Linking patient safety to clinical practice: The insight of new graduate registered nurses

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The insight of new graduate registered nurses

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Declaration

I certify that this thesis does not, to the best of my knowledge and belief:

i. Incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education;

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Melanie Murray

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Abstract

New graduate registered nurses' (NGRNs) transition to practice with limited clinical experiences and skills. The related anxiety and stress predispose new graduate nurses to increased risk of contributing to preventable errors or adverse events. This risk, together with the new graduate's fledgling ability to manage clinical deterioration, potentially compromises quality and safety of patient outcomes.

A longitudinal mixed methods design was used to develop an understanding of new graduate registered nurses' patient safety knowledge and actions within the first year of nursing registration and offer important insights into NGRNs' transition with a patient safety focus. New graduate registered nurses employed in graduate nurse programs at two Australian metropolitan hospitals were invited to participate. Data collection activities took place from August 2016 to February 2018.

A closed-ended questionnaire, a modified version of the "Medical students' questionnaire of knowledge, skills, and attitudes regarding patient safety", was delivered at three time points during the graduate program to monitor the evolution of the NGRNs' knowledge, feelings and attitudes regarding medical errors and patient safety over time. Qualitative data was collected by semi-structured one-on-one interviews to gain a deeper appreciation of the NGRNs knowledge of patient safety and challenges of integrating this knowledge into their clinical practice.

Quantitative data were analysed using ANOVA One-way analysis of variance, or General Linear Model for repeated measures to measure

difference, if any, between the time points. Qualitative data analysis was guided by Braun and Clark's six steps of thematic analysis.

Quantitative results were categorised into the four subcategories of *knowledge of medical error*; *knowledge of actions regarding medical error*; *attitudes to compromised patient safety*; and *intentions regarding patient safety prior* to analysis. Thematic analysis revealed five main themes: *patient safety and insights*; *time management*; *making a mistake*; *experiential learning*; and *transition*.

Although confidence was low, participants intend to communicate, support, and intervene, when faced with compromised patient safety situations. However, self-reported knowledge of medical error and knowledge of actions regarding medical error decreased over the three time points. Medical errors and time management persist as stressors to the NGRNs early months of transition to the registered nurse role. New graduates reported moderate knowledge of safety and quality issues, however, their questioning of their own abilities overshadowed growth in their involvement in patient safety.

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Abbreviations

ACSQHC	Australian Commission on Safety and Quality in Health Care
GNP	Graduate Nurse Program
NGRN	New graduate registered nurse
NSQHS	National Safety and Quality Health Service Standards
RN	Registered Nurse

Definitions

New graduate registered nurse

Literature from the United States of America (USA), Europe and the United Kingdom (UK) uses terminology such as 'newly licensed nurse' and 'new-to-practice registered nurse' (RN) when discussing this position. In this thesis, the term New Graduate Registered Nurse (NGRN) will be used in preference to any other (international) nomenclature, however, it will apply to the same standard and level of nurse. Further, for the purpose of this thesis, the definition of the NGRN is a person who has completed the undergraduate nursing degree, has met Australian nursing registration requirements, and is in their first year of full time (or equivalent) clinical practice (Australian Nursing and Midwifery Accreditation Council, 2014). This definition does not include enrolled nurses/licensed practice nurses.

Medical error

The Agency for Healthcare Research and Quality (AHRQ) (https://psnet.ahrq.gov/primers/primer/34/Adverse-Events-Near-Misses-and-Errors) describes an error as doing something wrong, or an act of commission, or not doing the right things, also known as an act of omission. These acts of commission or omission that lead to an undesirable outcome for the patient can then be described as medical error. This definition is supported by the Institute of Medicine (IOM) who define medical errors as "the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim" (Kohn, Corrigan & Donaldson, 2000). For the purpose of this

study, medical error refers to any error described above that occurs during an

episode of care in the healthcare setting.

List of Publications

1. **Murray, M**., Sundin, D., & Cope, V. (2018a). New graduate registered nurses' knowledge of patient safety and practice: A literature review. *Journal of Clinical Nursing, 27*(1-2), p. 31-47. DOI: http://dx.doi.org/10.1111/jocn.13785

2. **Murray, M**., Sundin, D., & Cope, V. (2018b). The nexus of nursing leadership and a culture of safer patient care. *Journal of Clinical Nursing, 27*(3-4), p. 1287-1293. doi: http://dx.doi.org/10.1111/jocn.13980

3. **Murray, M.,** Sundin, D., & Cope, V. (2019). Supporting new graduate registered nurse transition for safety: A literature review update. *Collegian – Accepted - In Press* doi: http://doi.org/10.1016/j.colegn.2019.04.007

4. **Murray, M**., Sundin, D., & Cope, V. (2019a). Benner's model and Duchscher's theory: providing the framework for understanding New Graduate Nurses' Transition to Practice. *Nurse Education in Practice, 34, p. 199-203.* Doi: https://doi.org/10.1016/j.nepr.2018.12.003

5. **Murray, M**., Sundin, D., & Cope, V. (2019) New graduate nurses' clinical safety knowledge by the numbers. *Journal of Nursing Management* Doi: https://doi.org/10.1111/jonm.12819

6. **Murray, M.,** Sundin, D., & Cope, V. (2019b). New graduate nurses' understanding and attitudes about patient safety upon transition to practice. *Journal of Clinical Nursing.* https://doi.org/10.1111/jocn.14839

7. **Murray, M**., Sundin, D., Cope, V. (2020). A mixed methods study on patient safety insights of new graduate registered nurses. *Journal of Nursing Care Quality,* 35(3).

Conference Presentations

1. Poster presentation – "Patient Safety"
   3rd Commonwealth Nurses and Midwives Federation Conference,
   London, England 12th – 13th March 2016.

2. Poster Presentation – "Patient Safety"
   International Congress of Innovations in Nursing, Perth, WA, 24th –
   25th November 2016.

3. Oral Presentation – "Patient Safety: what do our new grads know?"
   ACPAN National Conference, Melbourne, Victoria 12th November
   2016.

4. Oral Presentation – "Linking patient safety to clinical practice: what do
   our new grads know?" Edith Cowan University – Research Week 2017

5. Oral Presentation – "Linking Patient Safety to Clinical Practice: What
   Do Our New Grads Know?" ICPAN Conference, Sydney, NSW, 1-4th
   November 2017

6. Oral Presentation – "Patient safety: what do our new graduates
   know?"
   NETNEP 7th International Nurse Education Conference, Banff,
   Canada 6-9 May 2018.

7. Oral Presentation – "Nursing Leadership and Safety Culture" –
   International Congress of Innovations in Nursing, Perth, WA, 29-30
   Nov 2018

8. Oral Presentation – "Linking patient safety to clinical practice: the insight of new graduate registered nurses" – 4th Australian Nursing and Midwifery Conference, Newcastle, NSW, 2-3 May 2019

9. Oral Presentation - "Linking patient safety to clinical practice: the insight of new graduate registered nurses" – Sigma Research Symposium, Perth, WA, 10th May 2019

10. Oral Presentation – "Patient safety insights of new graduate registered nurses during transition to practice" – ICN Congress 2019, Singapore, 27 June – 1 July 2019.

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My journey commenced with an excellent sales pitch from Dr Joyce Hendricks whose initial encouragement got me started. To Dr Gilly Smith who held my hand through the initial few months.

I am sincerely and forever in debt to Dr Deb Sundin and Associate Professor Vicki Cope, my supervisors, mentors, colleagues and, now, friends. You have provided excellent guidance and wisdom and are most definitely instrumental in my successful completion. I hope that I can take all that you have given me and pass it on to my future students. I am truly very thankful.

The first well placed kick to get started on this path came from my ever supportive and encouraging husband Glenn. I am forever grateful for your love and support through these years. I now pass the baton to you, dear.

For my children, Georgia and Jacob, who have been watching mum study in one way or another all of their lives, from my initial bachelor's degree, various graduate certificates, a graduate diploma, a master's degree and now this thesis. I hope that my example shows them that educating one's self is important and that life continues throughout that journey.

And one cannot complete a dedication without mention of Mum and Dad, who have always been supportive of all that I do.

My love to you all.

Chapter 1. Introduction

Nursing students, especially those in their first year, are classified as novices due to their limited applied experience in any of the areas of nursing where they would be expected to practice (Benner, 2001a). Given this lack of experience, novices are supported and directed by guidelines. One unwanted consequence of this strategy is its tendency to make novices' performance behaviour limited and inflexible (Benner, 2001a). A nursing student, during their three years of undergraduate education, will progress from novice to advanced beginner as they incorporate clinical experiences gained during their practicums within the theoretical knowledge acquired along the way (Benner, 1982, 2001a; Benner, Tanner & Chesla, 2009; Duchscher, 2008). However, these short series of practical experiences do not necessarily provide enough practical guidance to create novice practitioners with a safety and quality mind-set. What is troubling is that research has identified lapses in safety occurring across the health profession, but more specifically with new practitioners or new graduate registered nurses (NGRN) (Benner, 1984; El Haddad, Moxham, & Broadbent, 2013; Myers et al., 2010). This has been further supported by Duckett and Moran's (2018) report of a higher incidence of medical errors occurring during times of new practitioner inductions and transitions, and Treiber and Jones (2018) revelation that 55% of nurses with less than five years of experience admit to making a medication error.

New graduate registered nurses have considerable theoretical knowledge (El Haddad et al., 2013, El Haddad, Moxham & Broadbent, 2017; Hayes, 2018); however, literature suggests they have difficulty converting this

theory into clinical practice. Research conducted by Myers et al. (2010) in the United States of America (USA) found NGRNs identified themselves as lacking practical knowledge in three main areas: technical aspects of clinical care; critical thinking; and the provision of holistic care. The technical aspects of clinical care include management of intravenous devices, medication administration, and new, or unfamiliar, procedures (Myers et al., 2010). These NGRNs, along with their preceptors, considered the lack of knowledge in the technical aspects of care a significant safety concern that affected their practice. This has been identified as part of a theory practice gap that Australian new graduate programs aim to close (El Haddad et al., 2013, 2017; Missen, McKenna, Beauchamp & Larkins, 2016a, 2016b; Scully, 2011).

1.1 The Problem

In Australia, NGRNs are exposed to quality and patient safety education during the undergraduate curriculum (Twigg & Attree, 2014), however, the impact and application of this education is not clear. Responsibility for patient safety should not only be viewed as limited to the scope of practice of nurses at the bedside, but rather that patient safety is the responsibility of all people in the healthcare system ("Patient Safety – About Us", 2015). As the nursing population is ageing, and with the looming anticipated nursing shortfall (Health Workforce Australia, 2014; Liu, Goryakin, Maeda, Bruckner & Scheffler, 2017), we are relying on NGRNs to be knowledgeable, competent and current, within their scope and to demonstrate these competencies through clinical practice. Patient safety is dependent on this.

As nurses care for the most vulnerable of our community, their clinical practice standards in relation to patient safety should be at their optimum to safeguard patient outcomes. To this end, investigation of patient safety knowledge, feelings and attitudes of NGRNs will benefit the nursing profession. Further, this study will provide a baseline for recommendations regarding graduate nurse transitional support and patient safety curricula within university courses going forward.

1.2   Quality health care

There is a large volume of literature around issues relating to the NGRN, particularly around transition from the student nurse to the practising graduate nurse (Duchscher, 2008; El Haddad et al, 2017; Missen et al., 2016a, 2016b; Ortiz, 2016; Read & Laschinger, 2017; Regan et al., 2017). There is little information, as yet, related to the crucial relationship between NGRNs and patient safety. Before delving into the world of NGRNs, an explanation of patient safety pertaining to quality healthcare is necessary.

Quality has been described by Vincent (2010) as the gap in a healthcare organisation between what can be achieved and what is actually achieved. Where the gap is small, the quality is said to be good. Conversely where the gap is large, quality is poor (Vincent, 2010). The quality of healthcare in Australia is governed by the Australian Commission on Safety and Quality in Health Care (ACSQHC). In 2011, this body introduced the National Safety and Quality Health Service Standards (NSQHS), that is, ten standards designed to govern consistency in the provision of services delivered by Australian healthcare providers (ACSQHC, 2017). A review of these standards identified

gaps that include 'mental health and cognitive impairment, health literacy, end-of-life care, and Aboriginal and Torres Strait Islander health' (ACSQHC, 2018).

Since the introduction of these standards in 2012, there have been significant improvements in the provision of care with rates of falls, central line blood stream infections, and cardiac arrest rates falling (ACSQHC, 2018). Implementation of these standards has also seen a 73% reduction in medication incidents in one Australian state in the first four years (ACSQHC, 2018). The second edition of the standards was released in November 2017 with the initial ten standards consolidated and streamlined to eight:

1. clinical governance for health service organisations,

2. partnering with consumers,

3. preventing and controlling healthcare-associated infection,

4. medication safety,

5. comprehensive care,

6. communicating for safety,

7. blood management, and

8. recognising and responding to acute deterioration (ACSQHC, 2018).

To assist health services to achieve these standards, the ACSQHC provide support by way of the safety and quality framework. This framework provides guidelines on the actions required to meet the NSQHS standards. These standards are audited annually by an approved accreditation agency: the Australian Council on Healthcare Standards. This accreditation process allows health facilities to report on, and make improvements to, their quality

activities to promote higher levels of quality care and patient safety (ACSQHC, 2017).

1.3   Patient Safety

Patient safety is a worldwide issue brought to light by the Institute of Medicine (IOM) report, 'To Err is Human' (Kohn, Corrigan, & Donaldson, 2000). The report highlighted that adverse events as a result of errors or omissions in medical management, caused more deaths in American hospitals annually than those caused by motor vehicle accidents, the costs of which add up to billions of dollars a year (Kohn et al., 2000).

Australian statistics provide a similarly concerning picture. The Australian Institute of Health and Welfare (AIHW), state that of the 11 million separations from Australian public and private hospitals in 2016-17, 12.2% of public hospital separations and 7.0% private hospital separations recorded a hospital acquired diagnosis; that is, conditions not present upon admission that arise during an episode of care (AIHW, 2018). Adverse events occurred for 5.5% of overall separations, a rate of 6.6% at public hospitals and 3.7% at private hospitals (AIHW, 2018). The highest rates of adverse events for the 2016-17 reporting period were from overnight, emergency, and surgical separations (AIHW, 2018). Reported public hospital adverse events fell in two main categories: *procedures causing abnormal reactions/complications* accounting for 49% of reported adverse events; and *adverse effects of drugs, medicaments and biological substances* accounting for 38% of reported adverse events. Private hospitals reported adverse events were primarily

procedures causing abnormal reactions/complications at a rate of 51% (AIHW, 2018).

Adverse events have been described by the World Health Organisation (WHO) as healthcare associated infections, medication errors, unsafe surgery, miscommunication during clinical handovers, and unsafe/unnecessary injections (WHO, 2018). Many of these adverse events can be classified as preventable and can result in significant physical and psychological discomfort for patients and health professionals, increase length of stay and as such, increase hospital costs (Kohn et al., 2000). In light of this, WHO initiatives have been implemented around the world to curb adverse events in healthcare facilities. Examples include hand hygiene initiatives, surgical safety checklists in the operating theatre, incident reporting, and in Australia, rapid response systems for recognising and responding to the deteriorating patient (Hughes, Pain, Braithwaite, & Hillman, 2014). All of these patient safety systems have proven successful in decreasing adverse events and mortality within hospitals (ACSQHC, 2018; Hughes et al., 2014; WHO, 2015).

While the world was slow to react to the significance of patient safety until after the IOM report, Australia was making some progress toward understanding and promoting patient safety with the formation of The Australian Patient Safety Council (APSC) in 1987 (Runciman, 2002). Runciman (2002) reported that significant technological improvements that enhanced patient safety had been developed during the 1980's, such as pulse oximetry in the operating room. However, safety technology was not seriously considered when it came to hospital allocation of funds. Previously to this, the

closest the healthcare system came to promoting patient safety was allocating a budget for the electrical safety testing of medical devices (Runciman, 2002).

The APSC was responsible for the initial introduction of the Australian Incident Monitoring System (AIMS), an anonymous reporting system initially coordinated by anaesthetists. The AIMS system helped identify adverse events and led to significant local and national changes to practice on part of anaesthetists at the time (Runciman, 2002). Though Australia had a basic incident monitoring system in place, the IOM report gave rise to the introduction of incident reporting systems internationally. However, there remains a stigma attached to the reporting of incidents, or adverse events, and as such, incident reporting remains underutilised (Hewitt & Chreim, 2015; Hor et al., 2010; Kohn et al., 2000; Runciman, 2002).

It could be said that the introduction of technological improvements, such as pulse oximetry, was aimed at increasing situational awareness around known safety risks such as oxygen saturation during anaesthesia (Runciman, 2002). As a safety critical industry, situational awareness in healthcare had not been explored until it was noticed from outside the industry that it is a problem (Bromiley, 2015). Changes to the approach to critical situations in the United Kingdom (UK) was sparked when a family member of a patient, who died as a result of a 'cannot intubate, cannot ventilate' event in the operating theatre, spoke out and sought an inquiry into his wife's death (Bromiley, 2015; Reid & Bromiley, 2012). Bromiley, a pilot, was familiar with the concept of situational awareness and has been raising awareness of the concept within healthcare since his wife's passing in the hope that no-one else need suffer a system failure as his wife so tragically did. In the Bromiley case, the operating theatre

was staffed with very experienced senior clinicians, supposed experts, yet the case turned to tragedy through a lack of situational awareness, poor communication and decision making under pressure (Reid & Bromiley, 2012). Reid and Bromiley (2012) have suggested that increased training for all health professionals in the non-technical cognitive and social skills is highly valuable in seeing the bigger picture in crisis situations. Locally, this has been recognised and human factors training, or non-technical skills training, has been instigated in local area health services in Western Australia (Locke, 2018).

1.4   Leadership and safety culture

Critical reports from the Institute of Medicine in 1999 (Kohn et al, 2000) and Mid Staffordshire National Health Service Foundation Trust Inquiry (Francis, 2013) indicate that healthcare organisations, inclusive of nursing leadership, were remiss or inconsistent in fostering a culture of safety. The factors required to foster organisational safety culture include supportive leadership, effective communication, an orientation program and ongoing training, appropriate staffing, open communication regarding errors, compliance to policy and procedure, and environmental safety and security (Murray, Sundin & Cope, 2018b). As nurses have the highest patient interaction, and leadership is discernible at all levels of nursing, nurse leaders are the nexus to influencing organisational culture toward safer practices (Boamah, Spence Laschinger, Wong & Clarke, 2018; Dirik & Seren Intepeler, 2017; Perry, 2017).

1.5   Researcher's position

I am a registered nurse (RN), a member of the profession that is the focus of this thesis. I completed my nursing Baccalaureate degree in 2002. All nurses have been new graduates, whether they be hospital trained or university trained. Unlike the participants in this study, a graduate program was not available to me, therefore I did not receive that extra guidance and support that graduate nurse programs offer, and I felt like I was diving straight into the deep end hoping that I could swim.

On reflection, there were times when I knew there was something wrong with my patient, but due to my inexperience, I did not know what to do about it. An example that has stayed with me from one of my very first shifts as a RN, was working as an agency nurse in an aged care facility. One elderly resident was not feeling well and complaining of a headache. I recall taking her blood pressure and finding it to be >200 systolic and >100 diastolic. What was I to do about that? I was the only registered nurse on shift. I was an agency nurse, new to nursing, new to the organisation and new to the city in which I was living. Who do I call? What is the procedure? It was well into the shift with only a couple of hours until the night shift arrived. I put the patient to bed, provided her with analgesia for her headache, and monitored her closely by performing vital signs at least every half an hour until the nightshift arrived. That resident was my priority when handing over to the night RN who immediately called an ambulance and sent her straight to the hospital. Why didn't I know to do that? Because I didn't know what I didn't know. I did not have the experience. I was working alone and did not know who to ask.

I have many an excuse but are any of them good enough? What was the outcome for that resident? I can say with a sigh of relief that the resident was back in her room the next evening with some new medications for her blood pressure. I was very happy to see her and know that while no harm came to her, it was a very near miss. To me, this proves that support for new graduates in any setting is vitally important for the quality and safety of patient care.

I have carried that particular experience with me, and it is the one that stands out the most from my early days as an RN because it always brings back that feeling of dread - that I could have caused harm. Moving forward, my interest in quality and safety developed over the last fifteen years as a Post Anaesthetic Care Unit (PACU) nurse during which I noted the patient care and transition difficulties both student nurses and NGRNs experienced in the high acuity PACU. This interest increased further through my position as Associate Nurse Unit Manager (ANUM) of PACU and then as a quality manager. These positions gave me the opportunity to critically reflect on my own practice and career development. More recently, I have been considering Benner's novice to expert theory (Benner, 1984), Duchscher's Stages of Transition theory, (Duchscher, 2008) and the Transition Shock Model (Duchscher, 2009). These expert positions are further elucidated in chapter three of this thesis, but my reflections and considerations of these models and theories led me to develop the plan for my own research.

1.6   Purpose and aims of the research

The purpose of this study is to contribute to the knowledge pertaining to the transition from student nurse to new graduate registered nurse with regards to patient safety. The aim of this research is to explore the patient safety knowledge of new graduate registered nurses to more clearly describe their understanding of patient safety as it applies to clinical practice.

1.7   Research questions

The primary research questions for this study are:

1.   What is a new graduate registered nurse's understanding and attitudes about patient safety upon initial entry to clinical practice?

2.   Is undergraduate patient safety theory being translated into clinical practice?

3.   Has the new graduate registered nurses' transition experience influenced their ability to integrate patient safety practices into their clinical practice?

1.8   Research design

Mixed methods research methodology was chosen for this study to examine newly registered nurses' perceptions of their own understandings of safety as well as measuring this over time. In the quantitative phase, survey data was collected and analysed then further explained by the qualitative phase of data collection via interviews and analysis (Creswell 2015; Halcomb & Hickman, 2015). This convergent design relies on the two phases of the

research building on each other, giving the design strength (Creswell 2015; Creswell & Plano Clark, 2018).

Mixed methods research is known as the third research paradigm and has been defined as the collection, analysis and integration of data drawing conclusions using both qualitative and quantitative methods in a single study (Creswell, 2015). Mixed methods methodology provides a middle ground in the qualitative – quantitative research approach continuum, combining qualitative and quantitative approaches to answer the researcher's question. The advantage of conducting mixed methods research lies in the potential to offer a rich and comprehensive depiction of the issue of interest (Creswell, 2015).

This mixed methods study addressed the research questions by exploring the self-reported patient safety understanding, feelings and attitudes of NGRNs in their first six months of clinical practice by way of a questionnaire delivered at three time points; upon induction to a graduate nurse program (GNP), at the three-month time point and at the six-month time point of the graduate nurse program. The dissemination of the questionnaire was informed by Duchscher's (2008) *Stages of Transition Theory* as illustrated in figure 1-1.
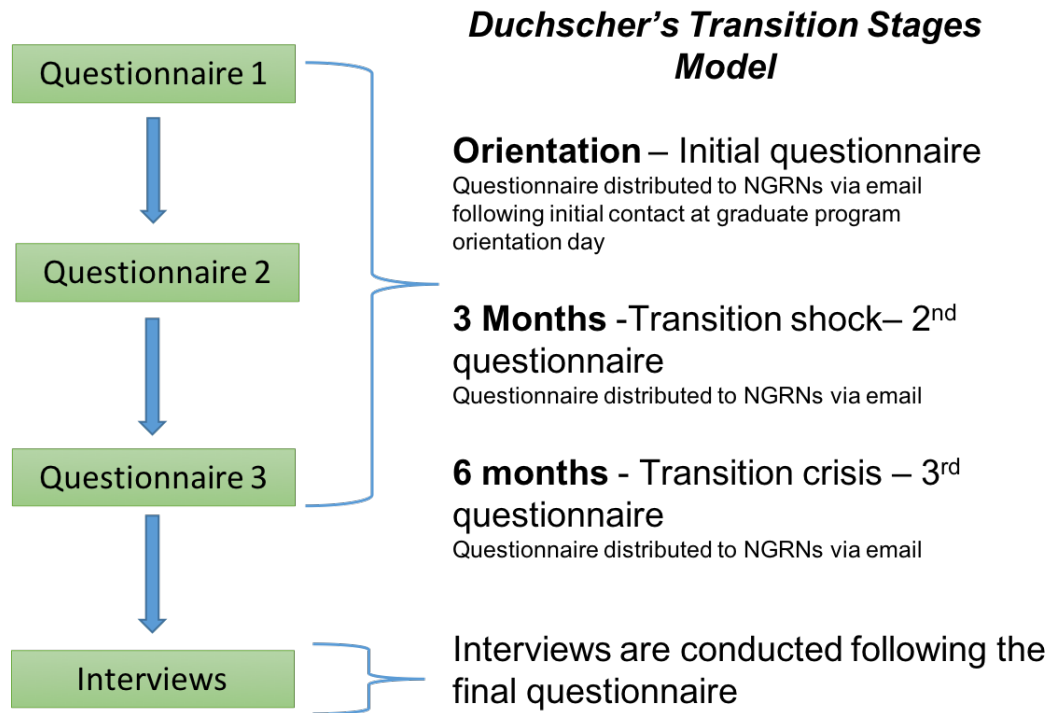
Figure 1-1: Data collection process

Further exploration of NGRN transition to practice and patient safety understanding, knowledge, feelings and attitudes was gained through one-on-one interviews at the completion of six months of clinical practice.

The methodology will be described in more detail in chapter four of this thesis.

1.9   Ethical considerations

The proposal for this research was submitted to, and approved by Edith Cowan University (Appendix A), Murdoch University (Appendix B), Sir Charles Gairdner Hospital (Appendix C & D), and Joondalup Health Campus (Appendix E) Human Research Ethics Committees.

All participants were NGRNs participating in a graduate nurse program at either of two large metropolitan hospitals, one public and one private. The researcher was not employed at either of these facilities and as such there

were no possibility of perceived power or professional relationship with any of the graduate nurse program coordinators or any of the potential participants. Each participant was provided with a study Information Sheet and Consent Form (Appendix F). Participants were informed in writing of their right to withdraw from participating in the study at any time. All electronic responses were anonymous. Interviews were conducted at a time and place convenient to the participant. Digital recordings and transcripts of interview data were kept on a password protected computer accessible only by the researcher as per the University's Research Record Keeping Policy (National Health and Medical Research Council [NHMRC], 2018a). All data provided through electronic survey and interviews were de-identified at the time of analysis and no real names have been used in the reporting of results.

The participants have a right not to be harmed during the course of the study and all participants were advised of the availability of counselling services provided by either the Employee Assistance Program of their workplace, or the University's counselling services if required (see Appendix F). At all times, the research adhered to the NHRMC National Statement on Ethical Conduct in Human Research (NHMRC, 2018b).

1.10 Significance of the research

1.10.1 For patients

Patient safety, and subsequent satisfaction, is reliant on the patient's health care experience. A positive patient experience is dependent on the safety and quality of care provided by the healthcare workers they are reliant upon, day in and day out; that is, care predominantly delivered by nurses

(Bartol, 2016). All nurses have a range of competencies that impact their delivery of care, and the skill mix of the nurses on shift is influential on the care provided at any given time. New graduate registered nurses who are well supported, engaged, and well led, will be better equipped to enhance the patient's experience through this culture of safety (Wolf, 2017).

1.10.2   For nurses

In Australia, almost four in ten nurses are aged 50 years and over, with those aged 55 to 59 increasing by approximately 14,500 in the four years 2011 to 2015 (AIHW, 2016). The AIHW (2016 section 2, para. 3) state "there were more employed nurses and midwives in the 50-54-year age group than any other age group". These figures indicate an anticipated experience gap as these 'baby boomer' nurses head into retirement, leaving limited senior nurses and an abundance of graduate and junior nurses. Therefore, understanding the patient safety knowledge level of NGRNs within the workforce will assist educators, nurse managers, and nurse leaders to provide the appropriate level or type of mentoring required for this cohort of nurses.

1.10.3   For the healthcare system

While research literature acknowledges the gap between theoretical knowledge and clinical skills (Freeling & Parker, 2015; Herron, 2018; Missen et al., 2016b) and that the development of clinical reasoning and critical thinking skills is experiential (Benner, 1984; Herron, 2018), understanding how NGRNs use their limited skills and knowledge to maintain patient safety may assist GNP coordinators, staff development nurses and clinical nurse educators to focus their education and mentoring for this cohort. As nurses'

care for the most vulnerable of our community, their clinical practice standards in relation to patient safety should be at the optimum to safeguard patient outcomes.

1.11   Summary of Chapter One

This chapter illuminated the new graduate registered nurse in the Australian context. The discussion illuminated the importance of patient safety and quality health care and the importance of gaining an understanding of the NGRN knowledge of patient safety upon transition to clinical practice. The research purpose, aims and questions were included in the chapter as well discussing how an overview of the mixed methods approach chosen to conduct the study.

1.12   Chapters to follow

This thesis is presented in the form of a thesis with publication. Chapter two provides a review of the literature pertinent to understanding quality and safety in healthcare and the transition process of NGRNs. Chapter three outlines the theoretical framework informing the methodology as discussed in chapter four. Chapter five discusses the results of the research. Chapter six provides conclusions drawn with respect to the research questions and then draws upon these to discuss the limitations of the research, implications for current and future practice and recommendations for future research.

The following chapters include the PDF versions of six of the papers that have been published, with the Microsoft word version of the seventh paper as accepted by the Journal of Nursing Care Quality and currently in production with the publisher. To stay true to the journal publications, the included

published papers are presented in the chapters as they appeared in the journal, in PDF format. As the journals are based in different countries, there may also be variations between English, American and Australian spellings.

As there are a number of publications included in this thesis, there may be some repetition of background information, methods, and figures or tables. Figures and tables that appear in the papers are numbered as per the publication and may not correspond with the numbered sequence in the thesis.

The papers listed below in the order they appear in the thesis:

Murray, M., Sundin, D., & Cope, V. (2018a). New graduate registered nurses' knowledge of patient safety and practice: A literature review. *Journal of Clinical Nursing, 27*(1-2), p. 31-47. doi: http://dx.doi.org/10.1111/jocn.13785

Murray, M., Sundin, D., & Cope, V. (2019). Supporting new graduate registered nurse transition for safety: A literature review update. *Collegian – Accepted - In Press* doi: http://doi.org/10.1016/j.colegn.2019.04.007

Murray, M., Sundin, D., & Cope, V. (2018b). The nexus of nursing leadership and a culture of safer patient care. *Journal of Clinical Nursing, 27*(3-4), p. 1287-1293. doi: http://dx.doi.org/10.1111/jocn.13980

Murray, M., Sundin, D., & Cope, V. (2019a). Benner's model and Duchscher's theory: providing the framework for understanding New Graduate Nurses' Transition to Practice. *Nurse Education in Practice, 34*, p. 199-203*.* doi: http://dx.doi.org/10.1016/j.nepr.2018.12.003

Murray, M., Sundin, D., & Cope, V. (2019). New graduate nurses' clinical safety knowledge by the numbers. *Journal of Nursing Management doi:* http://dx.doi.org/10.1111/jonm.129819

Murray, M., Sundin, D., & Cope, V. (2019b). New graduate nurses' understanding and attitudes about patient safety upon transition to practice. *Journal of Clinical Nursing.* doi: http://dx.doi.org/10.1111/jocn.14839.

Murray, M., Sundin, D., Cope, V. (2020) A mixed methods study on the patient safety insights of new graduate registered nurses. *Journal of Nursing Care Quality*, **35**(3).

Chapter 2.   Literature review

2.1   Introduction

This chapter comprises three research papers published in international peer-reviewed journals. These papers provide a review of research literature relevant to the topic of patient safety and new graduate registered nurses. They outline the significance of patient safety in healthcare, the transition of NGRNs from student to professional practitioner, and the link between effective leadership and safe care practices of healthcare professionals.

These reviews were guided by the 12-step structured approach to reviewing literature, described by Kable, Pich and Maslin-Prothero (2012), with quality appraisal guided by McMaster critical review forms for qualitative and quantitative studies (Law et al., 1998; Letts et al., 2007). The databases CINAHL, PsycINFO, PubMed, Medline and Scopus were searched the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) was used to guide the Boolean search with the following operators included in the search terms:

- Patient safety AND registered nurses.

- Patient safety AND new graduate registered nurses.

- New graduate nurses OR newly licenced nurses.

- New graduate registered nurse AND understanding

- Understanding OR knowledge OR comprehension OR insight OR awareness OR familiarity.

A PRISMA flow diagram is included in each review paper to illustrate the search and review strategy used. The purpose of these reviews was to critically appraise and summarise contemporary literature pertaining to the NGRNs clinical safety knowledge and understanding upon transition from student nurse to registered nurse.

The first paper, *New graduate registered nurses' knowledge of patient safety and practice: a literature review* establishes the context in which this research is centred. The second paper, *Supporting new graduate registered nurse transition for safety: A literature review update,* is a further review of research literature undertaken to examine pertinent research literature published from 2015 to 2018 that were not included in the first review and to provide current commentary surrounding the research questions.

Following this paper, the researcher sought to further understand the safety culture within healthcare organisations and its influence on the transition of NGRNs. This led to paper three, *The nexus of nursing leadership and a culture of safer patient care,* discussing the influence of leadership behaviours on patient safety culture within healthcare organisations.

2.2 Paper One: New graduate registered nurses' knowledge of patient safety and practice: a literature review

The following paper was published in the *Journal of Clinical Nursing,* 2018, Vol. 27, No. 1-2, pp. 31-47. http://dx.doi.org/10.1111/jocn.13785

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This paper highlighted the significance of the patient safety movement globally and the cost, not only to the healthcare systems, but to patients themselves. The paper established the definition of the NGRN in the Australian context as a person who has completed an undergraduate nursing degree; has met Australian nursing registration requirements; and is in their first 12 months of full time (or equivalent) clinical practice. Focusing on the NGRN, many studies report issues with readiness for practice, safety concerns, a continuing theory-practice gap, and that NGRNs experience turbulence during their transition from nursing student to nursing professional (Casey et al., 2011; Duchscher, 2008, 2009; El Haddad et al., 2013, 2017; Myers et al., 2010). Most importantly, it established that the research literature concerning NGRNs does not provide a specific focus on the patient safety knowledge and practices of this group of nurses.

The paper to follow, *Supporting new graduate registered nurse transition for safety: A literature review update,* was undertaken as a follow up to the original review conducted in 2015. In the years since the first review, there has been considerable research conducted worldwide concerning the NGRN with much of the literature focusing on burnout and retention of new nurses rather than patient safety knowledge, attitudes and practice. A second literature review was conducted with the aim of the review remaining the same as the first, to review and critically appraise contemporary literature concerning the patient safety knowledge and practices of NGRNs during their transition from student to registered nurse.

2.3   Paper two: Supporting new graduate registered nurse transition for safety: A literature review update

The initial literature review for this study included literature up to 2015 and as such the researcher felt it pertinent to conduct a further literature search from 2015 to 2018. This review has been accepted by *Collegian* (29th April 2019) and is currently in press. Doi: http://doi.org/10.1016/j.colegn.2019.04.007

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The themes established from the literature are patient safety, expectations and readiness for practice, theory-practice gap, transition to practice, leadership, culture, and stress and coping. These themes were recognised as not only being prominent in literature pertaining to the NGRN, but as influencing factors on the NGRNs ability to transition to the role of registered nurse and may be influential on the outcomes of patients in their care. These themes also recognise where research concerning NGRNs has been focused in the past, and acknowledgement that issues such as the theory-practice gap and expectations and readiness for practice, that have plagued NGRN transition, remain current.

Ultimately, these literature reviews revealed that there is little to no research literature determining the level of NGRNs patient safety knowledge upon entry to practice or recognising the influence of the NGRNs transition experience on their ability to incorporate any patient safety knowledge into clinical practice.

'*The nexus of leadership on a culture of safer patient care*', was born of an interest in findings of the initial literature review with regards to culture and leadership. As the Mid Staffordshire NHS Foundation Trust Public Inquiry (Francis, 2013) highlighted, culture plays a significant role in the quality of care provided to patients. Amongst the many organisational failures found in this particular inquiry, poor nursing leadership and staffing policies were directly responsible for inadequate nursing care given on some wards of the Stafford hospital (Francis, 2013). Failure to place patients' interests and outcomes as

the highest priority of the health service, led to the major decline in safety culture in the Mid Staffordshire NHS Foundation Trust.

With a professional focus on quality and safety as well as leadership, this researcher was particularly interested in the findings of health inquiries, such as the Mid Staffordshire inquiry. Inquiries such as these highlight that there is a link between leadership, at all levels, and the safety culture of the hospital environment. Given this link, this researcher thought it pertinent to investigate the link between nursing leadership and its subsequent influence on safety culture. With the literature recognising that NGRNs are entering the workplace with a cloud over their readiness for practice and requiring additional support and mentorship, it was deemed appropriate to explore this relationship as the culture into which these new nurses are entering is vital to their transition to safe practitioners. As such, a further review of the literature was conducted, and the following discussion paper developed.

2.4 Paper three: The nexus of leadership on a culture of safer patient care

The following paper was published in the *Journal of Clinical Nursing,* 2018, Vol. 27,

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As hospital inquiries show (Francis, 2013; Kohn et al., 2000), leadership has a direct effect on patient outcomes. Patient outcomes are not only influenced by leadership at the bedside, but also by overall organisational leadership. Organisations need to pursue and promote a culture of safety, through leadership, that will be seen and felt at all levels of the organisation. Patient outcomes should be the focus of all health organisations, as often those that have lost view of their patient population as their safety priority have subsequently been seen to have caused harm.

2.5. Summary of Chapter two

Paper one, *New graduate registered nurses' knowledge of patient safety and practice: a literature review*, asserts that patient safety is dependent on systems processes as well as patient care practices. Safe patient care practices are taught to nurses during undergraduate nursing education; however, the impact of that education has not been reported in the research literature. The reviewed literature acknowledges the existence of a theory-practice gap for NGRNs on transition to practice. This is supported by Benner's (1984) theory of skill acquisition for nurses and Duchscher's (2009) transition shock model which demonstrate that skill acquisition is experiential and that there is a transition process that may initially affect this.

Paper two, *Supporting new graduate registered nurse transition for safety: A literature review update,* a follow up literature review, reaffirms the earlier research literature that NGRNs continue to experience transition shock regardless of their evidence-based knowledge and skills. It also highlights that while research around the NGRN continues, a patient safety focus has not been prominent.

A deeper exploration of safety culture and leadership was undertaken following concerns about nursing leadership that was exposed in the initial literature review. The discussion paper, *The nexus of nursing leadership and a culture of safer patient car'*, paper three, demonstrates the value of effective leadership on patient outcomes in healthcare. The positive wellbeing of our patients often depends on the positive wellbeing of our healthcare professionals, and the promotion of a just, blame-free safety culture, by way

of effective nurse and organisational leadership, is the first step in providing safe patient care to all.

This chapter reveals the dearth of research literature concerning the NGRNs knowledge and practices pertaining to patient safety upon transition from student to registered nurse. It is then the remit of this study to seek an understanding of the NGRNs patient safety knowledge and practices during their first 12-months of professional practice.

The chapter to follow will discuss Benner's novice to expert model (1984) and Duchscher's Stages of Transition theory (2009) and Transition Shock model (2008) and how they together, have provided a theoretical framework to this research.

Chapter 3. Theoretical framework

3.1   Introduction

The previous chapter provided reviews of research literature pertaining to the NGRN relative to patient safety and leadership. The reviews illuminated the transition experiences of NGRNs and brought to the fore the works of Patricia Benner and Judy Duchscher. Reading Benner and Duchscher's research led to the use of their work collectively as the framework for this research. This chapter consists of a published paper describing the theories and models of Benner and Duchscher and how the Novice to Expert model (1984), Stages of Transition Theory (2009) and Transition Shock model (2008) influenced this research.

3.2 Paper 4: Benner's model and Duchscher's theory: providing the framework for understanding New Graduate Nurses' Transition to Practice

The following paper was published in *Nurse Education in Practice,* 2019, Vol. 34, pp. 199-203. http://dx.doi.org/10.1016/j.nepr.2018.12.003

Author's Accepted Manuscript available in Research Online:

https://ro.ecu.edu.au/ecuworkspost2013/5632/

3.3   Summary of Chapter three

Using Benner's (1984) Novice to Expert model, and Duchscher's (2008) Stages of Transition theory as a theoretical framework aided in understanding the challenges of the NGRN during initial entry to clinical practice as a registered nurse. The stages of transition described by Duchscher (2008), provided a guideline for the timeline of data collection for this study, while Benner's novice to expert set the basis for the level of skill that is expected of a NGRN. It is hoped that the experiences of the participating NGRNs in this Australian context will provide information pertinent to patient safety practices of transitioning nursing professionals in any context.

The next chapter will discuss mixed methods methodology employed for this study, as well as the method used to undertake the research.

Chapter 4.   Methodology

4.1   Introduction

The purpose of this chapter is to discuss how mixed methods methodology was employed in this research. It provides an explanation of the convergent mixed methods design, the philosophical underpinnings of the approach, participant selection and recruitment, the data analysis and relevant ethical considerations.

To explore the patient safety knowledge and associated clinical behaviours of NGRNs and to develop an understanding of their feelings and attitudes to patient safety, medical errors and quality care, a mixed methods approach situated within the pragmatic paradigm was chosen. Mixed methods facilitated an enhanced understanding of the quality and safety knowledge and clinical practices of NGRNs by combining the strengths of both quantitative and qualitative methodologies (Creswell, 2015). The study, underpinned by the theoretical models of Patricia Benner (1984) and Judy Duchscher (2008, 2009), described in chapter three, captured the interplay of a new clinical environment, new clinical experiences and new graduates' exposure to issues concerning safety and quality.

4.2   Mixed Methods Methodology

All research is guided by the philosophical tenets of ontology, epistemology, and methodology (Schneider, Whitehead, Lo-Biondo-Wood & Haber, 2016). Schneider et al. (2016) define ontology as the "study of existence" (p. 21). In other words, what we know. What we know is NGRNs

enter the workforce with a theory-practice gap (El Haddad et al., 2013, 2017; Monaghan, 2015; Nematollahi & Isaac, 2012). Epistemology, as defined by Schneider et al., (2016), is "… the theoretical study of knowledge involved in the search for knowledge and truth(s)" (p. 21), or, in layman's terms, how we get to know what we know, and the relationship between the inquirer and the subject under study (Polit & Beck, 2017). Methodology can then be defined as how the researcher will obtain the knowledge they seek (Polit & Beck, 2017), in this instance mixed methods methodology.

By employing a positivist approach to gain a generalised view of what NGRNs know of medical error and patient safety, complemented with a constructivist worldview to gain contextual consideration of this group of nurses, this researcher has been able to explore NGRNs' theoretical knowledge and understanding of safety and quality through survey and interview. Interviewing the NGRNs allowed the researcher to gain descriptions of knowledge and understanding in action, by listening to the stories of NGRN experiences in the workplace. This study has used a combination of quantitative and qualitative strategies, mixed methods, to demonstrate NGRNs' responses concerning safety and quality knowledge and to describe the scope of this issue in Western Australia and its impact on a group of NGRNs in two health care facilities to provide a rich understanding of the issue at hand.

4.2.1   Philosophical underpinnings of Mixed Methods Research

Research has traditionally been guided by one of two paradigms – the positivist paradigm with a quantitative approach, and the interpretivist or

constructivist paradigm with a qualitative approach (Schneider et al., 2016). Researchers working in the positivist paradigm assert that knowledge is limited to that gained or gathered through sensed or measurable data. The measurement of data typically uses 'instruments' that provide numerical data that can be analysed using statistical techniques. Data collection instruments may take the form of surveys, observations, and controlled trials (Creswell & Creswell, 2018; Schneider et al., 2016).

Qualitative research is used to explore those aspects of the world that cannot be measured. Qualitative researchers aim to gather information that is descriptively rich in nature, to gain insights into, and understanding of, personal experiences of a particular individual or group (Creswell & Creswell, 2018; Schneider et al., 2016).

A third research paradigm, the pragmatist paradigm, using a mixed methods approach, recognises qualitative and quantitative approaches are not incompatible but can be used to complement one another to best answer research questions where the scope of an issue, and its impact on the individuals involved, is of interest (Creswell & Creswell, 2018; Creswell & Plano Clark, 2018; Richardson-Tench, Nicholson, Taylor, Kermode & Roberts, 2018). The pragmatic researcher does not 'limit' themselves to just one view, but rather focuses on the problem and uses "…all approaches available to [best] understand the problem" (Creswell & Creswell, 2018, p.10). The researcher adopts the worldview that "…findings from two approaches expand insights into the phenomenon of interest by addressing difference aspects of such a phenomenon" (Ghiara, 2019, p.11). The mixed methods approach, moving across the quantitative – qualitative research continuum, has been

elucidated as the collection, analysis and integration of data drawing conclusions using the most appropriate qualitative and quantitative methods in a single study (Creswell & Creswell, 2018; Creswell & Plano Clark, 2018; Halcomb & Hickman, 2015; Schneider et al., 2013).

While the knowledge levels or deficiencies of this group of NGRNs can be explored through a questionnaire, numbers cannot represent what new graduates feel, how they feel, what they understand to be important in their practice, and why they feel the way they do about many aspects of clinical practice. However, the survey undertaken allowed larger numbers of responses to the questions of concern, and therefore allowed more generalisable conclusions to be reached from that population. Yet, a purely quantitative approach did not satisfy the aims of this research.

A qualitative perspective was also advantageous to answer the research questions as this descriptive approach allowed the researcher to explore and add the contextual and value-laden dimensions of the participants' responses to the researcher's understanding of the phenomenon of interest. Qualitative descriptive research is a methodology that is "…founded in existing knowledge, thoughtful linkages to the work of others in the field and in the clinical experience of the research group" (Neergaard, Olesen, Andersen & Sondergaard, 2009, np). This approach allowed the researcher to gain the rich description of a particular experience or event (Neergaard et al., 2009; Sandelowski, 2000), in this instance, the safety and quality knowledge of NGRNs at the different time points during their transition.

The advantage of conducting mixed methods research lies in the potential to offer a rich and comprehensive depiction of the issue of interest (Creswell & Plano Clark, 2018; Schneider et al., 2016). The researcher requires knowledge of both qualitative and quantitative assumptions and research methods (Creswell & Plano Clark, 2018; Schneider et al., 2016) and most importantly, they must have the ability to combine the results meaningfully. The primary objective, indeed the most common finding of mixed methods research, is congruence in both the quantitative strand and qualitative strands of the findings (Doyle, Brady & Byrne, 2016). Of particular interest for the researcher though, is the challenge of possibly divergent findings within the study from the two methodological stances (Doyle et al., 2016).

4.2.2 Features and types of mixed method design

Mixed methods design, as described by Creswell and Plano Clark (2018) may be 'fixed' or 'emergent'. In a fixed mixed methods approach, the quantitative and qualitative strands are determined at the commencement of the study and implemented in accordance with the research plan (Creswell & Plano Clark, 2018). An emergent approach occurs when the researcher commences their research using a single approach, qualitative or quantitative, and it emerges that a second approach is required to obtain adequate results, or address trustworthiness (Creswell & Plano Clark, 2018).

This study was undertaken using a fixed mixed methods approach to examine newly registered nurses' perceptions of their own understandings of patient safety as well as to measure this knowledge over time. The motivation for mixing methods in this instance can be taken from the typologies described by Creswell and Plano Clark (2018), who to date have a typology of three core

designs: explanatory sequential; exploratory sequential; and convergent design. The convergent design sees the researcher gather both qualitative data and quantitative data, analyse these data sets separately, and combine the results to get obtain "a more complete understanding" (Creswell & Plano Clark, 2018, p. 65). The convergent design enabled the researcher to capture the perceptions, understanding and knowledge of NGRNS toward patient safety and their transition to practicing clinicians.

Convergent design, illustrated in figure 4.1, sees the researcher collect and analyse quantitative data and qualitative data separately before being merged and interpreted for comparison (Creswell & Creswell, 2018; Creswell & Plano Clark, 2018). Ideally the concepts to be explored will be the focus of both the qualitative and quantitative strands of data collection. In this study, patient safety is the key concept for both strands. Both sets of data can then be used to "confirm or disconfirm" (Creswell & Creswell, 2018, p. 217) each other.

The quest to explore the concept of patient safety from the viewpoint of NGRNs during their initial entry to clinical practice led to questioning of the participants at different time points throughout the graduates' transition trajectory. This allowed the researcher to detect any trends in NGRNs' perceptions as they progressed through their graduate nurse program. The quantitative questioning was performed by survey upon orientation to the graduate nurse program; at three months into the program; and the final survey conducted at the six month point of the program. Interviews were also sought from these same group of participants. Conducting qualitative interviews with participants provided an opportunity for participants to describe their

perceptions and experiences beyond the limitations of a numbered Likert scale. The combination of these two approaches allowed an in-depth appreciation of NGRNs' understanding of patient safety (Creswell & Creswell, 2018).

Following initiation of the survey, the qualitative data collection began and ran concurrently with the continuing quantitative strand. This is characteristic of concurrent timing within a convergent design (Creswell & Plano Clark, 2018). Initial analysis of each strand was completed separately before comparisons of the data were made. These comparisons were then merged for interpretation. This represented the mixing of the methods in this study; where comparison and contrasting of results and findings occurs.

All of these characteristics are typical of the convergent design described by Creswell and Plano Clark (2018), diagrammatically represented in figure 4.1.
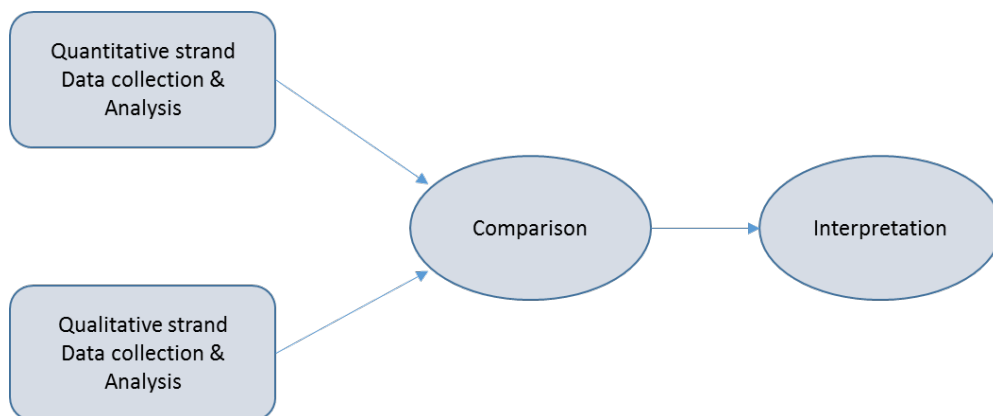
Figure 4.1: Convergent Design (Creswell & Plano Clark, 2018:66)

4.3   Ethics and consent

This study was conducted in accordance with the National Health and Medical Research Council's National Statement on Ethical Conduct in Human

Research (2018b). Ethical approval was sought and granted from the Edith Cowan University Human Resource Ethics Committee (HREC) in March 2016 (approval No 12959) and reciprocal approval from Murdoch University (Appendix B). Applications were lodged and approval granted from the HREC's of Sir Charles Gairdner Hospital, Nedlands, Western Australia (approval No 2016-068) (Appendix C & D), and Joondalup Health Campus, Joondalup, Western Australia (approval No 1607) (Appendix E), the sites selected for participant recruitment. In seeking approval at these institutions, the chief investigator visited the sites and met with the graduate nurse program (GNP) coordinators and research directors to outline the proposed study and to seek permission to recruit participants from these GNP's. The chief investigator also attended the GNP orientation day at each site to present an outline of the study to the prospective participants and outline participant requirements. Following the presentation, volunteers were called for and Participant Information and Consent Forms (PCIF) (appendix F) were distributed to provide further information that allowed the participants to make an informed decision of whether to take part in the study (see appendix F).

In this study, the PCIF stated the purpose of the study and advised participants that they may withdraw from the study at any time with no effect on the outcome of their GNP. While there were no foreseeable risks associated with participation in the study, participants were advised of assistance programs available should any emotional distress arise from any part of the data collection process. Despite approval from GNP coordinators, participants were reassured that participation was voluntary, results de-identified, and

participation had absolutely no bearing on their GNP. This enabled participants to provide informed consent to participate in the study.

4.3.1 Privacy and confidentiality

The participants' privacy was maintained by allocating an identification number to their data to ensure anonymity beyond the researcher was preserved. No unnecessary data was retained. Publications relating to the study do not include any identifying information and any future publications will likewise not identify any participants.

4.3.2 Data storage

All consent forms were kept in a locked filing cabinet in the researcher's locked office. Questionnaire responses were stored electronically in Qualtrics©, requiring the researcher's personal login and password to access. Qualtrics is an online survey platform that also allows the user to perform analytics on data collected ("Learn about Research, Survey & Experience Management Software by Qualtrics", 2019). The researcher was the only person to have access to Qualtrics©.

Interview recordings and transcripts were stored on the researcher's personal password/fingerprint protected computer to which only the researcher had access. Printed transcripts were kept in a locked filing cabinet in the researcher's locked office. All records will be kept for seven years before being destroyed. Only the researcher had access to the data (NHMRC, 2018a).

4.4　Method

4.4.1　The setting

This study was conducted with participants from two large metropolitan tertiary hospitals in Perth, Western Australia (WA). One of these hospitals is a 600-bed general public hospital with the largest intake of NGRNs into its graduate nurse program in WA annually. The second hospital is a 536-bed private hospital. This allowed description of participant experiences from Australia's two main healthcare streams, public and private.

Having gained ethical approval from Edith Cowan University Human Research Ethics Committee and the participating hospitals' research ethics and research governance committees, the appropriate Manager/Director of each Graduate Nurse Program and Director of Research were approached to seek in-principle support to conduct the study with their new employees. Upon ethics approval, and with support of the Graduate Nurse Program Coordinators, times were arranged to present an overview of the study to prospective participants.

4.4.2　Participant selection and recruitment

The participating hospitals have GNP intakes commence in February and August of each year. The intended participants were recruited from NGRNs commencing employment in a GNP at either of the two participating hospital sites.　This allowed a purposive capture of suitable participants. Purposive sampling is a method of participant selection based on their knowledge and experience required by the researcher for the topic under research (Polit & Beck, 2017; Schneider et al., 2016).

Inclusion criteria for the study was that the NGRNs were in their first year of practice post registration. New graduate enrolled nurses in the GNPs were excluded from the study. Participants were recruited at GNP orientation following a short presentation by the researcher on the purpose of the research where explanation was provided on the extent required of their involvement and the ethical concerns of the study. There was a total of 210 NGRNs commencing employment in the GNPs at these hospitals across the three intakes of August 2016, February 2017 and August 2017. A total sample of 69 (33%) NGRNs was obtained over three GNP intakes for this study.

All volunteer participants were provided with a written plain language statement, "Participant information and consent form" (Appendix F) and were required to provide written consent to participate in the study. Those NGRNs who provided consent to participate were emailed the link to the questionnaire. Participant details were kept on the questionnaire mailing list in Qualtrics for distribution of the questionnaire at time point two (3 months) and time point three (6 months) (see Fig 1-1, p. 13). All consenting participants were invited, via email (Appendix G), to participate in the interview phase of the study.

4.4.3   The Quantitative Phase - questioning the knowledge, skills and attitudes toward patient safety

The quantitative phase consisted of a modified version of the "Medical students' questionnaire of knowledge, skills, and attitudes regarding patient safety", validated by Flin, Patey, Jackson, Mearns & Dissanayaka (2009) and Li et al (2012), developed from the WHO Patient Safety Curriculum Guide for medical schools (*WHO Patient Safety Curriculum Guide for Medical Schools*, 2009). While the questionnaire (Appendix H) was originally aimed at

undergraduate medical students, the questions are generic regarding current knowledge, actions, feelings and attitudes regarding medical error, including making an error, and patient safety. As such, these questions are seemingly adaptable to any health professional working with patient contact in a hospital environment. Example of questions within the tool are *'what is your current knowledge regarding factors contributing to medical error?'*, *what is your current knowledge regarding what should happen if an error is made?'*, *'knowledge of actions to take regarding medical errors: I would know what to say if I made an error'*. The questionnaire has been used in the nursing setting for the first time in this study.

The modification of this questionnaire for use in this study primarily consisted of word substitutions relevant for the setting and audience. For example: 'Competent *physicians* do not make medical errors that lead to patient harm' was changed to 'Competent *nurses* do not make medical errors that lead to patient harm', and 'As a medical student, it is my duty to speak up if I see error' changed to 'As a NGRN, it is my duty to speak up if I see an error'. A set of questions related to the National Safety and Quality Health Service Standards (NSQHSS) ("NSQHS Standards (second edition) | Safety and Quality", 2017) relevant to the Australian healthcare environment was also included. The questionnaire for this study can be seen at Appendix H.

The modified version of the questionnaire, *NGRNs knowledge of medical errors and patient safety*, was sent to participants electronically using the Qualtrics online survey platform at three time points of their graduate program: upon orientation to the program, at three months (3) and at six months (6) into graduate employment. These time points were guided by

Duchscher's (2008) Stages of Transition Model (see Fig. 1-1, p. 13) because Duchscher suggests that these time points represent changes in the development of the new nurse. The questionnaire was the same for each time point to ensure the same measures were captured for consistency. The questionnaire was available to participants for a period of four weeks at each TP. Ongoing participation was encouraged through weekly email reminders.

The questionnaire contained 43 questions across six sections (Li et al., 2012): demographics; level of knowledge about medical error; knowledge of actions to take regarding medical errors; feelings about making errors; personal attitudes to patient safety; intentions regarding patient safety; and NSQHS standards. These questions explicitly sought explanation of NGRN's familiarity with patient safety concepts, medical errors, and quality and safety knowledge, actions and patient care (Appendix H).

All questions, apart from those concerning demographics, were answered utilising a 5-Likert Scale. Section one contained checkbox demographic data including gender, age range, and the university where undergraduate nursing education was undertaken. Sections two and three's 5-Likert scales ranged from 'not knowledgeable at all' to 'extremely knowledgeable'; section four from 'never' to 'always'; and sections five to seven were rated 'strongly disagree' to 'strongly agree'.

4.4.4   The Qualitative Phase - Interviews with NGRN participants

Participants for the interviews were recruited via invitation by email from the consenting quantitative participants. Semi-structured interviews were used to gain insight into the NGRNs' understandings of patient safety in clinical

practice, as well as attitudes and feelings experienced during the initial months of their transition to practice. Interviews were semi-structured, so the interviewer could focus the conversation on the phenomenon of interest, that is, patient safety and the transition experiences of the NGRNs while working in a graduate nurse program (Brinkmann, 2018). The semi-structured interview questions were informed by the works of Duchscher (2007) and Myers et al., (2010) whose studies, provoked by NGRN attrition and their concerns about patient safety, sought to understand NGRNs transition experiences and as such were considered important in the development of the aide-memoire for this study. Open-ended questions were asked to elicit information and descriptions of the working experiences of the transitioning NGRNs in their own words, in a narrative fashion. Questions were used to guide the participants in discussion related to their real-world experiences as a registered nurse without the perceived safety net of being a nursing student (Benner, 1984, Duchscher, 2003). These questions can be found in appendix I.

Volunteer participants were offered several interview options: face-to-face; via internet using Skype or FaceTime; or over the telephone. A mutual time, mode, and/or place was determined upon consenting to the interview. Face-to-face interviews were conducted at a café chosen by the interviewee. Telephone interviews were initiated by the researcher, so no financial cost was borne by the participant. No interviews eventuated via Skype or FaceTime. The semi-structured interviews ranged anywhere between 20 to 70 minutes depending on the issues raised by the participants.

No matter the interface, all interviews were audio recorded using a digital audio recorder. The audio recordings were uploaded to the researcher's password/fingerprint protected computer for storage. Verbatim transcriptions of the interviews were made by the researcher and returned to the interviewees for verification and comment prior to analysis assuring confirmability and auditability (Polit & Beck, 2017).

4.4.5   Integration of data

As per convergent design, voluntary participants from both the quantitative and qualitative strands were derived from the same sample (Creswell & Creswell, 2018), that is, the consenting participants from each of the recruitment sites. The participant numbers were not equivalent due to the qualitative subset of participants being derived solely from the quantitative sample with fewer NGRN's wishing to participate in an interview.

This response rate was not unexpected as qualitative research is characterised by small participant numbers (Creswell & Creswell, 2018), and as Polit and Beck (2017, p. 497) assert, "There are no fixed rules for sample size in qualitative research". Saturation of data is a guiding principle influencing sample size in qualitative research (Polit & Beck, 2017) and interviewing continued until 'saturation' occurred and a rich understanding of the research topic was achieved (Creswell & Creswell, 2018). Data saturation is said to be achieved when "…no new information is obtained and redundancy is achieved" (Polit & Beck, 2017, p. 497), that is, no new insights are revealed within the data (Creswell & Creswell, 2018).

Data strands were analysed separately and compiled for comparison. Qualitative data was then 'integrated' with quantitative data to describe and compare the data across the timelines of the study and to identify significant similarities and contrasts represented in both sets of data (Creswell & Creswell, 2018; Creswell & Plano Clark, 2018). Commonalities identified were further analysed and interpreted to produce a more complete explanation of the data, the results of which are illustrated and discussed in paper 7 *'A mixed methods study on patient safety insights of new graduate registered nurses'* in the following Findings and Discussion chapter.

4.4.6   Data analysis

4.4.6.1   Quantitative

The quantitative data responses from the participants were collected using the online survey platform Qualtrics©. The modified questionnaire of Li et al. (2012), consisted of 43 questions using a 5-Likert scale, and three demographic questions (age, gender and university where undergraduate nursing education was completed). For data analysis, questions were recoded where a question was negatively worded or had reverse phrasing, such as a question that would elicit a high score response on the 5-Likert scale (for example: a score of 4 or 5) when the reverse response (for example: a score of 1 or 2) is expected. These types of questions are important to reduce "response bias because participants need to pay attention to the questions" (Field, 2018, p. 823). The questions that did not meet the criteria of content validity were collapsed. Notably, all but five of the questions pertaining to the NSQHS standards did not meet an acceptable level of internal reliability or

content validity and were subsequently collapsed prior to analysis. The remaining questions were categorised into four question groups - knowledge of medical error; knowledge of actions regarding medical error; attitudes to compromised patient safety; and intentions regarding patient safety, prior to analysis. The completed questionnaires were scored based on a 5-Likert scale (appendix H).

Question group one (knowledge of medical error) scale was 'extremely knowledgeable' to 'not knowledgeable at all'; question groups two (knowledge of actions regarding medical error) and four (intentions regarding patient safety) were rated 'strongly agree' to 'strongly disagree'; and question group three (attitude to compromised patient safety) was rated 'always' to 'never'. Total scores of Likert scales for each question group were 35, 40, 20 and 30 respectively. The scored results were downloaded into IBM SPSS® 25 (*IBM SPSS Statistics*, 2017), a statistical analysis software program, and analysed using descriptive statistics, a method of "…describing the relationship between variables in a sample or population" (Kaur, Stoltzfus & Yellapu, 2018, p. 60).

Sample sizes and scales change over time, especially in longitudinal studies, and as such, may result in differences in reliability scores (Pallant, 2016). Sample sizes were varied for the three quantitative time points of this study. A reliability of scale was used to check the internal reliability of the question groups within the questionnaire. Cronbach's alpha score for the four question groups was between 0.713 and 0.890 indicating acceptable correlation of items in each of the question groups, thus good internal consistency (Field, 2018). Non-correlating questions were deemed unreliable (Cronbach's alpha <0.700) and were excluded from analysis. The question

groups ranged from four to nine items. Preliminary assumption testing was conducted to check for normality, linearity, bivariate and multivariate outliers, homogeneity of variance-covariance matrices, and multi-collinearity, with no serious violations noted. The three participant groups were statistically compared at the initial time point (orientation) to establish a baseline between the groups. All results were greater than 0.05 confirming there was no violation of the homogeneity of variance assumption. That is, no statistical significance between the three participant groups, indicating all groups had an equivalent level of self-reported knowledge.

For all analyses, $p<0.05$ was considered statistically significant. An ANOVA One-way analysis of variance, or General Linear Model for repeated measures, was conducted to measure difference, if any, between the time points.

4.4.6.2 Qualitative

Qualitative data analysis is the process of identifying and analysing themes from the data (Liamputtong, 2013). Braun and Clarke (2006) describe thematic analysis as providing "a flexible and useful research tool, which can potentially provide a rich and detailed, yet complex, account of data" (p.78). Data analysis was guided by Braun and Clark's (2006) six steps of thematic analysis: "familiarising yourself with your data; generating initial codes; searching for themes; reviewing themes; defining and naming themes; producing the report" described by Braun and Clarke (2006, p. 87).

Coding is the process of placing data into groups, or themes that identify what the data is about (Liamputtong, 2013). Coding and thematic analysis

using Braun and Clarke's (2006) method was conducted to identify emerging themes from the participants' verbatim transcripts. Coding was initially conducted manually before a second round of coding was performed using the NVIVO© computer software package designed to assist in coding, analysis, and project organisation for qualitative research. This software allowed the researcher to focus on key words identified in the interviews and develop themes from the data in line with Braun and Clark's (2006) method.

Coding, and the subsequent development of themes, also allowed the researcher to develop 'word trees' to illustrate the key words in context with the interview data. The package generates word trees from the codes and provides diagrammatic representation and auditability of the insights generated from the verbatim words of the participants. The word trees confirm the original knowledge generated within the qualitative responses of participants and may assist readers who like to see data presented visually. It is hoped that the data visualisations complement the written analysis of text, providing focal words and the gist of the participants' narrative. An example of the word trees constructed during thematic analysis is illustrated in figures 4.1 and 4.2, and further discussed in Chapter 5, paper 6 '*New graduate nurses' understanding and attitudes about patient safety upon transition to practice'* (Murray, Sundin & Cope, 2019).
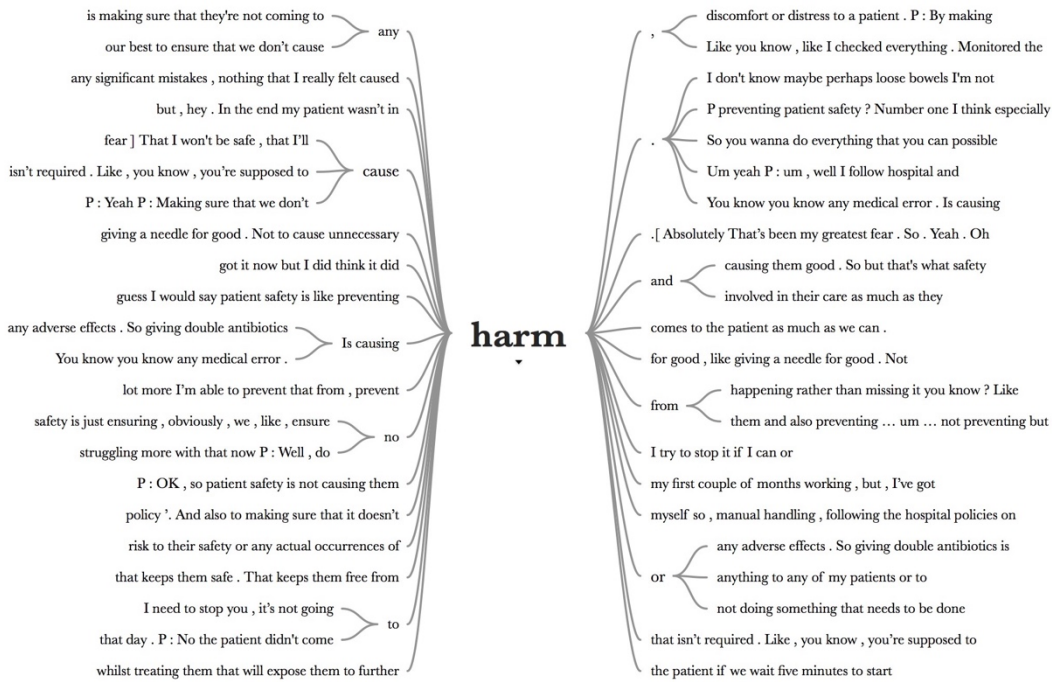
Figure 4-1: "harm" word tree
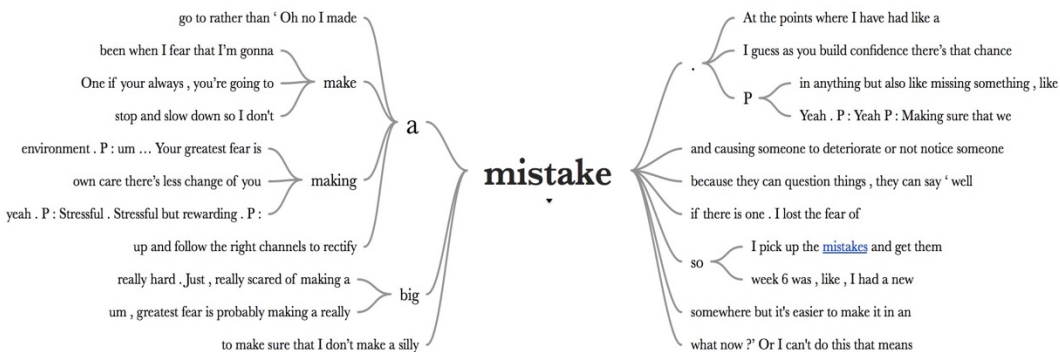
Figure 4-2: "mistake" word tree

4.4.7 Rigour and Trustworthiness in Mixed Methods

The quality of a research study is evaluated in different ways dependant on the methodology used. Qualitative methodology is evaluated by way of establishing trustworthiness, while quantitative methodology uses validity and reliability (Richardson-Tench et al., 2018). There has been much

discussion among researchers as to addressing validity in mixed method methodology with no specific conclusions (Creswell & Plano Clark, 2018; Jirawong, Johnson & Welch, 2014; Richardson-Tench et al. 2018).

There are three conventional forms of validity in quantitative research: content validity, predictive or concurrent validity, and construct validity (Creswell & Creswell, 2018) with the primary objective being construct validity, or evaluating the purposefulness of the scores and whether there are positive consequences when used in practice (Creswell & Creswell, 2018). In quantitative research, validity refers to the degree to which the chosen tool is "…measuring what it claims to measure" (Richardson-Tench et al., 2018, p.384).

Quantitative reliability concerns itself with the consistency and stability of the results, or participant's scores, in other words the repeatability of the instrument (Creswell & Creswell, 2018; Creswell & Plano Clark, 2018). An important aspect of reliability is the internal consistency of the instrument in that the scale items of the instrument should be assessing the same underlying construct and the instruments items be suitably interrelated (Creswell & Creswell, 2018). The internal consistency of the question sets within the instrument used in this study was quantified by a Cronbach's alpha coefficient (α). This is a widely accepted and used criterion to measure reliability of scale (Field, 2018; Pallant, 2016). The Cronbach alpha score ranges from 0 to 1, with an optimal range between .7 and .9 (Creswell & Creswell, 2018; Pallant, 2016).

Trustworthiness in qualitative research is established through "standards based on researchers, participants, and reviewers" (Creswell & Plano Clark, 2018, p. 217) and is the "degree to which the findings of qualitative research reflects reality" (Richardson-Tench et al., 2018, p. 384). Lincoln and Guba's (1985) framework consisting of credibility, dependability, confirmability, transferability, and authenticity is the most commonly used method to establish trustworthiness in qualitative research (Polit & Beck, 2017).

Authenticity and credibility were achieved in this study as the interviews of the participants were conducted by the chief investigator who is a registered nurse, who recognising that NGRNs are the experts in their own experiences, are best able to tell their story, reflecting their reality, as they are living and experiencing it (Polit & Beck, 2017). The semi-structured, open-ended questions allowed the participants to speak as much or as little as they liked on the topic of interest (Creswell & Plano Clark, 2018; Polit & Beck, 2017). All interviews were digitally recorded, transcribed verbatim and returned for verification to the participants who were also invited to comment. This process aids to enhance confirmability, authenticity and credibility (Polit & Beck, 2017; Schneider et al, 2016). Participants reviewed the interview transcripts for truthfulness of the content in terms of their experiences and what they related regarding these experiences. These were returned to the researcher with confirmation of contentwith no changes requested. The experiences of the NGRN participants in WA are applicable to similar settings in Australia and internationally, due to the nature of nursing curricula and contemporary healthcare policy (transferability). Auditability was maintained by keeping all

documents, both printed and digital, as well as the verbatim transcripts entered into Nvivo©.

For this study, multiple methods were used to study a single problem with patient safety underpinning both the qualitative and quantitative arms of the study. Methodological triangulation concerns the "use of multiple methods to study a single problem" (Schneider et al., 2016, p.239). Triangulation occurs where data derived from different sources or individuals are coded, or themed during analysis, building evidence responding to the problem under investigation (Creswell & Plano Clark, 2018). In this instance, sequential triangulation was undertaken where the quantitative data was collected from a single GNP group before collecting the qualitative data for this group of NGRNs where NGRNs had the opportunity to further explain their knowledge and understanding of patient safety and errors made in practice (Schneider et al., 2016)

The rigour of this research has been established through the demonstration of internal consistency of the questionnaire, and the formation of common themes across the interview transcripts. Themes were developed by the chief investigator, with the assistance of the research supervisors who were not directly involved with data collection, so as to moderate for any bias that may have inadvertently occurred during the interview process.

4.5   Summary of Chapter four

Patient safety is essential for positive patient outcomes and to avoid preventable adverse events. To gain an understanding of NGRN knowledge of general patient safety, familiarity, attitudes, and feelings were collected

toward it using a scored questionnaire of 43 pertinent questions related to quality and safety knowledge. The questionnaire responses provided a baseline on and for which further in-depth explanation was sought and gathered through one-on-one semi-structured interviews with NGRN participants.

It was not the remit of this chapter to present study results but rather to describe the methodology used for the study and why. Mixed methods methodology was the chosen method as the quantitative data allowed for gathering larger quantities of information that may be generalised to the greater population while the qualitative data allowed for NGRN narrations to add in-depth analysis of expressions of meaning concerning their quality and safety knowledge during their transition year.

The following chapter will report on and discuss the findings of this study by way of one published paper, another under review and a third paper submitted for publication. Paper five reports the method and results of the quantitative arm of the study, paper six the method and results of the qualitative arm, and paper seven is a mixed methods paper reporting the integrated results of this study.

Chapter 5.   Findings and discussion

5.1   Introduction

This chapter presents findings from both the quantitative and qualitative arms of the study to answer the research questions: What is a new graduate registered nurse's understanding and attitudes about patient safety upon initial entry to clinical practice? Is undergraduate patient safety theory being translated into clinical practice? And has the new graduate registered nurses' transition experience influenced their ability to integrate patient safety practices into their clinical practice?

This chapter is comprised of three papers published with three professional peer-reviewed nursing journals. Paper five: '*New graduate nurses clinical safety knowledge by the numbers',* published in the Journal of Nursing Management, presents the results of the quantitative arm of this study to respond to the research aim of 'What is a new graduate registered nurse's understanding and attitudes about patient safety upon initial entry to clinical practice?'

Paper six: '*New graduate nurses' understanding and attitudes about patient safety upon transition to practice'*, published in the Journal of Clinical Nursing, presents the qualitative findings of this study and responds to the research aims of 'Is undergraduate patient safety theory being translated into clinical practice?' and 'Has the new graduate registered nurses' transition experience influenced their ability to integrate patient safety practices into their clinical practice?'

Paper seven, '*A mixed methods study on the patient safety insights of new graduate registered nurses'*, accepted for publication in the Journal of Nursing Care Quality, presents the integrated results of both arms of this study. These papers are followed by a discussion of the findings related to contemporary literature and current workplace issues

5.2 Paper 5: New graduate nurses clinical safety knowledge by the numbers.

As demonstrated in paper five, the self-reported knowledge and actions of NGRN's in relation to medical errors diminished over time indicating a possible decrease in confidence in knowledge once exposed to the 'real world'. This causes one to consider whether the theory-practice gap evident here is due to theory not matching practice, or whether theory takes into consideration the impact of nursing practice on the NGRNs' perspective regarding medical errors?

In contrast, NGRNs self-reported knowledge and attitudes regarding patient safety did not change significantly over the questionnaire time points (p=0.049 and p=0.228). However, knowledge in this area was self-reported as low to moderate indicating the NGRN's lack of confidence with their knowledge in this area, or realisation of 'what they did not know'. This result may also be due to a lack of knowledge in the error reporting pathways of the organisation, or the cultural context of the ward where there may be an intimidation factor in reporting the errors of their more senior colleagues.

Paper six, titled '*New graduate nurses' understanding and attitudes about patient safety upon transition to practice'* illuminates the struggles NGRNs report in maintaining patient safety in the early weeks and months of their transition from nursing student to registered nurse. The new nurses understand underlying theory and its importance for positive patient outcomes, and they understand that everything they undertake in their practice is to maintain the safety of their patient and provide quality care. However, this

translation of theory to practice is hindered or consumed by what Duchscher describes as Transition Shock (Duchscher, 2009). This may explain the low to moderate knowledge levels demonstrated from the questionnaire.

5.3 Paper 6: New graduate nurses' understanding and attitudes about patient safety upon transition to practice

The following paper has been published in 'early view' in the Journal of

Clinical Nursing. DOI: 10.1111/jocn.14839.

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https://ro.ecu.edu.au/ecuworkspost2013/6311/

Medication safety was highlighted by the NGRNs to cause great distress and was the overarching focus point of their discussion when questioned about patient safety. For some, it meant describing in detail a medication error that they had made in their first few weeks of practice, whilst others, described the fear they felt each time they conducted a medication round after their initial supernumerary shifts. The new nurses were terrified of making an error that would harm their patient. They were anxious to do the right thing; however, they were often afraid to ask for assistance for fear they would 'look the fool' for not knowing something that other nurses could appear to do without thought. The more experienced nurses were regarded with awe by the NGRNs, as those nurses seemed to innately know what to do in any given situation.

Paper seven, '*A mixed methods study on patient safety insights of new graduate registered nurses',* presents the integrated findings of the study, a mixed methods paper submitted for publication.

5.4 Paper 7: A mixed methods study on patient safety insights of new graduate registered nurses.

5.5   Discussion of findings

New graduate registered nurses, upon survey, self-report moderate knowledge regarding medical errors and patient safety. However, the results have shown that there is a decrease in confidence regarding their knowledge concerning medical errors over a six-month time period (see Paper 5, Figure 3). This raises some questions. Is practice not representative of theory? Or as Missen et al. (2016b) have described, perhaps the NGRNs report higher levels of confidence in their knowledge initially as they do not yet know what they do not know.

Once exposed to the workplace for three months (TP two) and subsequently six months (TP three), the NGRNs would have been exposed to opportunities to either participate in, or witness, the error reporting process. Participants in this study had witnessed errors of other staff, or their own near misses. In some instances, the fresh eyes of the NGRN brought to light some medication errors that had been occurring in the practice settings: inclusive of documentation errors, and apparent administration of non-crushable medications to a dysphagic patient as described by this participant, "…*I had one that was a cytotoxic medication and I couldn't find any documentation of how they were giving it to him and the pill's huge, he can't swallow and I'm like how have nurses been giving it? And no one could tell me…*". A further example of medications that do not belong to the patient in the patient's medication drawer were described by this participant: "*…with medications, always checking and just because it is in the drawer doesn't mean it is the right medication or the right dosage*

for that patient… and it's been signed for and you can see that it's been given, um, yeah, but it's not necessarily the right one… you can see it's been a brand-new box or whatever and you know the couple of tablets dispensed and the two signatures on the chart match up… you can tell it's a new sheet then there's two missing and there's two signatures and it's the wrong thing". These examples highlight that 'new eyes', those currently "resistant to the normalisation of deviation" (Slade, 2015) have yet to be swayed by these 'normalisations' and are willing to disclose inadvertent complacency and the less than desirable safety culture that may lead to clinical errors causing patient harm.

Time management was expressed as a major concern by the NGRNs. Being under pressure to manage the needs of their patients within the routine of the ward environment in which they were working, was a cause of anxiety and stress for a majority of the NGRNs. The pressure of time management left the NGRNs feeling that they were not able to provide quality care to their patients as they worked through their daily task list. This task list in the early days determined, in the mind of the NGRN, the type of day they felt they had. It was described as a 'good day' if all tasks were able to be completed during the shift, however, for those who could not complete all tasks, these NGRNs left their shift feeling that they had burdened the oncoming staff. One NGRN described one such situation, but the oncoming staff member reminded this new nurse that nurses provide 24-hour care and that we need to prioritise what is necessary at the time.

While grappling with time management, some NGRNs found that prioritisation of care was difficult and admitted they didn't always place the patient first. Some NGRNs were able to adequately advocate for their patients

and were able to provide safe, quality care in challenging times. Learning to speak up when the safety of their patient is at risk is a skill that can be difficult to develop in the early months of transition, and shows good situation awareness (Law & Chan, 2015; Murray, 2017). This confidence and ability to maintain patient advocacy is reflected in the study's questionnaire results which were indicative of a moderate self-reported confidence in patient safety knowledge maintained during the periods described by Duchscher (2009) as 'transition shock' and 'transition crisis'. Overall however, their desire to provide safe, quality nursing care was eclipsed by doubt and a lack of professional confidence.

The descriptions of practice provided by the participants in their initial months were parallel to Benner's (1984) depiction of the advanced beginner. Some participants sought the assistance of their senior colleagues for verification of clinical skills, others reflected that they should have sought assistance to prevent a delay in patient care. The following quote demonstrated the thought process of a NGRN (advanced beginner) participant during the early months of transition:

> *"...when I first started, and say I had to do a dressing, or I had to decide what new dressing to put on something or I had to, you know, send someone to another ward for a procedure, as a grad you're like oh ...this seems so simple I should know how to do it. So, then you spend a lot of time ... second guessing that in your mind and then being ... but do I know it? Have I learned it? like where can I look it up? Well, you go through all these steps like who should I ask? Is going to be the right person to ask? is going to be silly? And then you... end up wasting all of your mental energy I think because you are worrying ... and then it's like just for now just go directly to someone and get it sorted."*

Working within the umbrella of the GNP provided the extra support most participants voiced as being necessary, further validating Benner's (1984) assertion of advanced beginner's ability to demonstrate basic levels of performance whilst still requiring supporting cues on occasions where they had had little to no previous exposure to certain skills or clinical situations.

5.6   Summary of Chapter five

Medical errors and time management persist as stressors for the NGRNs in their early months of transition to the registered nurse role. New graduates reported moderate knowledge and understanding of safety and quality issues, however, their questioning of their own abilities overshadowed growth in their involvement in patient safety. Paper five, '*New graduate nurses clinical safety knowledge by the numbers'*, identified a decrease in self-reported knowledge of, and actions regarding medical errors over a six-month period. This demonstrates that there remains a theory practice gap in this area of nursing, that is, the underlying theory of medication management versus the reality of clinical practice.

Paper six, '*New graduate nurses' understanding and attitudes about patient safety upon transition to practice'*, reports that NGRNs do comprehend what patient safety principles and practices mean for their patients. Interviews with the NGRNs revealed medication safety is at the forefront of a NGRNs mind during initial clinical practice, especially in relation to patient safety. Medication administration and safety was often conveyed as causing anxiety and distress that at times lead to error. It was also confirmed that NGRNs enter clinical practice experiencing transition shock and it is this initial shock that

limits their ability to look beyond their tasks to the bigger picture. It is this shock that at times left the NGRNs choosing between patient safety and time management and to not consider the patient as foremost focus.

Paper seven, *A mixed methods study on the patient safety insights of new graduate registered nurses*, melded the results of each arm of the study to deliver an overall picture of the NGRNs transition and their knowledge on patient safety. NGRNs experience of transition shock causes doubt and apprehension in their clinical practice abilities, undermining their confidence in their own knowledge and skills.

The concluding chapter to follow will confirm the main findings in relation to the research questions, provide recommendations for future directions, and discuss the strengths and limitations of the study.

Chapter 6.   Conclusion

6.1   Introduction

This concluding chapter will revisit the theoretical framework and methodology in reference to the findings, and re-examine the main findings illuminated in the papers of the previous chapters. This chapter will also make recommendations for practice and future research, as well as consider the strengths and limitations of the study.

Health care organisations will be relying more and more on NGRNs as the ageing nursing population transitions to retirement, leaving an anticipated shortfall of up to 85,000 nurses in Australia by 2025 and a global health workforce shortage of approximately 15 million by 2030 (Health Workforce Australia, 2014; Liu, Goryakin, Bruckner, & Scheffler, 2017). To date, little is understood about the NGRNs' knowledge, feelings and attitudes concerning patient safety upon their initial entry to practice. Accordingly, this study set out to gain a better understanding of the knowledge, feelings and attitudes of NGRNs toward patient safety upon transition to practice. The overall study's aim was underpinned by three research questions:

1. What is a new graduate registered nurse's understanding and attitudes about patient safety upon initial entry to clinical practice?

2. Is undergraduate patient safety theory being translated into clinical practice?

3. Has the new graduate registered nurses' transition experience influenced their ability to integrate patient safety practices into their clinical practice?

Before discussion and consideration of the main findings of this study, the methodology and conceptual framework are revisited to reacquaint the reader with the lens through which data was analysed.

6.2 Methodology and Theoretical Framework revisited

This study was undertaken using a convergent mixed method approach underpinned by Benner's (1984) 'Novice to Expert' model, and Duchscher's (2008, 2009) Stages of Transition theory and Transition Shock Model discussed in detail in the publication *Benner's model and Duchscher's theory: Providing the framework for understanding new graduate nurses' transition to practice* (chapter 3, paper 4)*.* The mixed method approach allowed for both quantitative and qualitative data to be collected using a longitudinal questionnaire, and one-on-one, semi-structured interviews.

The quantitative arm featured the questionnaire *NGRNs knowledge of medical errors and patient safety* (Appendix H)*,* that was adapted for this study from Li et al. (2012) 'Medical students' questionnaire of knowledge, skills, and attitudes regarding patient safety'. The questionnaire was originally developed from the World Health Organisation Patient Safety Curriculum guide for medical schools, validated for medical students by Flin et al. (2009). This has been the first study to use this questionnaire in the nursing context.

Following completion of the questionnaires, consenting participants partook in one-on-one, semi-structured interviews with the researcher. Using an *aide-memoire* (Appendix I), the researcher guided the conversations to gain a deeper understanding of NGRNs' interpretations of patient safety and how they integrated this theory, or knowledge, into clinical practice, by probing into the transitional experiences of these NGRNs as distinct from their role of student nurse.

Using Benner's (1984) and Duchscher's (2008, 2009) models and theory as the guiding frameworks for this study allowed the researcher to develop a thorough understanding of the skill acquisition, and the psychological and professional development that occurs for NGRNs during transitional phases. The underlying frameworks were developed by nurses, and in this investigation have been applied to the transitioning newly graduated registered nurse.

While Benner's work was directed more toward the realisation of skill acquisition for the expert nurse, it was understood that to achieve expert status, one must first pass through the previous stages of *novice, advanced beginner, competent,* and *proficient* (Benner, 1984). When applied to the nursing setting, the different stages could be applied to nurses progressing through their career, starting with the nursing student as *novice,* through to the specialist clinician, such as clinical nurse specialist, at *expert.* As this study focused on those nurses transitioning from student to registered nurse, the skill acquisition level apparent for this group is *advanced beginner.* According to Benner's model (1984), the advanced beginner has had some, although limited, experience in the clinical setting. The advanced beginner has linear

thought processes and as such demonstrates basic skills and levels of performance while requiring the occasional supportive cue (Benner, 1984).

Duchscher, seeking an understanding of NGRN attrition with reference to Kramer's (1974) '*Reality Shock'* as applied to NGRNs of the current time, researched newly graduated nurses through the lens of transition and went on to describe three stages of transition, *doing, being*, and *knowing* (Duchscher, 2009). The stages of transition are said to occur over a 12-month period, during which time the NGRN remains one of Benner's *advanced beginners.* As high attrition rates remain concerning for NGRNs (Laschinger et al, 2016; Schmitt & Schiffman, 2019), the quality of transition experiences of this group will influence a NGRN's intention to stay (Laschinger et al., 2016; Regan et al., 2017). Understanding the psychological and professional development of the NGRN during the first 12 months post-graduation, assists more senior nurses to understand both the psychological and professional demands on these nurses whilst they establish themselves in the profession.

Acknowledging the combined works of Benner and Duchscher allowed this researcher to focus data collection over time. That is, at entry to practice (time point 1), at three months (time point 2), and at six months (time point three), with time points two and three corresponding to those months emphasised by Duchscher as time points of 'shock' and 'crisis' for transitioning graduates (Duchscher, 2009) (see Figure 1-1, p.13). The questionnaire responses at time point one, set the basis for the follow up responses at time points two and three, and revealed a level of confidence in knowledge and feelings that corresponds with the adage 'they do not yet know what they do not know' opined by Missen et al. (2016b).

Duchscher's *doing* stage sees these new nurses adapting to the real world of nursing, adjusting to full workloads equivalent to those of their more senior colleagues, and learning the non-clinical skills to which they have had limited exposure (Benner, 1984; Duchscher, 2008, 2009). This stage culminates at approximately three to four months in what Duchscher terms *transition shock* (Duchscher, 2008, 2009). It is at this stage where this study's respondents participated in the questionnaire for time point two, and where levels of self-reported knowledge about medical error and actions regarding medical error (question group one and two) decreased.

The second stage of transition, *being*, sees new graduate registered nurses rapidly consolidating and advancing their clinical skills, becoming more comfortable with the environment, but experiencing significant feelings of self-doubt as they grapple with their professional identity (Duchscher, 2008, 2009). It is during this time where NGRNs experience a personal and professional crisis, or *transition crisis* (Duchscher, 2008, 2009). The third and final questionnaire undertaken by the participants showed a further decline in self-reported knowledge and actions regarding medical error, confirming this experience of *crisis*.

The questionnaire also sought the participant's knowledge, feelings and attitudes about patient safety. While there was no statistically significant difference between the responses across the time points, the score for the scale was rated low to medium, representing low confidence in this area that may be influenced by these stages of transition.

6.3 Main findings

Prior to the present investigation there had been few studies documenting the patient safety knowledge and practice of NGRNs transitioning from student to qualified registered nurse. This research has gone some way towards bridging that deficit by using a mixed method approach to develop an understanding of patient safety knowledge and practices. This was achieved through the lens of NGRNs transition, and by establishing an interpretation of the knowledge, feelings and attitudes self-reported by the NGRNs and further exploring translation of this knowledge during initial clinical practice.

The main findings of this study were:

1. Medication administration is a core focus for NGRNs when considering patient safety;

2. There is translational disparity between theory and practice with respect to medical error;

3. Self-doubt and apprehension clouds confidence in competence in NGRN's; and

4. Time management versus safe, holistic patient care is an NGRN's overwhelming focus.

6.3.1 The Transition Experience

Transition is a challenging time in anyone's lives. The transition experiences of NGRNs is well established through the seminal work of Kramer (1974), with an increasing amount of contemporary literature

becoming available as the nursing profession continues to seek reason for, and answers to, high NGRN attrition. Where this study differs from others, is that transition was explored with a patient safety focus. That is, not only understanding the transition experience as it is today in an Australian setting, but what the ramifications are of NGRNs transition experience on patient safety.

6.3.1.1 Medication administration is a core focus for NGRNs when considering patient safety

The definition of patient safety identified by the NGRNs was to do no harm, however, the main patient safety ideal with which NGRNs become completely absorbed is medication safety, specifically medication administration. This finding closely reflects that of Myers et al. (2010) whose NGRN participants frequently cited medication administration as a significant safety concern.

Medication administration, to the NGRNs, was synonymous with the term patient safety and the ability to provide safe, quality care. While it is a highly important factor for maintaining the safety of patients, little else was described when discussing the incorporation of patient safety into care practices. With the worrying statistic of approximately 55% of early career nurses admitting to making an error, cited by Treiber and Jones (2018), three of the 11 (28%) interview participants in this study admitted to making a medication error within the first months of practice. These participants also described the fear of causing harm to a patient through error, or of causing a patient's death, substantiating the work by Halpin et al. (2017, p.2581), with the assertion of NGRNs being "terrified" of making an error. Adding to the

NGRNs' medication safety burden is the theory practice gap imposed by the proscription of nursing students to administer schedule 8 (S8) medications (drugs of dependence) in Western Australian clinical settings (Department of Health, 2008). There is then an increased risk of error due to the inability to practice the administration of S8 drugs in the clinical setting, as opposed to simulated clinical settings. However, NGRN's are expected to perform this skill on the first day of nursing registration.

On the other hand, there were some positives from this intense focus on medication administration. Namely, that previously unrecognised medication errors came to the fore and the widespread willingness of NGRNs to report errors, including their own. New graduate nurses demonstrated extra vigilance during medication administration rounds while they were learning unfamiliar medications, giving them to opportunity to recognise inconsistencies and seek answers from their more senior colleagues. As previously described, 'fresh eyes' can be beneficial as these nurses have not been exposed to the 'normalised deviation' that at times occur in the workplace (Slade, 2015).

6.3.1.2 Translational disparity between theory and practice with respect to medical error

Medical errors are evidence of compromised patient safety (Murray, et al., 2019b). The questionnaire used for this study sought the participants' knowledge, feelings and attitudes regarding medical error, as well as those of patient safety. This study demonstrates that NGRNs enter professional practice with a theoretical confidence regarding medical errors, however, this theoretical confidence diminishes during the initial six months of clinical

practice. The identified decrease in self-reported knowledge of, and actions regarding medical errors during the first six months of transition from nursing student to graduate registered nurse, indicates that there remains a theory practice gap in this area of nursing. It has been suggested in the research literature that NGRNs initially 'do not know what they do not know' hence, upon gaining experience, confidence in their knowledge is challenged in real world practice (Missen et al., 2016b).

The existence of a theory practice gap acknowledged in the 1970's by Bendall (1976) continues today (Huston et al., 2018) with disparities in expectations between NGRNs and senior nurses evident across the literature (El Haddad et al., 2017; Missen et al., 2016a). Nursing has come some way in attempting to bridge the gap with transition programs for graduate nurses. These programs are more prevalent across the acute care sector, and to a lesser extent primary health and rural settings (Lea & Cruickshank, 2015). Readiness for practice is a concept trending in the literature, recently investigated by El Haddad et al. (2017), Herron (2018), Missen et al. (2016a), and Patterson et al. (2017).

While the NGRN's self-reported knowledge, feelings and attitudes regarding medical errors declined, the same was not seen for self-reported knowledge, feelings and attitudes that relate patient safety practices. These scores remained consistent across the time points, with the average scores of the participants in the low to moderately knowledgeable bracket. This causes one to pause and consider the participants' confidence, rather than competence in this area. These novice nurses have fundamental patient safety knowledge that underpins undergraduate education, however, self-

confidence in their own knowledge remains low and they 'do not yet know what they do and do not know'.

6.3.1.3   Self-sabotage and apprehension clouds confidence

Confidence for NGRNs can be influenced by their pre-registration experiences and the seeming disparity that exists between undergraduate education and 'real world' nursing (Ankers et al., 2018). Confidence, doubt and fear had an impact on the NGRNs in the first six months of practice. They feared that they would cause harm to a patient. They expressed doubt in their own nursing skills and abilities in the 'real world'. They suffered apprehension related to the role change from nursing student to registered nurse and the professional responsibilities attached to that new role. There was the overwhelming realisation that they were now wholly responsible for the patient. These NGRNs were daunted by the role change as some felt under-prepared for this transition, which was, quite simply, fear of the unknown.

Confidence can also be inhibited by self-sabotage that can create a psychological burden impacting performance and subsequently effecting patient outcomes. However, unless this self-sabotage is addressed, it can be difficult to overcome. As Cox (2017) asserts, nurses need to be positively proactive rather than thinking as the victim. This can be translated to NGRNs who unwittingly claim victim as they are new to the workplace with a smaller knowledge base than their more senior colleagues.

Confidence often impeded the NGRNs ability to ask for assistance, to admit they did not know how to do something for fear of being thought 'useless'. This was underpinned at times by the expectations the NGRN

placed on themselves. This reflects similar experiences described by Ankers et al. (2018), Krozek (2017), and more specifically Duchscher's (2009) Transition Shock Model which saw NGRNs fear of "…being 'exposed' as clinically incompetent…failing to provide safe care to their patients and inadvertently hurting them, and…not being able to cope with their designated roles and responsibilities" (p. 1107). If the culture of the ward is such that these fears and the self-sabotaging thoughts and feelings expressed by the NGRNs inhibit them to seek assistance, this could have major ramifications for the safety of patients.

6.3.1.4   Time management versus safe, holistic patient care

Being able to manage the workload in the allocated time frame was expressed as a struggle and a major concern for these new nurses, corresponding with the findings of Halpin et al. (2017). This was such a struggle that there were times when these nurses were 'ditching' safety in favour of time management. Fortunately, it was reported that maintaining safety was the highest priority, however, it was not always at the forefront of their thoughts. This task focus was linked specifically with medication administration as a focal point of time management for the NGRNs. Being able to manage the medication round and attend everything on their 'task list' or 'time planner' was the determining factor of a 'good' or 'bad' shift.

It was not until these nurses described the move between wards for their second GNP rotation where they felt they were beginning to look beyond the *doing* nursing, to *being* a nurse. This transition in thinking mirrors Duchscher's (2008) Stages of Transition Theory. The development of

confidence through clinical experience improved time management, so much so, that the patient became more of the focus after the first GNP rotation. This was explained by a participant as *"…instead of looking at all the little things that I have to do I can actually look at the patient. Focus on the patient a little bit more."* The self-imposed barriers, linking back to self-sabotage, see the NGRNs questioning their technical skills, their ability to translate what they have learned on the job, and questioning if, indeed they had completed their care tasks in the correct way. Time pressure was also recognised by the NGRN participants as one of the barriers to safety as asserted by Myers et al. (2010).

6.4   Implications for practice

A safety culture is of utmost importance to healthcare organisations. A just safety culture fosters engagement in safety practices and reporting error and near misses at all levels (Murray et al., 2018b; Spath, 2018). This study found that NGRNs knowledge of, and actions regarding, medical errors is limited, with a decline in confidence demonstrated across a six-month time frame. Recognition and reporting of errors is essential, not only to highlight problem areas, but for quality improvement and patient safety (Gluyas & Morrison, 2013; Spath & Kelly, 2017). Knowledge of error reporting procedures is necessary to facilitate timely reporting (Gluyas & Morrison, 2013; Spath & Kelly, 2017).

Confidence to challenge more senior colleagues is an issue that NGRNs face if witnessing potential error prone practice. Confidence in their own knowledge is an indicator of the likelihood of intervention in a possibly

compromised situation. The effects of transition shock, coupled with the safety culture of the environment, will be a factor in the NGRNs ability to act appropriately in such a situation (Duchscher, 2008; Murray et al., 2018b).

The level of support and mentorship provided to the transitioning new graduate nurse directly influences their ability to grow in confidence and competence (Schmitt & Schiffman, 2019). Without appropriate and necessary guidance, patient outcomes may be compromised (McNamara, 2012; Nour & Williams, 2018) and the incidence of NGRN attrition rises (Laschinger et al, 2016). It is therefore recommended that further action is required in the following areas.

6.5   Recommendations:

6.5.1   For nurses:

Changes in the nursing workforce are being seen with the average age of an RN decreasing from 44.2 years in 2014 to 43.9 years in 2017. The three years to 2017 has seen a 2.9% increase in nurses aged under 35 years (Registered Nurses: 2017 Factsheet, 2018), but also a proportionate increase in nurses aged over 55. While we continue to have these senior nurses available in the nursing workforce, their vast knowledge should be tapped to provide essential support and mentorship to newly graduated nurses, our future nurse leaders. Research has continued to provide evidence of incivility between nursing generations (Laschinger et al., 2016), and this incivility can be a cause of NGRN attrition (Weaver, 2013). With the predicted nursing shortage looming, NGRNs need to be fostered to be able to fill the gap that will be left by retiring nurses (Weaver, 2013).

As a profession, nurses need to acknowledge and accept that undergraduate nursing education does not produce 'expert' nurses; and that learning is experiential (Benner, 1984). Given a supportive, just environment, NGRNs will flourish and quickly become the competent, proficient, and eventually the expert nurses they strive to be. The expectation for NGRNs to 'hit the ground running' is unrealistic given their knowledge deficits, stemming from limited exposure to clinical experiences suggesting that a graduated approach to workload on transition may be beneficial to not only the NGRN, but to patient outcomes. Targeted transitional education around medicines and medication administration will assist NGRNs to maintain safe medication practices in today's dynamic healthcare environment (Lim & Honey, 2014).

6.5.2   For patients:

Patient satisfaction is reliant on the care experience. Nurses are the primary providers of care and the only health care worker with which a patient will have constant contact for the entirety of their hospital stay. The NGRN is a vigilant observer. They are the 'fresh eyes' who, with the appropriate support and guidance, will question the norm to seek answers unknown to them (Slade, 2015). Standardised, targeted support and mentorship will lead to engaged NGRNs who will be better equipped to enhance the overall patient experience (Regan et al., 2017)

6.5.3   For the healthcare system:

The WHO patient safety campaign on medication safety (WHO, 2017) highlights the continued global spotlight on patient safety and health outcomes beginning with the landmark IOM report (Kohn et al., 2000). Healthcare

organisations are rightly shifting focus from blaming individuals for poor patient outcomes to a system focus (Spath & Kelly, 2017). Transitioning new graduates into a just health system, with a positive safety culture that has an emphasis on nurture for both patients and healthcare workers, will assist in engagement in safety practices, including error reporting, at all levels and aid to alleviate some of the fear NGRNs carry upon entry to practice.

Clinical nurse leaders are essential for ongoing quality of safe patient care (Hendricks et al., 2015). Investment in leadership development needs to be a priority for organisational succession planning. The global perspective of succession planning sees the incorporation of leadership education within undergraduate courses, at graduate entry level to the nursing profession, and to nurture leaders at all levels (Sherman & Pross, 2010; Sortedahl & Imhoff, 2016; Squires et al., 2010). Organisational governance frameworks promote leadership education and development programmes for all nursing levels, including NGRNs, through empowerment of staff in organisational decision-making regarding patient safety (Hendricks et al., 2015; Kutney-Lee et al., 2016).

Evaluation of these programmes demonstrate benefits to nurses who learn necessary leadership skills, gain awareness of the political and organisational needs that promote leader and organisational engagement, build self-awareness, and become empowered in their practice which has the flow on effect of empowering others. These enhanced skills empower nurses, especially the new graduate nurse, to autonomously make decisions at the bedside to maintain high levels of safe patient care (Gazaway et al., 2016; Hendricks et al., 2015).

Formal training for preceptors and mentors to standardise support methods and feedback for NGRNs is required. It has been recognised that NGRNs who have worked with specifically trained preceptors have more positive experiences and outcomes (Piccinini, Hudlun, Branam & Moore, 2018). New graduate registered nurse attrition is costly to the organisation and as such, sufficient investment into the training of preceptors and/or mentors will support improved NGRN transition experience with the flow on effect of increasing intention to stay (Laschinger et al., 2016).

6.5.4   For education:

The findings of this study suggest that a focus on medication safety, specifically medication administration, is the primary concern for the NGRN in regard to safety. They experience unease with respect to medication administration when pressured by time, as well as taking the time to familiarise themselves with the vast array of patient medications being administered. It is the understanding of this researcher that undergraduate nursing courses teach pharmacology early in the degree and go on to simulate medication administration throughout clinical skills sessions.

Simulation is a vital aspect of undergraduate education, as well as for continuing professional development for all nurses (Rhodes et al., 2016). Simulated ward experiences with the time pressures, equivalent to those in the often-chaotic clinical environment, may facilitate the graduating nurse's ability to undertake this 'task' with less trepidation in those vital first weeks of transition. Timing of these simulations should be as close to the end of the

course as is possible and extended into the transition programs during the orientation days/week.

6.5.5   For research:

Contemporary literature suggests that research is continuing to focus on the newly graduated nurse, however the emphasis leans toward readiness, expectations, stressors, burnout, and intention to stay (Draper, 2018; El Haddad et al., 2017; Halpin et al., 2017; Herron, 2018; Laschinger et al., 2016; Missen et al., 2016a, 2016b). Further research is required to establish the influence of 'transition shock' on patient safety and patient outcomes. Broader testing of the quantitative instrument (Flin et al., 2009; Li et al., 2012) in the nursing context with a larger population is needed. Expanding the participant population to include those NGRNs who are employed as registered nurses outside of the context of a graduate nurse program is needed, to examine more widely, the phenomenon of transition shock with respect to patient safety and medical error.

6.5.6   For policy:

There is inconsistency across Australia regarding the administration of S8 medications by student nurses. It is prohibited within the Western Australian context (Department of Health, 2008) where the operational directive, OD0141/08 *Code of practice for the handling of schedule 8 medicines (drugs of addiction) in hospitals and nursing posts,* gives no consideration for administration by personnel other than authorised persons identified in the *Poisons Regulations 1965.* Further, there is no provision in the Western Australian *Medicine and Poisons Regulations 2016,* 2019 (Medicines

and Poisons Act 2014: Medicines and Poisons Regulations 2016, 2019) for administration of S8 medications by trainees (*sic*), however, the Queensland Government's *Health (Drugs and Poisons) Regulation 1996*, 2014 (*Health (Drugs and Poisons) Regulations 1996*, 2014) specifies that trainees in certain occupations are authorised to "administer a controlled drug under the personal supervision of an authorised person carrying out the relevant occupation" (Health (Drugs and Poisons) Regulations 1996, 2014, p.69), and under which, registered nurses' are authorised persons.

This dichotomy also exists across undergraduate nursing curricula where, anecdotally, many universities prohibit the administration of S8 medicines by nursing students on clinical placement (Flinders University, 2019). There are some universities where the administration of S8 medicines is permissible under direct supervision with a registered nurse employed by the relevant healthcare facility, however, such is dependent on the policy of the health care facility (Western Sydney University, 2016).

Uniformity in policy and education is necessary to ensure safety in the administration of S8 medicines upon registration. This is a skill that is practiced within simulated settings during undergraduate education, however, the majority of Australian nursing students have been unable to participate directly in the administration of S8 medicines in the 'real world'. Schedule 8 medication administration is a task which NGRNs are expected to be proficient upon registration and these pre-registration restrictions leave the NGRN at high risk of making an error in the administration of S8 medicines, particularly within the first weeks of clinical practice.

6.6   Strengths

Mixed methods methodology was used in this research to investigate the knowledge of NGRNs regarding patient safety. This method helped garner two streams of evidence to answer the research questions and evidenced issues that are coherent with two nursing theories. That is, Benner's (1984) Novice to Expert Model and Duchscher's (2008, 2009) Stages of Transition Theory and Transition Shock Model. On reflection, this approach was the strength of the study. It provided the opportunity to gauge a NGRN's perspective of medical error and patient safety by way of the questionnaire previously only gathering responses from medical students (Flin et al., 2009; Li et al., 2012), as well as the qualitative data, via in-depth interviews from a subset of these participants, gleaned the expert witness experiences from the cohort, allowing their words, their thoughts , their attitudes, their feelings and perceptions of their knowledge of safety and quality to be presented. This information allowed the researcher to merge the responses to answer the research questions.

The results from this study support current theory and contemporary literature regarding the transition experiences of NGRNs into clinical practice and provided new knowledge on the NGRNs transition experiences from a patient safety perspective. The major issues ascertained from this study were the intense focus on medications and medication administration as expressed by the NGRNs; the disparity between theory and practice with respect to medical errors as exposed through the questionnaire; the struggle with time management and its impact on the safety thinking and practices of the transitioning new graduates; the importance of effective leadership and a culture of safety; and the apprehension and self-sabotage of the NGRNs when

considering their own confidence in their knowledge and skills. Without using a mixed method approach, these issues may not have been made as apparent and as such, appropriate recommendations could not be made.

6.7   Limitations

This study has probed the NGRN's knowledge of medical error and patient safety upon transition to practice. The findings have highlighted that an undercurrent of transition shock persists for NGRNs and consequently impedes timely translation of knowledge to practice. The findings have subsequently provided recommendations for clinical practice as NGRNs transition experience impacts their ability to translate medical error and patient safety knowledge to clinical practice. These results did not occur without limitations. These limitations relate to response and sample.

This study provided a snapshot of the self-reported experiences of transition from student nurse to registered nurse within the context of a graduate nurse program. This study does not cover the knowledge and experiences of those NGRNs who transitioned to practice outside of a graduate nurse program. This would be worthy of further research. The study also did not take into consideration any previous nursing experience that the NGRNs may have had and notably, data was gleaned from self-reported perspectives which has the potential for bias (Creswell & Creswell, 2018).

This study was the first to use the "Medical students' questionnaire of knowledge, skills, and attitudes regarding patient safety" in a nursing setting. While the questions were seemingly adaptable to other healthcare

professionals working in direct patient contact, it would be prudent to conduct further research using this questionnaire in this same setting for validation.

Participant recruitment was only undertaken in two Western Australian metropolitan hospitals who had twice yearly intakes of NGRNs into their respective graduate nurse programs. One recruitment site is a public hospital, the other was a large private hospital, covering the two main hospital care providers available to West Australian residents. The graduate nurse programs are capped to accept only a limited number per offering and as such, restricted the number of potential participants. There are more graduate nurse programs available within the metropolitan health services of Western Australia, however, support for this study was not forthcoming upon enquiry. While this sample was relatively small, the findings related to transition experiences are representative of larger studies conducted in similar metropolitan settings (Draper, 2018; El Haddad et al., 2017; Halpin et al., 2017; Herron, 2018; Laschinger et al., 2016; Missen et al., 2016a).

6.8   Conclusion

Patient safety is a global priority for all healthcare workers. With nurses comprising the majority of the healthcare workforce, with the most consistent interaction with patients, it is important to understand the process of successfully integrating new graduates into the workforce while maintaining the highest level of safe, quality care. Effective leadership and a culture of just, safe care is necessary to facilitate a supportive transition experience.

Influential on the understanding of an NGRN's timely translation of theory to practice is Duchscher's Transition Shock Model and Stages of

Transition Theory. The new graduate nurses' experience of transition shock instills doubt and apprehension in their ability to provide timely, safe quality care that leads to reduced confidence in their own knowledge and skill. Medication administration and time management persist as stressors to their early months of transition to the registered nurse role.

New graduate registered nurses are important for the current and future nursing workforce. This thesis has shown that NGRNs' transition from nursing students to registered nurses at Benner's level of advanced beginner. That is, NGRN's can demonstrate basic skills as they have had some exposure to actual events during clinical practicum, however, they do continue to require some prompting. Due to their limited exposure to the clinical setting, NGRNs have practical knowledge deficits that may impact the quality and safety of patient care, with the primary knowledge deficit made apparent in this study being that of knowledge, and actions related to medical error.

This study has provided an understanding of the current knowledge gaps and transition experiences of NGRNs in metropolitan Western Australia, with a series of recommendations made for the promotion of a just and safe culture, to nurture new graduates and promote safety at all levels.

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APPENDICES

Appendix A   Ethical Approval – Edith Cowan University

17 February 2016

JOONDALUP CAMPUS
270 Joondalup Drive, Joondalup
Western Australia 6027
☎ 134 328

www.ecu.edu.au

ABN 54 361 485 361 CRICOS IPC 00279B

Mrs Melanie Murray

Dear Mrs Murray

I am pleased to write on behalf of the Higher Degrees Committee, Faculty of Health, Engineering and Science, to advise that your Professional Doctorate research proposal has been approved: **Linking patient safety to clinical practice - the insight of new graduate registered nurses**

I also wish to confirm that your proposal complies with the provisions contained in the University's policy for the conduct of ethical research, and your application for ethics has been approved. Your ethics approval number is **12959** and the period of approval **17 February 2016 to 31 December 2017.**

Approval is given for your supervisory team to consist of:

Principal Supervisor: Dr Deborah Sundin – ECU
Associate Supervisor: Dr Vicki Cope – ECU

The examination requirements on completion are laid down in *Part VI of The University (Admissions, Enrolment and Academic progress) Rules for Courses Requiring the Submission of Theses* available at: http://www.ecu.edu.au/__data/assets/pdf_file/0005/378320/Admission-Enrolment-and-Academic-Rules.pdf

Additional information and documentation relating to the examination process can be found at the Graduate Research School website: http://research.ecu.edu.au/grs/

Please note: the Research Students and Scholarship Committee has resolved to restrict a Professional Doctorate theses to a maximum of 60,000 words. Under special circumstances a candidate may seek approval from the Faculty Research and Higher Degrees Committee for an extension to the word length (RSSC 33/04).

I would like to take this opportunity to offer you our best wishes for your research and the development of your thesis.

Kayden Quintal
Senior Student Progress Officer
Research Assessments- SSC
Ph: 08 6304 8854
Email: researchassessments@ecu.edu.au

Principal Supervisor: Dr Deborah Sundin – ECU
Associate Supervisor: Dr Vicki Cope – ECU
HDR: Bev Lurie - ECU

Appendix B   Ethical Approval - Murdoch University

Ethics application: Linking Patient Safety to Clinical Practice"

Jeannette Pether on behalf of   **Human Ethics**
Vicki Cope; Melanie Murray; Yvonne Haigh
Friday, 16 February 2018 at 09:54
Show Details

→ You forwarded this message on 16/2/18, 09:58.
→ You forwarded this message on 10/1/19, 11:38.

Dear Vicki & Melanie,

Thank you for submitting your human research ethics application for the project "Linking patient safety to clinical practice".

In consultation with the committee chair, I make the following comments:
· Your careful transparency in bringing this project into the required Murdoch approvals is appreciated.
· It is understood that this project has ongoing approval through Edith Cowan University (ECU) and that as this is a joint PhD, ECU continue to have oversight over the ethics approval (at least until such time as their file is closed).
· Your document states that all data collection from participants is anticipated to be completed by the end of February 2018, and following this only data analysis and writing will be undertaken at Murdoch.

In view of the above, Murdoch does not need to provide additional ethics approval. Indeed, it would not be a simple matter to provide this approval in a time frame suitable for the remaining data collection. However, if data collection is likely to continue beyond 31 March 2018, or if at any time the ethics file at ECU is closed before all data collection and feedback to participants have been completed, then Murdoch ethics approval needs to be sought.

We will retain this project on file and ask that a copy of annual reports to ECU's ethics office and the ultimate closure report are provided to our office so that we are kept aware of key milestone achievements.

In the mean time we wish you well as you complete this project and bring the PhD to fruition.

Kind Regards,

Jeannette
Jeannette Pether

Jeannette Pether| Ethics Officer| Research Ethics and Integrity | Murdoch University

Room 1.006, Chancellery, 90 South Street, Murdoch WA 6150 | ☎ Tel +61 8 9360 6677| Fax +61 8 9360 6686|✉ human.ethics@murdoch.edu.au

NOTICE
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MURDOCH UNIVERSITY

I acknowledge the Whadjuk people of the Noongar Nation as the Traditional Custodians of the land on which Murdoch University is located. I pay my respects to Elders past and present and to the wider Noongar Community.

Appendix C Ethical Approval – Sir Charles Gairdner Hospital
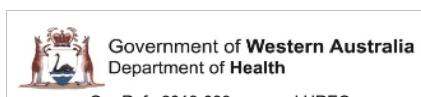
Government of **Western Australia**
Department of **Health**

Our Ref: 2016-068 approval HREC

4 July 2016

Mrs Melanie Murray

Dear Mrs Murray

HREC No: 2016-068
Project Title: Linking patient safety to clinical practice - the insight of new graduate registered nurses

The ethics application for the project referenced above was reviewed by the Sir Charles Gairdner Group (SCGG) Human Research Ethics Committee (HREC) through its low risk review process. It has been approved and the following documents have been approved for use in this project.

Documents
Information Sheet and Consent Form, version 1.3 dated 10 June 2016
Questionnaire - New Graduate Nurses Knowledge of Medical and Patient Safety, version 1.0 dated 27 April 2016
Questionnaire - New Graduate Nurse Interview, version 1.0 dated 27 April 2016

Approval of this project from the Sir Charles Gairdner Group Human Research Ethics Committee EC00271 is valid to 4 July 2021 and on the basis of compliance with the 'Conditions of HREC Approval for a Research Project' (attached).

The nominated participating site/s in this project is/are:

Sir Charles Gairdner Hospital
Royal Perth Hospital

[Note: If additional sites are recruited prior to the commencement of, or during the research project, the Coordinating Principal Investigator is required to notify the HREC. Notification of withdrawn sites should also be provided to the HREC in a timely fashion.]

A copy of this ethical approval letter must be submitted by all site Principal Investigators to the Research Governance Office or equivalent body or individual at each participating institution in a timely manner to enable the institution to authorise the commencement of the project at its site/s.

This letter constitutes ethical approval only. This project cannot proceed at any site until separate site authorisation has been obtained from the CE, or delegate, of the site under whose auspices the research will be conducted at that site.

The SCGGHREC is registered with the Australian Health Ethics Committee and operates according to the NHMRC National Statement on Ethical Conduct in Human Research and International Conference on Harmonisation – Good Clinical Practice.

Sir Charles Gairdner Group Human Research Ethics Committee, Level 2 A Block, Hospital Ave, Nedlands, WA 6009
Telephone (08) 9346 2999 Fax (08) 9346 3307 ABN: 13 993 250 709
Email HREC.SCGH@health.wa.gov.au Website www.scgh.health.wa.gov.au

Appendix D   Research governance authorisation – Sir Charles Gairdner Hospital

Government of Western Australia
North Metropolitan Health Service

Our Ref: 2016-068 approval SCGOPHCG

2 August 2016

Mrs Melanie Murray
School of Nursing and Midwifery
Edith Cower University
270 Joondalup Drive
JOONDALUP   WA   6009

Dear Mrs Murray

HREC No: 2016-068
Project Title: Linking patient safety to clinical practice - the insight of new graduate registered nurses

On behalf of the Sir Charles Gairdner Osborne Park Health Care Group, North Metropolitan Health Service, I give authorisation for your research project to be conducted at the following site(s):

Sir Charles Gairdner Hospital

This authorisation is based on the approval from the Sir Charles Gairdner Group Human Research Ethics Committee and the review from the Research Governance Office. This authorisation is valid subject to the ongoing approval from the HREC, and on the basis of compliance with the 'Conditions of Site Authorisation to Conduct a Research Project' (attached) and with the compliance of all reports as required by the Research Governance Office and approving HREC. Noncompliance with these requirements could result in the authorisation be withdrawn.

The responsibility for the conduct of this project remains with you as the Principal Investigator at the site.

Dr Victor Cheng
EXECUTIVE DIRECTOR
SIR CHARLES GAIRDNER AND
OSBORNE PARK HEALTH CARE GROUP

Appendix E Ethical Approval – Joondalup Health Campus

JOONDALUP
HEALTH CAMPUS

1 May 2016

Joondalup Hospital Pty Ltd trading as
Joondalup Health Campus
ABN 61 106 723 193
Cnr Grand Blvd & Shenton Ave
Joondalup WA 6027
PO Box 242
Joondalup WA 6919
Telephone: 08 9400 9400
Facsimile: 08 9400 9054
Web: www.ramsayhealth.com.au

Mrs Melanie Murray

Dear Mrs Murray

RE: **Linking patient safety to clinical practice: The Insight of new graduate registered nurses (ref 1607)**

The Human Research Ethics Committee of Joondalup Health Campus (JHC) is pleased to notify you that your proposal to undertake research on this campus has been approved, including endorsement from the JHC Hospital Executive. As the Committee is bound by NHMRC Guidelines, the following conditions apply:

- That the Committee be notified immediately of any substantial changes in the design, methodology, time line or intended subjects of the project,

- That the Committee be notified immediately of any unforeseen complications of the project,

- That the Committee be notified if the project does not commence within six months of approval,

- That the Committee receive annual/final reports on the study (you will receive a pro forma from the Committee in twelve months), and

- That the Committee be informed of any other matters which arise during the course of the project which may have ethical implications.

Your approval is initially for four years; after this period you may be asked to re-apply. You are also required to notify the Committee promptly of any changes in your contact details.

Our best wishes for a successful implementation of your research project.

Yours sincerely

Ann Y Hammer
Executive Officer, JHC HREC
JHC-Ethics@ramsayhealth.com.au

ec   D Sundin, V Cope, ECU

www.ramsayhealth.com.au

RAMSAY
HEALTH CARE

Appendix F   Participant Information and Consent Forms

F.1   Participant Information and Consent Form – Sir Charles Gairdner Hospital

School of Nursing & Midwifery

JOONDALUP CAMPUS

270 Joondalup Drive
Joondalup WA 6027
Western Australia
Tel: +61 8 6304 3557
Fax: +61 8 6304 5906
CRICOS IPC 00279B

ABN 54 361 485 361

Information Sheet /Consent form for New Graduate Registered Nurses.

To the Participant,

You are invited to participate in an interview as part of the research project titled: **Linking patient safety to clinical practice – the insight of new graduate registered nurses**.

Researcher
My name is Melanie Murray; I am a registered nurse with an interest in quality and patient safety and am conducting this research project as part of the requirement of a Professional Doctorate at Edith Cowan University (ECU). My supervisors are Dr Deborah Sundin and Dr Vicki Cope from the School of Nursing and Midwifery at ECU.

What is this project about?
This project is being conducted to find out what new graduate registered nurses (NGRNs) know about patient safety. I am also looking to see if the patient safety knowledge of these NGRNs is being inherently integrated into clinical practice. I feel that it is important to explore this group of nurses, as NGRNs are the nurses that will influence the current trends in nursing as we push toward safer and more positive patient outcomes.

What is expected of me?
You will be asked to complete an anonymous questionnaire at 3 intervals during your graduate program. The questionnaires will be distributed upon orientation, at 3 months, and at 6 months. The questionnaire should take approximately 5 minutes to complete. Following the final questionnaire, you may be asked to participate in an interview with the researcher. If you are participating in the questionnaires, you do not have to participate in the interview process. The interview will be conducted in private, audio recorded using a digital audio recorder and will take approximately an hour. No identifying information will be required to be supplied for the interview.

Why have I been asked to be involved in this project?
You have been invited to participate in this project because you are a new graduate registered nurse in your first year of clinical practice.

Do I have to participate in this study?

Your participation is voluntary and if you decide to take part you may stop at any time without explanation or penalty, although as all data submitted is anonymous, you are not able to withdraw it if you decide to stop. There will be no penalty to you if you decide to withdraw.

Are there any risks associated with participating in this project?
There are no foreseeable risks with participating in this project, however, on occasion face-to-face interviews may cause emotional distress, if this occurs, the interview will be discontinued immediately and offered a referral to the Employee Assistance Program (EAP) at SCGH.

What are the benefits of being part of this project?
Your involvement in this project is an opportunity for you reflect on your undergraduate education and explore your experiences thus far in your graduate program.

What are the costs to me?
There are no costs to you in participating in this project.

Will my part in this project be kept confidential?
All information collected for this project will be kept private and confidential. The information you supply within the questionnaires and during our interviews will be de-identified, stored securely, and will only be available to the authorised persons such as the researcher, her research supervisors, and an independent reviewer who will maintain the confidentiality of participants and their information. Information provided by you will not be shared with any members of SCGH nursing supervisory or management staff.

Results of the research study.
The results of this project are expected to be published in peer-reviewed journals. The journal articles and any conference papers will be made available to participants when they become available. There may be some feedback on the findings given to the hospitals involved in the project. No individuals will be identifiable in any reports or publications.

Who do I contact if I have questions about the project?
If you have any questions or require any further information about the research project, please contact Melanie Murray on [ ] or mmurray7@our.ecu.edu.au

If you prefer you may contact my supervisors at the School of Nursing and Midwifery ECU: Dr Deborah Sundin, Senior Lecturer on 6304 3488 or Dr Vicki Cope, Senior Lecturer on 6304 3509.

The ethical aspects of this study have been approved by both the SCGH and ECU Human Research Ethics Committees. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committees through:

SCGH HREC	ECU Senior Ethics Advisor
Chairman or Executive Officer	Research Ethics Officer
HREC Office Department of Research	Edith Cowan University
2nd Floor A Block	270 Joondalup Drive
Sir Charles Gairdner Hospital	JOONDALUP WA 6027
Hospital Avenue	Phone: (08) 6304 2170
NEDLANDS WA 6009	Email: research.ethics@ecu.edu.au
Tel: (08) 9346 2999	
Email: scgh.hrec@health.wa.gov.au	

Any complaint you make will be treated in confidence and investigated. You will be informed of the outcome.

Melanie Murray

Consent to participate

Study title: **Linking patient safety to clinical practice – the insight of new graduate registered nurses**.

- *I have read this information sheet and am happy to take part in the research project explained to me by Melanie Murray.*
- *I understand the nature and the intent of the study.*
- *Any questions I have asked have been answered to my satisfaction.*
- *I have been informed where to direct any future questions.*
- *I agree to participate in this research and understand that I can change my mind or stop at any time without penalty.*
- *I understand that all information provided is treated as confidential.*
- *I agree to complete three questionnaires. I also understand that I may be asked to participate in an interview.*
- *I understand that this interview will be digitally audio-taped.*
- *I also agree that any data gathered for this study may be published, provided my name or any other information that may identify me are not used.*

Signed:

Date:

Witness:

Date:

F.2 Participant Information and Consent Form – Joondalup Health Campus

Information Sheet /Consent form for New Graduate Registered Nurses.

To the Participant,

You are invited to participate in an interview as part of the research project titled: **Linking patient safety to clinical practice – the insight of new graduate registered nurses**.

Researcher
My name is Melanie Murray; I am a registered nurse with an interest in quality and patient safety and am conducting this research project as part of the requirement of a Professional Doctorate at Edith Cowan University (ECU). My supervisors are Dr Deborah Sundin and Dr Vicki Cope from the School of Nursing and Midwifery at ECU.

What is this project about?
This project is being conducted to find out what new graduate registered nurses (NGRNs) know about patient safety. I am also looking to see if the patient safety knowledge of these NGRNs is being inherently integrated into clinical practice. I feel that it is important to explore this group of nurses, as NGRNs are the nurses that will influence the current trends in nursing as we push toward safer and more positive patient outcomes.

What is expected of me?
You will be asked to complete an anonymous questionnaire at 3 intervals during your graduate program. The questionnaires will be distributed upon orientation, at 3 months, and at 6 months. The questionnaire should take approximately 5 minutes to complete. Following the final questionnaire, you may be asked to participate in an interview with the researcher. If you are participating in the questionnaires, you do not have to participate in the interview process. The interview will be conducted in private, audio recorded using a digital audio recorder and will take approximately an hour. No identifying information will be required to be supplied for the interview.

Why have I been asked to be involved in this project?
You have been invited to participate in this project because you are a new graduate registered nurse in your first year of clinical practice.

Do I have to participate in this study?
Your participation is voluntary and if you decide to take part you may stop at any time without explanation or penalty, although as all data submitted is anonymous, you are not able to withdraw it if you decide to stop. There will be no penalty to you if you decide to withdraw.

Are there any risks associated with participating in this project?
There are no foreseeable risks with participating in this project, however, on occasion face-to-face interviews may cause emotional distress, if this occurs, the interview will be discontinued immediately and offered a referral to the Employee Assistance Program (EAP) at JHC.

What are the benefits of being part of this project?
Your involvement in this project is an opportunity for you reflect on your undergraduate education and explore your experiences thus far in your graduate program.

What are the costs to me?
There are no costs to you in participating in this project.

Will my part in this project be kept confidential?
All information collected for this project will be kept private and confidential. The information you supply within the questionnaires and during our interviews will be de-identified, stored securely, and will only be available to the authorised persons such as the researcher, her research supervisors, and an independent reviewer who will maintain the confidentiality of participants and their information. Information provided by you will not be shared with any members of JHC nursing supervisory or management staff.

Results of the research study.
The results of this project are expected to be published in peer-reviewed journals. The journal articles and any conference papers will be made available to participants when they become available. There may be some feedback on the findings given to the hospitals involved in the project. No individuals will be identifiable in any reports or publications.

Who do I contact if I have questions about the project?
If you have any questions or require any further information about the research project, please contact Melanie Murray on ███████████ or mmurray7@our.ecu.edu.au

If you prefer you may contact my supervisors at the School of Nursing and Midwifery ECU: Dr Deborah Sundin, Senior Lecturer on 6304 3488 or Dr Vicki Cope, Senior Lecturer on 6304 3509.

The ethical aspects of this study have been approved by both the JHC and ECU Human Research Ethics Committees. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committees through:

<u>JHC Executive Office</u>
Phone: 9400 9404

<u>ECU Senior Ethics Advisor</u>
Research Ethics Officer
Edith Cowan University
270 Joondalup Drive
JOONDALUP WA 6027
Phone: (08) 6304 2170
Email: research.ethics@ecu.edu.au

Any complaint you make will be treated in confidence and investigated. You will be informed of the outcome.

Melanie Murray

Consent to participate

Study title: **Linking patient safety to clinical practice – the insight of new graduate registered nurses**.

- *I have read this information sheet and am happy to take part in the research project explained to me by Melanie Murray.*
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- *I have been informed where to direct any future questions.*
- *I agree to participate in this research and understand that I can change my mind or stop at any time without penalty.*
- *I understand that all information provided is treated as confidential.*
- *I agree to complete three questionnaires. I also understand that I may be asked to participate in an interview.*
- *I understand that this interview will be digitally audio-taped.*
- *I also agree that any data gathered for this study may be published, provided my name or any other information that may identify me are not used.*

Signed:

Date:

Witness:

Date:

Appendix G   Email invitations to participate in questionnaires and interviews

Initial invitation

Thank you for your consenting to participate in my PhD research "Linking Patient Safety to Clinical Practice: the insight of New Graduate Registered Nurses", your participation is very much appreciated.

This is the first of 3 identical questionnaires, the next to be distributed in 3 months (November), and the final one at 6 months (February). The questionnaire should take no more than 10 mins. Generally, 5-6 minutes. Your honesty is appreciated.

The final survey will be distributed with an invitation to participate in a one on one interview with myself which will occur in February/March 2018.

A reminder that all participation is anonymous, including the interview transcript, and your participation will have no bearing on your graduate program or any future employment.

Please follow the links below to the survey and just a reminder that the next survey will be distributed in early November.

Follow this link to the Survey:
${l://SurveyLink?d=Take the survey}

Or copy and paste the URL below into your internet browser:
${l://SurveyURL}

https://ecuau.qualtrics.com/SE/?SID=SV_3rxNdp5tpwvKQuN

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

Melanie Murray RN
BN, GDipNSc, MN, PhD candidate
School of Nursing and Midwifery
Edith Cowan University
270 Joondalup Dr
JOONDALUP WA 6027
E: mmurray7@our.ecu.edu.au
T: ▮▮▮▮▮▮▮

Reminder email

Hello,

This is a friendly reminder to please follow the link below to complete the final survey in my study: "Linking patient safety to clinical practice - the insight of new graduate registered nurses". Your participation is really important for the safety of nursing and the process of safe transitioning from student to practitioner. The success of my doctoral studies is also

reliant on your valuable knowledge.

Please also at this time consider meeting with me to discuss your first 6 months. We can meet face to face at a place of your choosing (my shout for coffee), or via skype/facetime or by phone at any time (day or night) if that suits you better. Interviews are no more than an hour, tending more toward 20-30 mins. My whole project hinges on the information i gain from these interviews so I very much appreciate your precious time.

Many thanks,

Melanie Murray
ECU PhD candidate

Follow this link to the Survey:
${l://SurveyLink?d=Take the survey}

Or copy and paste the URL below into your internet browser:
${l://SurveyURL}

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

Invitation to participate in the 2nd of 3 questionnaires

Thank you for your participating in my research "Linking Patient Safety to Clinical Practice: the insight of New Graduate Registered Nurses".

This is your invitation to respond to the 2nd questionnaire (out of 3). This survey is identical to the first one and the data will help me to understand how much our new graduates understand about medical errors and patient safety upon entering the workplace.

This questionnaire takes approximately 6 and 10 minutes to complete.

Please follow the links below to the survey and just a reminder that the final survey will be distributed in early August.

Follow this link to the Survey:
${l://SurveyLink?d=Take the survey}

Or copy and paste the URL below into your internet browser:
${l://SurveyURL}

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

Thank you again for your participation in my PhD project.

Melanie Murray

Invitation to participate in the 3rd of 3 questionnaires

Hello,

Thank you for your participating in my research "Linking Patient Safety to Clinical Practice:

the insight of New Graduate Registered Nurses".

This email contains the link to the final survey in this study. I would like to extend a huge thank you to those who completed the first 2 surveys, your participation is very much appreciated.

This data will help me to understand how much our new graduates understand about errors and patient safety upon entering the workplace.

As outlined in the initial brief, following this survey is the opportunity to participate in an interview with myself so I can gain a deeper understanding of how well prepared you were in regards to patient safety knowledge upon entering your grad program.

If you are able to participate in an interview with me, at a mutually convenient time and place, via Skype or facetime, or on the phone, please email me directly at mmurray7@our.ecu.edu.au. All information gathered in both the surveys and interview will be deidentified and will have no bearing on your grad program or future employment. Many thanks in advance.

Please follow the links below to the survey.

Follow this link to the Survey:
${l://SurveyLink?d=Take the survey}

Or copy and paste the URL below into your internet browser:
${l://SurveyURL}

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

Thank you again for your participation in my PhD project.

Melanie Murray

Invitation to participate in an interview

Thank you to all of you who participated in my study: 'Linking patient safety to clinical practice - the insight of new graduate registered nurses'.

I really appreciate your continued participation and providing the valuable information needed to ensure safe practice.

As indicated in the participant information and consent form, the second part of my study requires interview participants to gain further, descriptive information on patient safety knowledge, practices and transition experiences. Interviews can be scheduled at a time and place suitable to you (day or night), or via Skype/Facetime/phone. All interviews are digitally recorded, transcribed verbatim and sent to you for verification before analysis. All information is de-identified. Please email me on Melanie.Murray@murdoch.edu.au or phone/sms ▬▬▬▬▬ to arrange a time.

Many thanks

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

Melanie Murray
ECU/Murdoch PhD candidate

Appendix H Questionnaire: *NGRNs knowledge of medical errors and patient safety*

1.	What is your current knowledge regarding:	No Knowledge	Very little knowledge	Somewhat knowledgeable	Knowledgeable	Very knowledgeable
a	Different types of medical error?					
b	Factors contributing to medical error?					
c	Factors influencing patient safety?					
d	Ways of speaking up about error?					
e	What should happen if an error is made?					
f	How to report an error?					

2.	Knowledge of actions to take regarding medical errors:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a	I would know what to say if I made an error?					
b	I would know who to talk to if I made an error?					
c	I would know what to do if someone in my healthcare team made an error?					
d	I would know what to do if I witnessed someone more senior than me making an error?					
e	I would know what to do/say if a patient told me I had made an error?					

3.	With regards to your personal attitudes to compromised patient safety, do you feel:	Hardly ever	Occasionally	Sometimes	Frequently	Almost always
a	Afraid?					
b	Ashamed?					
c	Guilty?					
d	Upset?					

4.	Feelings about medical errors:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a	It is impossible to provide safe, high quality care while being efficient.					
b	If I keep learning from my mistakes, I can prevent incidents.					
c	Acknowledging and dealing with errors is an important part of my job.					
d	Making errors in nursing is inevitable.					
e	Competent nurses do not make errors that lead to patient harm.					
f	After an error occurs, an effective method of avoiding further errors is to work harder to be more careful.					
g	As a NGRN, I feel I can speak up if I see an error.					
h	As a NGRN, it is my duty to speak up if I see an error.					

5.	What are your intentions regarding patient safety?	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a	I intend to clearly communicate my safety expectations to members of my team.					
b	I will support any members of my team who are involved in an incident.					
c	I will intervene whenever I think a patient may be exposed to harm.					
d	I plan to make a point of learning from the mistakes of others.					

6.	National Safety & Quality Health Service Standards:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a	The use of PPE is only to protect me from the patient					
b	Hand Hygiene auditing is highly effective in reducing hospital acquired infections.					
c	I don't need to do annual competency training for aseptic technique if I practice this everyday					
d	Nurses are required to be knowledgeable about medications.					
e	I would know where to go to find information on medicines I am unsure about					
f	I would know what to do if the drug count is incorrect.					
g	I understand the importance of the patient identification process.					
h	Handover should not involve the patient					
i	I would know what to do if a blood product does not have the correct labelling					
j	Pressure injuries only happen in immobile patients					
k	Pressure injuries are unpreventable					
l	Pressure injury screening should only occur upon admission					
m	I have knowledge of the signs and symptoms of patient deterioration.					

n	I would know what to do to escalate the care of my patient.					
o	Only elderly patients are at risk for falls					
p	Falls screening should only occur upon admission					

Demographic questions:

1	What is your gender?	1. Male
		2. Female
2	What is your age?	1. Under 18
		2. 18 – 24
		3. 25 – 34
		4. 35 – 44
		5. 45 – 54
		6. 55 – 64
		7. 65 – 74
		8. 75 – 84
		9. 85 or older
3	Where did you complete your nursing degree?	1. ECU
		2. UWA
		3. Murdoch
		4. Curtin
		5. Notre Dame
		6. Other

Appendix I   Interview Aide-Memoire

1. What do you understand do patient safety to be?
    a. How do you incorporate patient safety into your clinical practice?
2. What do you see are your main learning needs as a NGRN?
3. What are your biggest challenges as a NGRN in providing safe patient care?
    a. What are your safety concerns?
    b. How do you communicate safety or learning needs to your preceptor?
    c. What steps do you take when you need additional support about patient safety issues?
4. What recommendations would you make to your university that would assist future NGRNs when entering the workforce?
    a. What skills do you wish you had learned as an undergraduate?
    b. What parts of your education do you feel have helped your transition to nursing?