation Sheet. Any changes or revisions to the plan also need to be recorded here.
Please record details* of the Advance Care Plan here following agreement from all parties:

* Descriptive examples are provided in the 'Guidelines for an Advance Care Plan' found in the Clinical Practice Manual on the RAH IntraNet.
Appendix 5.2 ICU medical record audit pro forma

CONFIDENTIAL
ICU Medical Record Review Pro Forma

PATIENT DETAILS
Subject Identification Number: (De-identification of record for reporting results)
Unit Record Number: (Records for this study only)
Date & Time of Death:
Cause of Death:
Age:
Gender:
Severity of Illness Details: (APACHE 2)
ICU admission diagnosis:
Source of Admission:
ICU length of Stay (LOS):
Race/Ethnicity:
1. Caucasian
2. Aboriginal
3. Asian
4. Other (Please specify)
Religion

STUDY DETAILS

Documentation concerning withholding or withdrawal of treatment

Details of any specified Advanced Directives (Prior Patient Requests):
(e.g. Presence of prior DNAR/NFR order requested by patient before ICU admission)
Date at which a decision was made to withhold or withdraw:
Reasons for withholding or withdrawing:

Documented in Medical Records
Medical Decision documented Y/N?
Details of additional members present/notified of decision:
Documented Y/N & Who?
Date/Time of Discussion:
Details of patients relatives/carers/friends/guardians present at discussion:
Documented Y/N & Who?
Details of medical/nursing staff present at discussion:
Documented Y/N & Who?
Details of additional members present for discussion:
Documented Y/N & Who?
Documented details of discussion:

Documented in Nursing Records
Details of patients relatives/carers/friends/guardians present at discussion:
Documented Y/N & Who?
Details of medical/nursing staff present at discussion:
Documented Y/N & Who?
Details of additional members present at discussion:
Documented Y/N & Who?
Documented details of discussion:
Appendix 5.3 Participant Information Sheet

PROTOCOL NAME: Documentation of Planned Decisions to Withdraw Aspects of Patient Treatment in the Intensive Care Unit.

SUPERVISORS:
Dr. Neil Kirby, PhD. Psychology Department, University of Adelaide.
Professor Bill Runciman, Head, Department of Anaesthesia & Intensive Care, RAH & University of Adelaide
Dr Arthas Flabouris, Intensive Care Medical Consultant, Department of Anaesthesia & Intensive Care, RAH.

INVESTIGATOR:
Stacey Panozzo, BSc (Hons), PhD Candidate, Psychology Department, University of Adelaide.

This is a research project and your participation is voluntary. You are free to withdraw from the study at any time.

PURPOSE OF RESEARCH:
This research is designed to investigate the impact of a new Advance Care Plan (ACP) document on the medical record documentation of withdrawal of treatment in an adult intensive care unit (ICU). It is being conducted as part of a PhD Psychology thesis at the University of Adelaide. The overall aim of this study is to examine ICU staff perceptions relating to the current process involved in the planned decision to withdraw aspects of patient treatment in the ICU and the documentation of this process before and after the introduction of an ACP document.

While it is hoped that this research will contribute to improved patient safety, as with any research project, there is no guarantee that this study will result in a direct benefit to you.

PROCEDURE:
This investigation will involve your participation in an interview, seeking your perceptions regarding aspects of the current process of withholding or withdrawal of aspects of patient treatment. The results of the interview schedule will be analysed to gain collective staff attitudes and values concerning this process.

This research is not interested or concerned with staff members’ level of competence. Your responses will remain anonymous, simply requiring a few demographic details to assist in analysis of results.

PEOPLE YOU CAN CONTACT:
If you have any questions or concerns regarding this research, you may speak with Dr Arthas Flabouris (0418 857 127), Professor Bill Runciman (0412 183 889), or myself (Principal Investigator: Stacey Panozzo, 0438 804 899).

If you wish to discuss aspects of the study with someone not directly involved, please contact the Chairman, Research Ethics Committee, Royal Adelaide Hospital on ph. 08 8222 4139.
Appendix 5.4 Nurse expression of interest letter

EXPRESSIONS OF INTEREST

Dear ________,

I am wishing to seek your voluntary participation in an interview for the following study ‘Planned Decisions to Withhold or Withdraw Aspects of Patient Treatment in the Intensive Care Unit’.

The overall aim of this study is to examine ICU staff perceptions relating to the current process involved in the planned decisions to withhold or withdraw aspects of patient treatment in the Intensive Care unit. Attached is a copy of the ‘Information Sheet’ including further details of the study and assuring that responses will remain anonymous and confidential.

Have you been actively involved in the process of withholding or withdrawing aspects of patient treatment within the RAH ICU?

Are you interested in participating in an interview concerning the nature of the current process of withholding or withdrawing aspects of patient treatment & your experiences of this process?

The interview will be conducted at a time convenient for you, over the period March & April 2005. If you are interested in participating in an interview regarding this process within the ICU, please contact myself [Principal Investigator] as soon as possible, on:

Mobile Phone: 0438 804 899
Email: stacey.panozzo@adelaide.edu.au

Regards,

Stacey Panozzo
PhD Candidate
Department of Psychology
University of Adelaide
Appendix 5.5 Before-introduction interview questions

BEFORE ACP INTRODUCTION INTERVIEW QUESTIONS

1. What is the current process to withhold or withdraw aspects of patient treatment?

2. Specifically, what is your understanding of the current documentation process?

3. How do you feel about the current process; in particular, what are the:
   i. Advantages
   ii. Disadvantages

4. Who do you think should be involved in the ‘processes’ of withholding or withdrawing aspects of patient treatment?
   i. Decision-making process
   ii. Discussion process
   iii. Practical activities involved in the clinical withholding or withdrawal

5. How much are you involved in the decision making process?

6. How satisfied are you with your level of input or collaborative involvement in the decision making process? In particular, what do you see as the nurses’ role in this process?

7. How much are you involved in the family discussion process?

8. How satisfied are you with your level of participation in the family discussion process? In particular, what do you see as the nurse’s role in this process?

9. When not involved in the decision making process, do you think you are given sufficient instructions in relation to what treatments are to be withdrawn or withheld & the manner in which they occur?

10. Do you feel that nursing staff in charge of the patient should share with the physicians the legal responsibility for withholding or withdrawing aspects of treatment? Why / why not?

11. Given the possibility that malpractice suits / litigation may occur, how does that impact upon your ACTIVE involvement in this process?

12. Regarding the specific medical information that is discussed amongst physicians/nurses at the time that a decision to withhold or withdraw aspects of patient treatment is made, do you think when provided to a competent patient/relative/carer/friend/guardian this information should be modified on the basis of:
   i. potential for emotional distress to the competent patient / relative;
   ii. personal concern for litigation.

13. Are there resource or economic concerns that impact on the nature of the discussion process held with the patient and/or patients family?

14. Do you have any further comments and / or suggestions?
Appendix 5.6: After-introduction interview questions

AFTER ACP INTRODUCTION INTERVIEW QUESTIONS

1. How do you feel about the current process to withhold or withdraw aspects of patient treatment? In particular, what are the:
   i. Advantages
   ii. Disadvantages

2. Specifically, what is your understanding of the current documentation process following the introduction of the recent RAH Advanced Care Plan (ACP)?

3. Who do you see to be involved in the current (i.e. post ACP) ‘processes’ of withholding or withdrawing aspects of patient treatment?
   i. Decision-making process
   ii. Discussion process
   iii. Practical activities involved in the clinical withholding or withdrawal

4. How much are you involved in the following process?
   i. Decision-making process
   ii. Discussion process
   iii. Practical activities involved in the clinical withholding or withdrawal

5. How satisfied are you with your level of input or collaborative involvement in the following process? In particular, has the nurses’ role in this process been impacted upon by the ACP document?
   i. Decision-making process
   ii. Discussion process
   iii. Practical activities involved in the clinical withholding or withdrawal

6. When not involved in the decision making process, do you think you are given sufficient instructions in relation to what treatments are to be withdrawn or withheld and the manner in which they occur? Has this improved/altered since the introduction of the ‘Advanced Care Plan’ document?

7. Given the possibility that malpractice suits / litigation may occur, do you feel that the ACP has increased/decreased/not altered your risk? Yes/No and Why/Why not?

8. What information and by which means do you see to be effective for teaching healthcare providers such as yourself to address the issues associated with the process of withdrawal of aspects of patient treatment in the ICU setting?

8a. How prepared – in terms of prior education/training and experience - do you feel for your involvement in the processes of withholding or withdrawal of aspects of patient treatment within this ICU?

8b. How much of the total onus of responsibility do you perceive to fall on you? [i.e. within ICU & MET calls]

9. Would you consider that a palliative care consultation/involvement at any stage in the process of withholding or withdrawing improve upon the current withholding / withdrawal process?

10. Do you have any further comments and / or suggestions?
Appendix 5.7: Participant demographic survey

Planned Decisions to Withhold or Withdraw Aspects of Patient Treatment in the Intensive Care Unit

Demographic Details:

1. How long have you worked in the RAH ICU?
   - a. Less than 1 year
   - b. 1 to 5 years
   - c. 6 to 10 years
   - d. 11 to 15 years
   - e. 16 to 20 years
   - f. 21 years or more

2. How long have you worked in ANY ICU (prior to working in RAH ICU)?
   - a. Less than 1 year
   - b. 1 to 5 years
   - c. 6 to 10 years
   - d. 11 to 15 years
   - e. 16 to 20 years
   - f. 21 years or more

3. Typically, how many hours per week do you work in this hospital?
   - a. Less than 20 hours per week
   - b. 20 to 39 hours per week
   - c. 40 hours per week or more

4. What is your staff position in this hospital? Mark ONE answer that best describes your staff position/qualification.
   - a. Consultant
   - b. Registrar
   - c. Registrar/ICU Trainee
   - d. Resident
   OR
   - a. Registered Nurse (Level 1)
   - b. Registered Nurse (Level 2/3)

5. Please indicate your specialty area of practice in this hospital.

6. How long have you worked in your current profession?
   - a. Less than 1 year
   - b. 1 to 5 years
   - c. 6 to 10 years
   - d. 11 to 15 years
   - e. 16 to 20 years
   - f. 21 years or more

7. How long have you worked in your current specialty?
   - a. Less than 1 year
   - b. 1 to 5 years
   - c. 6 to 10 years
   - d. 11 to 15 years
   - e. 16 to 20 years
   - f. 21 years or more
### Table 5a Before- and after- introduction documentation of ICU consultant and registrar involvement in the medical decision and consensus to withdraw patient treatment

<table>
<thead>
<tr>
<th>Documentation in medical records containing information on:</th>
<th>Before (n=46)</th>
<th>After (n=26)</th>
<th>$p$-values ($\chi^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ICU decision made by ICU consultant as primary decision maker, irrespective of ICU consensus</td>
<td>39 (84.7%)</td>
<td>16 (46.2%)</td>
<td>0.051</td>
</tr>
<tr>
<td>ICU registrar involvement in decision</td>
<td>4 (8.8%)</td>
<td>11 (42.3%)</td>
<td>0.005</td>
</tr>
<tr>
<td>ICU consultant as primary decision maker with ICU registrar consensus</td>
<td>2 (4.4%)</td>
<td>2 (7.7%)</td>
<td>--</td>
</tr>
<tr>
<td>ICU registrar as the primary decision maker</td>
<td>2 (4.4%)</td>
<td>9 (34.6%)</td>
<td>--</td>
</tr>
<tr>
<td>Registrar as the primary decision maker without ICU consensus</td>
<td>0 (0.0%)</td>
<td>4 (15.4%)</td>
<td>--</td>
</tr>
</tbody>
</table>

Note: Adjusted $p$-values reported

-- = $p$-value not reported as $\chi^2$ analysis requires approx. 25% of sample to compare

### Table 5b Before- and after- introduction documentation of medical decision and consensus

<table>
<thead>
<tr>
<th>Documentation in medical records containing information on:</th>
<th>Before (n=46)</th>
<th>After (n=26)</th>
<th>$p$-values ($\chi^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least two ICU consultants</td>
<td>17 (36.9%)</td>
<td>12 (46.2%)</td>
<td>0.829</td>
</tr>
<tr>
<td>At least two ICU medical staff members</td>
<td>21 (45.7%)</td>
<td>19 (73.1%)</td>
<td>0.136</td>
</tr>
<tr>
<td>One only ICU medical staff member</td>
<td>20 (43.4%)</td>
<td>6 (23.1%)</td>
<td>0.293</td>
</tr>
<tr>
<td>Parent clinic representative</td>
<td>31 (67.4%)</td>
<td>19 (73.1%)</td>
<td>0.829</td>
</tr>
<tr>
<td>At least two ICU consultants AND a parent clinic representative</td>
<td>16 (34.8%)</td>
<td>11 (42.3%)</td>
<td>0.829</td>
</tr>
<tr>
<td>At least two ICU medical staff members AND a parent clinic representative</td>
<td>17 (36.9%)</td>
<td>16 (61.5%)</td>
<td>0.202</td>
</tr>
</tbody>
</table>

Note: Adjusted $p$-values reported

-- = $p$-value not reported as $\chi^2$ analysis requires approx. 25% of sample to compare

### Table 5c Before- and after- introduction documentation of family conference and staff involvement

<table>
<thead>
<tr>
<th>Documentation in medical records of those present, including:</th>
<th>Before (n=46)</th>
<th>After (n=26)</th>
<th>$p$-values ($\chi^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU consultant</td>
<td>32 (69.6%)</td>
<td>8 (30.8%)</td>
<td>.006</td>
</tr>
<tr>
<td>ICU registrar</td>
<td>2 (4.3%)</td>
<td>11 (42.3%)</td>
<td>--</td>
</tr>
<tr>
<td>Both ICU consultant and registrar</td>
<td>1 (2.2%)</td>
<td>5 (19.2%)</td>
<td>--</td>
</tr>
<tr>
<td>ICU registered nurse (RN)</td>
<td>2 (4.3%)</td>
<td>8 (30.8%)</td>
<td>--</td>
</tr>
<tr>
<td>Family member(s) and relationship to patient</td>
<td>27 (58.7%)</td>
<td>20 (76.9%)</td>
<td>.165</td>
</tr>
<tr>
<td>No documentation of family conference</td>
<td>11 (23.9%)</td>
<td>2 (7.8%)</td>
<td>--</td>
</tr>
</tbody>
</table>

Note: Adjusted $p$-values reported

-- = $p$-value not reported as $\chi^2$ analysis requires approx. 25% of sample to compare

### Table 5d Before- and after- introduction ICU registered nurse documentation of family conference and staff involvement

<table>
<thead>
<tr>
<th>Documentation of those present in medical records</th>
<th>Before (n=46)</th>
<th>After (n=26)</th>
<th>$p$-values ($\chi^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU registered nurse (RN)</td>
<td>18 (39.1%)</td>
<td>16 (61.5%)</td>
<td>.067</td>
</tr>
<tr>
<td>ICU medical staff member</td>
<td>5 (10.9%)</td>
<td>7 (26.9%)</td>
<td>.079</td>
</tr>
<tr>
<td>Additional staff member</td>
<td>1 (2.2%)</td>
<td>2 (7.8%)</td>
<td>--</td>
</tr>
<tr>
<td>Family member(s) and relationship to patient</td>
<td>5 (10.9%)</td>
<td>8 (30.8%)</td>
<td>.035</td>
</tr>
<tr>
<td>No documentation of family conference</td>
<td>28 (60.9%)</td>
<td>10 (38.5%)</td>
<td>.067</td>
</tr>
</tbody>
</table>

Note: Adjusted $p$-values reported

(Additional staff member, i.e. parent clinic representative and/or sign interpreters)

-- = $p$-value not reported as $\chi^2$ analysis requires approx. 25% of sample to compare
### Appendix 5.9 Tables of extracts of ICU medical staff summary of patient / family conference

**Appendix Table** Before-introduction extracts of ICU medical staff summary of patient / family conference

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Extracts of ICU medical staff summary of patient / family conference</th>
</tr>
</thead>
</table>
| Case 14  | **ICU Consultant**  
Remains critical unwell – progressive MSOF (*multi-system organ failure*)  
Significant co-morbidities  
Life threatening acute medical/surgical problems  
Prognosis is poor  
Discussion with family – accept palliative care  
Patient Plan (As discussed with family):  
Cease non-invasive respiratory support  
Cease inotropes  
Adequate analgesic/sedatives  
NOT FOR RESUSCITATION |
| Case 24  | **ICU Consultant**  
Out of hospital cardiac arrest  
Poor prognosis  
Further resuscitation not indicated  
Plan inform family \(\checkmark\) (item ticked) |
| Case 25  | **ICU Consultant**  
Discussion yesterday with 2 x sons and daughter regarding global picture and probable outcome of paraplegia and nursing home dependent at best. All children were clear that given this outcome patient would NOT want ongoing ICU support and would direct us toward comfort care.  
Discussion with *two specified ICU consultants* who both agree that conservative/comfort care would be the most appropriate path.  
Not for ‘CPR’  
Organise with family regarding comfort care |
| Case 35  | **ICU Consultant**  
Discussion with family (son, husband, daughter-in-law)  
Agreed to withdraw active measures as prognosis is hopeless and we are only prolonging death  
For comfort measures |

**Note:** All italicised text used by principal researcher to de-identify the patient, family members and staff members involved
Appendix Table After- introduction extracts of ICU medical staff summary of patient / family conference

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Extracts of ICU medical staff summary of patient / family conference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 6</td>
<td><em>Registrar:</em> 30/9/2005 Patient has expressed that he does not want CPR and intubation and ventilation. Further discussion with surgeons (<em>home team</em>) and <em>ICU Consultant</em> regarding further treatment plan. There is no treatment we can offer that will cure this process and therefore we will stop treating and only do palliative care. This is discussed with patients’ family again today at 12:45hrs. Plan: 1. Morphine in. 2. Cease all medications.</td>
</tr>
<tr>
<td></td>
<td><em>ICU Consultant:</em> 30/9/2005 Thank you for above (<em>in reference to registrar documentation</em>). 81yo man with deteriorating health last few months. Remains acidotic probable abdominal sepsis. He does not want intubation or aggressive life support. Given these wishes after discussion with him and his family. Also discussion with <em>home team consultant</em> surgery and <em>home team consultant</em> general medicine. Second <em>ICU consultant</em> name. Therefore cease all medications. Comfort care with morphine. Not for CPR</td>
</tr>
<tr>
<td>Case 17</td>
<td><em>Home team consultant:</em> Spoke to friend/partner and nephew. Family have been in today to visit, aware how sick he is. Aware he will probably die. All are happy with plan for comfort care and no dialysis, I &amp; V. Nephew stated that patient wouldn’t want to be hooked up to machine. Plan: comfort care only</td>
</tr>
<tr>
<td></td>
<td><em>ICU Consultant:</em> ICU note As above. Ongoing support would be futile and not in the best interest of the patient. He is moribund. Not for further active treatment. Discussed with <em>ICU Consultant</em> who is in due concordance with this decision.</td>
</tr>
<tr>
<td>Case 22</td>
<td><em>ICU Registrar:</em> Withdrawal of treatment. Family present.</td>
</tr>
<tr>
<td>Case 23</td>
<td><em>ICU Consultant:</em> Meeting with patients’ two daughters, partner and son-in-law. Extremely poor prognosis discussed. Propofol now off &gt;24 hrs, displays some cranial nerve function but no response in limb. In my opinion she will not recover to a stage where she could leave hospital. Family all reported that patient would not want care to be continued in this situation and had indicated that during her life. Family unanimous in opinion that extubation and palliative care would be the appropriate management plan. Neurosurgeons in agreement. Also discussed with <em>ICU Consultant</em>, 2nd ICU consultant – in agreement. Priest will visit 17:30 then plan to extubate and manage palliatively. Discussed with 11am ward round – no dissent expressed.</td>
</tr>
</tbody>
</table>

Note: All italicised text used by principal researcher to de-identify the patient, family members and staff members involved.
### Appendix 5.10 Codes: Responses (number and %) by group

<table>
<thead>
<tr>
<th>Codes</th>
<th>Consultants</th>
<th>Registrars</th>
<th>Critical Care RNs</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n= 4</td>
<td>%</td>
<td>n= 3</td>
<td>%</td>
</tr>
<tr>
<td><strong>1. Process &amp; old documentation of process</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Attitudes to process</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2.1 Ethics involvement/ Potential in minority of cases</td>
<td>4</td>
<td>100</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td>1.2.2 Ethics involvement/ Uninformed ethical opinion</td>
<td>1</td>
<td>25.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2.3 Ethics involvement/ We've failed</td>
<td>1</td>
<td>25.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2.4 Palliative care consultation/Considered useful in ICU</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>66.6</td>
</tr>
<tr>
<td>1.2.5 Palliative care consultation/Not considered useful in ICU</td>
<td>4</td>
<td>100</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>1.2.6 Social worker/Advocate &amp; supportive role for family</td>
<td>4</td>
<td>100</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td>1.2.7 Nurse/ To advocate, clarify &amp; liaise for family</td>
<td>4</td>
<td>100</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td>1.2.8 Nurse/Witness to family discussion</td>
<td>4</td>
<td>100</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td>1.2.9 Nurse/Communicate to other nursing staff</td>
<td>1</td>
<td>25.0</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>1.2.10 Nurse/Senior nurse involvement</td>
<td>1</td>
<td>25.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2.11 Nurse/Agree, rarely disagree</td>
<td>1</td>
<td>25.0</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>1.2.12 Nurse/Continuity of care</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2.13 Nurse/Not integral to process</td>
<td>1</td>
<td>25.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2.14 Nurse/Important involvement in process</td>
<td>3</td>
<td>75.0</td>
<td>2</td>
<td>66.6</td>
</tr>
<tr>
<td>1.2.15 Nurse/Role to ensure process is adhered to</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2.16 Nurse/Lack training &amp; education for decision</td>
<td>4</td>
<td>100</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td>1.2.17 Importance of comfort care</td>
<td>2</td>
<td>50.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2.18 Process well developed &amp; established</td>
<td>3</td>
<td>75.0</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>1.2.19 Decisions are pretty clear cut</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>1.2.20 Default to continue treatment</td>
<td>4</td>
<td>100</td>
<td>2</td>
<td>66.6</td>
</tr>
<tr>
<td>1.2.21 Importance of communication</td>
<td>2</td>
<td>50.0</td>
<td>2</td>
<td>66.6</td>
</tr>
<tr>
<td>1.2.22 Important to adhere to process</td>
<td>1</td>
<td>25.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2.23 Requires a more uniform approach</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2.24 Consultant variability with process</td>
<td>1</td>
<td>25.0</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>1.2.25 Decision driven by individual rather than team</td>
<td>1</td>
<td>25.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2.26 Families lack understanding of decision</td>
<td>1</td>
<td>25.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2.27 Lack of hospital-wide ownership of advance care planning</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>-------------------</td>
<td>------</td>
<td>------</td>
<td>-----</td>
<td>-------</td>
</tr>
<tr>
<td>1.2.28 Withdrawal not widely considered in society</td>
<td>2</td>
<td>50.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2.29 Satisfaction</td>
<td>4</td>
<td>100</td>
<td>2</td>
<td>66.6</td>
</tr>
<tr>
<td>1.2.30 Satisfaction, but I’d rather not</td>
<td>2</td>
<td>50.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2.31 Legal/Medical decision &amp; responsibility</td>
<td>3</td>
<td>75.0</td>
<td>2</td>
<td>66.6</td>
</tr>
<tr>
<td>1.2.32 Legal/Non-maleficence, beneficence and social justice</td>
<td>1</td>
<td>25.0</td>
<td>2</td>
<td>66.6</td>
</tr>
<tr>
<td>1.2.33 Legal/Ensure awareness &amp; active involvement</td>
<td>4</td>
<td>100</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td>1.2.34 Legal/Grey area</td>
<td>3</td>
<td>75.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.3 Old documentation of the process: Description &amp; understanding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3.1 Who should document</td>
<td>2</td>
<td>50.0</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>1.3.2 Content of free prose</td>
<td>4</td>
<td>100</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td>1.3.3 Content of free prose/Catch phrases</td>
<td>2</td>
<td>50.0</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>1.3.4 Guidelines present</td>
<td>1</td>
<td>25.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.3.5 Guidelines not present</td>
<td>3</td>
<td>75.0</td>
<td>2</td>
<td>66.6</td>
</tr>
<tr>
<td>1.4 Attitudes to old documentation of process</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4.1 Variability</td>
<td>3</td>
<td>75.0</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>1.4.2 Variability/Patient care plan &amp; process of withdrawal details</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.4.3 Importance of clear documentation</td>
<td>4</td>
<td>50.0</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>1.4.4 Importance of written orders</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.4.5 Positive of free prose</td>
<td>2</td>
<td>25.0</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>1.4.6 Sufficient instruction</td>
<td>2</td>
<td>25.0</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>1.4.7 Sufficient instruction/Verbal handover</td>
<td>2</td>
<td>25.0</td>
<td>3</td>
<td>100</td>
</tr>
</tbody>
</table>

### Change process

<table>
<thead>
<tr>
<th>2. Change process</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Issue of collective experience</td>
<td>3</td>
<td>75.0</td>
<td>1</td>
<td>33.3</td>
<td>2</td>
<td>28.6</td>
<td>6</td>
<td>42.9</td>
</tr>
<tr>
<td>2.2 Attitudes to impending change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.1 Preference for descriptive not prescriptive</td>
<td>4</td>
<td>100</td>
<td>1</td>
<td>33.3</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>35.7</td>
</tr>
<tr>
<td>2.2.2 Nurse signature/Explicit role to be defined</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>28.6</td>
<td>2</td>
<td>14.3</td>
</tr>
<tr>
<td>2.2.3 Nurse signature/Position level</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>42.9</td>
<td>3</td>
<td>21.4</td>
</tr>
<tr>
<td>2.2.4 Requirements of documentation not consistent with process</td>
<td>2</td>
<td>50.0</td>
<td>1</td>
<td>33.3</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>21.4</td>
</tr>
<tr>
<td>2.2.5 Overcome current variability</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>42.9</td>
<td>3</td>
<td>21.4</td>
</tr>
</tbody>
</table>
### 2.2.6 Suggestions for improvement

|                                | 1 | 25.0 | - | - | - | - | 1 | 7.1 |

### 3. New ACP document

#### 3.1 New ACP document development & implementation

|                                | 3 | 75.0 | 1 | 33.3 | 4 | 57.1 | 8 | 57.1 |

#### 3.1.1 Lack of consultation & communication

|                                | 3 | 75.0 | 1 | 33.3 | 4 | 42.9 | 3 | 50.0 |

#### 3.1.3 Perceived lack of external consultation and advice

|                                | 2 | 50.0 | - | - | 2 | 28.6 | 4 | 28.6 |

#### 3.1.4 Need for education & adequate dissemination of information

|                                | - | - | - | - | 5 | 71.4 | 5 | 35.7 |

#### 3.1.5 Disagreement with nurse position level requirement

|                                | 1 | 25.0 | - | - | 4 | 57.1 | 5 | 35.7 |

#### 3.2 New ACP document

#### 3.2.1 Variability continues

|                                | 2 | 50.0 | - | - | 1 | 14.3 | 3 | 21.4 |

#### 3.2.2 Confusion & ambiguity

|                                | 1 | 25.0 | 1 | 33.3 | 2 | 28.6 | 4 | 28.6 |

#### 3.2.3 Detract focus from patient care

|                                | 3 | 75.0 | 1 | 33.3 | - | - | 4 | 28.6 |

#### 3.2.4 Requirements of documentation not consistent with process

|                                | 4 | 100 | 2 | 66.6 | 2 | 28.6 | 4 | 28.6 |

#### 3.2.5 Lack of universal use, acceptance & ownership

|                                | 2 | 50.0 | 2 | 66.6 | 6 | 85.7 | 10 | 71.4 |

#### 3.2.6 Challenge to hierarchy of staff involvement &/or responsibility

|                                | 2 | 50.0 | 1 | 33.3 | 3 | 42.9 | 6 | 50.0 |

#### 3.2.7 Family signature/Disagree

|                                | 4 | 100 | 1 | 33.3 | 2 | 28.6 | 7 | 50.0 |

#### 3.2.8 Nurse signature/Disagree

|                                | 4 | 100 | 1 | 33.3 | 1 | 57.1 | 9 | 64.3 |

#### 3.2.9 Nurse signature/No change to nurses role

|                                | - | - | 2 | 66.6 | 3 | 42.9 | 5 | 35.7 |

#### 3.2.10 Preference for descriptive not prescriptive

|                                | 3 | 75.0 | 3 | 100 | 5 | 71.4 | 11 | 78.6 |

#### 3.2.11 Litigation risk

|                                | 2 | 50.0 | 1 | 33.3 | 4 | 57.1 | 7 | 50.0 |

#### 3.2.12 No change to documentation

|                                | 3 | 75.0 | 3 | 100 | 4 | 57.1 | 10 | 71.4 |

#### 3.2.13 Document not accessible

|                                | 1 | 25.0 | - | - | - | - | 1 | 7.1 |

#### 3.2.14 Cumbersome

|                                | 1 | 25.0 | 1 | 33.3 | 3 | 42.9 | 5 | 35.7 |

#### 3.2.15 Good idea, but...

|                                | - | - | 2 | 66.6 | 5 | 71.4 | 7 | 50.0 |

#### 3.2.16 Increased awareness & discussion

|                                | 1 | 25.0 | 1 | 33.3 | - | - | 2 | 14.3 |

#### 3.2.17 ICU alternative document in development

|                                | 3 | 75.0 | - | - | - | - | 3 | 21.4 |

#### 3.3 Suggestions for improvement

#### 3.3.1 Need for guidelines

|                                | 1 | 25.0 | 1 | 33.3 | 1 | 14.3 | 3 | 21.4 |

#### 3.3.2 Need for hospital-wide ownership of advance care planning

|                                | - | - | - | - | 3 | 42.9 | 3 | 21.4 |

#### 3.3.3 Need for promoting awareness of advance care planning in community

|                                | - | - | - | - | 1 | 14.3 | 1 | 7.1 |

#### 3.3.4 Audit of case note documentation

|                                | 2 | 50.0 | - | - | 1 | 14.3 | 3 | 21.4 |

#### 3.3.5 Focus on improving case note documentation

|                                | 1 | 25.0 | 1 | 33.3 | 1 | 14.3 | 3 | 21.4 |
| 3.3.6 Need to overcome current variability | - | - | - | - | 2 | 28.6 | 2 | 14.3 |
| 3.3.7 Provision of support for staff | - | - | 1 | 33.3 | - | - | 1 | 7.1 |
| 3.3.8 Requirements of documentation need to be consistent with process | 3 | 75.0 | 1 | 33.3 | 1 | 14.3 | 5 | 35.7 |
Appendix 5.11 Code Book for the Analysis of Interviews

During the process of analyzing the interview data for this study a codebook was developed for the purposes of entering each of the codes from the data. Code names were informed by the interview data included under each of the codes. In the event that a code name was complex or unclear, a definition and description of the relevant data was provided for that particular code. Throughout the coding process the codes were revised and modified to more accurately reflect the interview data. Finally, all interviews were re-coded using the final version of the codebook.

1. PROCESS AND OLD DOCUMENTATION OF PROCESS

1.1 Process of withdrawal: Description and understanding
(See Flow Chart)

1.2 Attitudes to process

1.2.1 Attitudes to process/Ethics involvement/Potential only in minority of cases: Any statement indicating the potential for ethics committee involvement in a minority of cases regarding the withdrawal of treatment process.

1.2.2 Attitudes to process/Ethics involvement/Uninformed ethical opinion: Any statement that reflects concern regarding the contribution of an uninformed ethical opinion.

1.2.3 Attitudes to process/Ethics involvement/We've failed: Statements that indicate that a withdrawal of treatment process in which an ethics committee is required is considered a failure in the intensive care process of withdrawal of treatment.

1.2.4 Attitudes to process/Palliative care consultation/Considered useful in ICU: Refer to comments that indicate palliative care consultation within the intensive care unit for withdrawal of treatment patients would be considered useful.

1.2.5 Attitudes to process/Palliative care consultation/Not considered useful in ICU: Refer to comments that indicate palliative care consultation within the intensive care unit for withdrawal of treatment patients would not be considered useful (e.g. ICU deals with more death than palliative care).

1.2.6 Attitudes to process/Social worker/Advocate and supportive role for family: Refer to staff comments that state the role of the social worker is to act as an advocate and support for the patients’ family in the process of withdrawal of patient treatment.

1.2.7 Attitudes to process/Nurse/To advocate, clarify & liaise for family: Any comments that highlight the nurses’ role as an advocate and liaison for the patients’ family in the process of withdrawal of treatment, including the nurses’ role as clarifying information and answering questions and concerns.
1.2.8 **Attitudes to process/Nurse/Witness to family discussion**: Any statement that highlights the nurses’ role as a witness to the discussion/conference with the patients’ family in the process of withdrawal of treatment (includes that comments that highlight the nurse as present but not an active participant)

1.2.9 **Attitudes to process/Nurse/Communicate to other nursing staff**: Statements referring to the role of the nurse to communicate to other nursing staff the process of withdrawal and treatment and decisions and discussion involved (e.g. handover of information)

1.2.10 **Attitudes to process/Nurse/Senior nurse involvement**: Any statement that specifically indicates the necessary involvement of a senior nurse in the process of withdrawal of treatment

1.2.11 **Attitudes to process/Nurse/Agree, rarely disagree**: Refers to staff comments that nursing staff will agree with the medical decision to withdraw treatment and will rarely disagree with the medical decision

1.2.12 **Attitudes to process/Nurse/Continuity of care**: Refers to statements indicating the importance of continuity of care and consistent involvement of staff in the process of withdrawal of treatment (i.e. the same nurse to attend all family discussions where possible)

1.2.13 **Attitudes to process/Nurse/Not integral to process**: Refers to staff comments that state the nurse is not integral to the process of withdrawal of treatment

1.2.14 **Attitudes to process/Nurse/Important involvement in process**: Any comments indicating that nurse involvement is important in the process of withdrawal of treatment

1.2.15 **Attitudes to process/Nurse/Role to ensure process is adhered to**: Any statement that refers to the role of the nurse as to ensure that the process of withdrawal of treatment is adhered to

1.2.16 **Attitudes to process/Nurse/Lack training and education for decision**: Any comments that state the nurse lacks the training and education to make and carry the responsibility of the decision to withdraw treatment (includes comments regarding legal issues)

1.2.17 **Attitudes to process/Importance of comfort care**: Statements that emphasize the importance of provision of comfort care to the patient in the withdrawal of treatment process (e.g. morphine)

1.2.18 **Attitudes to process/Process well developed and established**: Any statement that indicates the intensive care unit process for the withdrawal of patient treatment is effective and has been well developed and established over time within the unit (e.g. “a robust process”; “a transparent process”; “an inclusive process”)

1.2.19 **Attitudes to process/Decisions are pretty clear cut**: Refer to comments stating that most decisions to withdraw patient treatment are ‘pretty clear cut’ (i.e. straightforward, unambiguous)

1.2.20 **Attitudes to process/Default to continue treatment**: Refer to comments stating that in the event of conflict and/or doubt concerning the decision withdrawal of treatment, the
default is to continue patient treatment (also includes comments on the basis of current clinical situation and opinion decision can be reversed if changes arise)

1.2.21 **Attitudes to process/Importance of communication:** Any statement that highlights the importance of communication between all those involved in the process of withdrawal of treatment (e.g. between medical staff; medical and nursing staff; medical staff and family; nursing staff and family; etc)

1.2.22 **Attitudes to process/Important to adhere to process:** Comments referring to the importance of adhering to the process of withdrawal of treatment and the order/sequence of events that need to occur in the process

1.2.23 **Attitudes to process/Requires a more uniform approach:** Refer to comments that state the process of withdrawal of treatment requires a more uniform approach from the consultants involved and driving the process (includes comments that indicate the process lacks transparency)

1.2.24 **Attitudes to process/Consultant variability with process:** Refer to comments that state the process of withdrawal of treatment is at times individualized and dependent on the consultant involved (e.g. decision; manner of approach; ability to discuss decision with family)

1.2.25 **Attitudes to process/Decision driven by individual rather than team:** Statements that indicate a disadvantage with the current process as the decision to withdraw treatment is perceived to occur on the basis of an individual medical decision rather than based on the consensus of a medical group (i.e. two or more ICU consultants’ consensus, home team consensus)

1.2.26 **Attitude to process/Families lack understanding of decision:** Refers to comments that indicate a disadvantage with current process with family confusion or lack of understanding regarding the medical decision to withdraw treatment

1.2.27 **Attitudes to process/Lack of hospital-wide ownership of advance care planning:** Comments from staff referring to issues of withholding or withdrawing patient treatment not dealt with in the wards and other areas of the hospital

1.2.28 **Attitudes to process/Withdrawal not widely considered in society**

1.2.29 **Attitudes to process/Satisfaction:** Any statement that indicates that the staff member is satisfied with their involvement in the process of withdrawal of treatment

1.2.30 **Attitudes to process/Satisfied, but I’d rather not:** Any statement that indicates that although the staff member is satisfied with the withdrawal of treatment process, also highlights that they would rather not do this [e.g. a necessary part of ICU work]

1.2.31 **Attitudes to process/Legal/Medical decision and responsibility**

1.2.32 **Attitudes to process/Legal/Non-maleficence, beneficence and social justice:** Refer to the comments indicating the decision to withdraw treatment and the medical staff involvement is based on a moral and ethical obligation to the patient to provide the best appropriate care
1.2.33 **Attitudes to process/Legal/Ensure adequate time, communication and consensus:**
Any statement that indicates that an understanding of the potential for malpractice or litigation serves to ensure that adequate time, communication and consensus is sought for the decision to withdraw treatment

1.2.34 **Attitudes to process/Legal/Ensure awareness, adequate time, communication and active involvement:** Comments that refer to staff understanding of their legal responsibilities in their involvement in the withdrawal process, to ensure an awareness, adequate time, communication and active involvement in the process and seeking consensus from those involved

1.2.35 **Attitudes to process/Legal/Grey area**

1.3 **Old documentation of the process: Description and understanding**

1.3.1 **Documentation of the process/Who should document**

1.3.2 **Documentation of the process/Content of free prose:** Statements that reflect the detail perceived to be important in documenting the process of the withdrawal of patient treatment.

1.3.3 **Documentation of the process/Content of free prose/Catch phrases:** Statements indicating the use of specific phrases, wording and/or detail in the documentation of the withdrawal of treatment process in the patients’ medical record

1.3.4 **Documentation of the process/Guidelines present:** Includes any reference to the presence of formal ICU guidelines to inform the documentation of the withdrawal of treatment process

1.3.5 **Documentation of the process/Guidelines not present:** Includes statements indicating that formal ICU guidelines are not present to inform the documentation of the withdrawal of treatment process

1.4 **Attitudes to old documentation of process**

1.4.1 **Attitudes to old documentation of process/Variability:** Staff comments regarding the nature of the documentation as being variable in how clearly and/or comprehensively the process is documented (e.g. lacking specific detail regarding discussion)

1.4.2 **Attitudes to old documentation of process/Variability/Patient care plan and process of withdrawal details:** Statements referring to the patient care plan and variability in documented details regarding what is to be withdrawn or withheld and who is responsible (i.e. the action of withdrawal)

1.4.3 **Attitudes to old documentation of process/Importance of clear documentation:**
Statements indicating the importance of clear documentation regarding the process by which the decision to withdraw treatment is made, the discussions involved, and includes
staffs perceived importance of documentation (e.g. the process is far more important than the documentation of the process)

1.4.4 Attitudes to old documentation of process/Importance of written orders: Any statement that highlights the importance of and necessity for written medical orders for nursing staff regarding patient treatment and care plan details following the decision to withdraw treatment

1.4.5 Attitudes to old documentation of process/Positive of free prose: Refers to statements indicating the perceived adequacy, benefit and preference for providing evidence in the form of free prose in the patients’ medical record

1.4.6 Attitudes to old documentation of process/Sufficient instruction: Includes statements indicating adequacy of documentation regarding the details concerning the process of withdrawal of treatment instructions and patient care plan

1.4.7 Attitudes to documentation of process/Sufficient instruction/Verbal handover: Any statement that indicates the verbal exchange and communication of the details concerning the process of withdrawal of treatment instructions and patient care plan

2. CHANGE PROCESS

2.1 Issue of collective experience: Any accounts of previous experience and/or prior history with a similar formalized document for the withdrawal of patient treatment

2.2 Attitudes toward impending change
This section includes codes that reflect an awareness, description, and/or perception of the impending change in documentation of the process of withdrawal of treatment through the introduction of the ACP document

2.2.1 Attitudes toward impending change/Preference for descriptive not prescriptive: Refers to a staff preference for descriptive free prose in the patients’ case notes rather than a separate prescriptive document (i.e. comments ‘before’ the introduction of the ACP document)

2.2.2 Attitudes toward impending change/Nurse signature/Explicit role to be defined: Staff comments highlighting the need for the new document to explicitly state the role of the nurse signature and what this signature represents

2.2.3 Attitudes toward impending change/Nurse signature/Position level: Staff comments indicating the necessity for a senior level nurse to be responsible for signing the impending document (i.e. not to a graduate/junior nurse)

2.2.4 Attitudes toward impending change/Requirements of documentation not consistent with process: Any statement indicating that the impending ACP document was impractical and/or inconsistent with the process (e.g. 1. out of hours use to obtain all signatures required; 2. ticking boxes) (i.e. comments made ‘before’ the introduction of the ACP document – different to Code 3.2.4)
2.2.5 Attitudes toward impending change/Overcome current variability: Refers to comments indicating variability in current documentation, with staff anticipating the new document will overcome perceived variability and inconsistency in current the process and/or the documentation process

2.2.6 Attitudes toward impending change/Suggestions for improvement: Statements that indicate suggestion for improvement to the impending ACP document

3. NEW ADVANCE CARE PLAN (ACP) DOCUMENT

3.1 New ACP document development & implementation

3.1.1 ACP development & implementation/Lack of consultation & communication: Refer to statements that indicate staff perceive a lack of consultation and involvement of key stakeholders (at the coal face) in the development of the ACP document and/or a failure to adequately communication and provide explanation/reasoning for planned changes (i.e. both before and after the introduction of the ACP document)

3.1.2 ACP development & implementation/Tension and distrust: Comments referring to the tension and distrust evident in the interaction within and between ICU staff and ICU management concerning the development and implementation of the ACP document (power and politics)

3.1.3 ACP development & implementation/Perceived lack of external consultation and advice: Statements reflecting the need for external consultation and advisement regarding the development and requirements of the new document (e.g. legal consultation regarding the nature of the document and signature requirements)

3.1.4 ACP development & implementation/Need for education & adequate dissemination of information: Refer to comments that indicate a need for adequate education and dissemination of information regarding the new ACP document through out the hospital

3.1.5 ACP development & implementation/Disagreement with nurse position level requirement: Any statement that indicates disagreement and/or concern raised regarding the ICU stipulation that only the most senior intensive care nurse on duty to sign the ACP document (i.e. problem with local implementation and decisions locally)

3.2 New ACP document

3.2.1 New ACP document/Variability continues: Staff comments regarding the nature of the documentation as being variable in how clearly the process is documented after the introduction of the ACP document

3.2.2 New ACP document/Confusion & ambiguity: Staff comments indicating confusion regarding the appropriate method of documentation of the process following the
introduction of the new ACP document (e.g. some used ACP document, some continued with case notes, and some began developing ICU specific version of document)

3.2.3 New ACP document/Detract focus from patient care: Staff comments indicating that the new ACP document detracts the focus away from patient care

3.2.4 New ACP document/Requirements of documentation not consistent with process: Refers to any statement that indicates the requirements of documentation in completing the ACP document are impractical and/or inconsistent with the process of withdrawal of patient treatment (i.e. comments ‘after’ the introduction of the ACP document – different to Code 2.2.4)

3.2.5 New ACP document/Lack of universal use, acceptance and ownership: Statements indicating a lack of universal use, acceptance and lack of ownership regarding the ACP document in the intensive care unit and also references made of lack of utility throughout the wider hospital

3.2.6 New ACP document/Challenge to hierarchy of staff involvement and/or responsibility: Any statement that indicates that the new ACP document challenges the order of hierarchy concerning existing staff involvement and/or responsibility in the process of withdrawal of treatment.

3.2.7 New ACP document/Family signature/Disagree: Any statement that indicates concern and/or disagreement with the option of the patients’ family signing the ACP document (i.e. both before and after the introduction of the ACP document)

3.2.8 New ACP document/Nurse signature/Disagree: Any statement that indicates concern and/or disagreement with the requirement of an intensive care nurse signing the ACP document (i.e. both before and after the introduction of the ACP document)

3.2.9 New ACP document/Nurse signature/No change to nurses role: Statements that indicate that the ACP document and requirement of nurses signature has not impacted on the nurses role in the process

3.2.10 New ACP document/Preference for descriptive not prescriptive: Refers to staff members’ preference for descriptive free prose in the patients’ case notes rather than the separate prescriptive ACP document.

3.2.11 New ACP document/Litigation risk: Any statement that highlights the concern for or risk of litigation surrounding the use of the new ACP document, with the new ACP providing no additional legal protection.

3.2.12 New ACP document/No change to documentation: Any statement that indicates the new ACP document has not had any impact or change to the documentation process.

3.2.13 New ACP document/Document not accessible

3.2.14 New ACP document/Cumbersome

3.2.15 New ACP document/Good idea, but…

3.2.16 New ACP document/Increased awareness and discussion: Refers to comments that the new ACP document has raised awareness and increased discussion concerning the withdrawal of treatment process and the documentation of the process
3.2.17 New ACP document/ICU alternative document in development: Statements that indicate that the intensive care unit (ICU) consultant staff have commenced development of an alternative document specific for the ICU setting

3.3 Suggestions for Improvement

3.3.1 Suggestions for improvement/Need for guidelines: Any statement that indicates a need to further develop guidelines and policy for the documentation of the process of withdrawal of treatment (i.e. specific content of documentation; formalized policy guiding staff documentation).

3.3.2 Suggestions for improvement/Need for hospital-wide ownership of advance care planning: Includes statements reflecting a need for hospital-wide ownership of advance care planning for patients prior to admission into the intensive care unit

3.3.3 Suggestions for improvement/Need for promoting awareness of advance care planning in community

3.3.4 Suggestions for improvement/Audit case note documentation

3.3.5 Suggestions for improvement/Focus on improving case note documentation

3.3.6 Suggestions for improvement/Need to overcome current variability: Refers to comments indicating a need to overcome perceived variability and inconsistency in consultants’ attitude to the current process

3.3.7 Suggestions for improvement/Provision of support for staff: Any statement that indicates the need for staff support to be provided for those involved in the process of withdrawal of aspects of patient treatment (includes need for provision of staff training)

3.3.8 Suggestions for improvement/Requirements of documentation need to be consistent with process: Refers to any statement that indicates the requirements of documentation should be consistent with the process of withdrawal of patient treatment