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THE DEVELOPMENT OF A STANDARDISED ADAPTATION PROGRAM FOR ENROLLED NURSES IN CRITICAL CARE UNITS OF A PRIVATE HEALTHCARE GROUP IN SOUTH AFRICA

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Thesis submitted to the Faculty of Health Sciences, University of the Witwatersrand in fulfilment of the requirements for the degree of Doctor of Philosophy

Johannesburg, September 2018

DECLARATION

I, Jeananne Dunsdon declare that this Thesis (Ethics Clearance number **M160388**) is my own, unaided work. It is being submitted for the Degree of Doctor of Philosophy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.

_____

(Signature of candidate)

_____Day of _____20_____in_____

DEDICATION

In memory of my mother

Yvonne Dunsdon

1934 - 2002

ABSTRACT

Critical care units are highly technological environments and the nursing staff who work in the units are highly trained and competent to work within this environment. They are passionate care givers and deliver safe quality patient care. Due to the ever-increasing shortage of professional nurses working within the critical care units, it has become necessary to introduce enrolled nurses into these specialised areas. This has resulted in an increasing sub-standard nursing care as well as increased complaints from patients and doctors.

Enrolled nurses are not trained to work in these high-tech environments and therefore do not have the same level of competence as professional nurses. Adaptation programs (otherwise known as orientation programs) are in place, but the content of these programs and the evaluation of competency was questionable.

The purpose of this phased study was to develop an adaptation program for enrolled nurses practicing in the critical care units, to facilitate competent care of patients within the critical care units by enrolled nurses.

Phase 1 explored and described the content and functionality of the existing adaptation programs in the critical care units. In phase 2 a standardised adaptation program for enrolled nurses practicing in the critical care units was developed to equip them with the knowledge and competence to care for patients in the critical care units within their scope of practice. In phase 3, the adaptation program as piloted.

This study used an intervention research design and employed mainly qualitative methods. The population of this study was the enrolled nurses, and professional nurses working in the selected critical care units of this private healthcare group in Gauteng, South Africa.

The first phase of the study showed that the current adaptation programs were inadequate and consisted mainly of tick lists with no efforts to measure competency. Nominal groups of both enrolled nurses and professional nurses indicated a need for a standardized program which emphasized documentation, soft skills and certain competencies. Pre-testing indicated a knowledge deficit in several areas on the part of the enrolled nurses. Once the new program was designed based on the data collected,

it was piloted on nine enrolled nurses. Indicators related to patient satisfaction, affective and psychomotor competency of the enrolled nurses and satisfaction of their supervisors improved. There was little evidence, however, that knowledge levels improved.

The researcher concluded the study by making recommendations for Nursing practice, education and research.

KEY WORDS: Adaptation program, enrolled nurses, critical care units, competence, safe quality care, professional nurses, nominal groups, expert group, pre-test, post-test, knowledge assessment, validation, Pilot program,

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CHAPTER 1 : OVERVIEW OF THE STUDY

1.1 INTRODUCTION

Critical care nurses are responsible for clinical assessment, making a diagnosis and designing individualized care plans for critically ill patients (Matlakala, Bezuidenhout & Botha, 2014). There is an ever increasing demand for nurse practitioners in all types of critical care units and the successful integration of professional nurses into the critical care units has become extremely challenging and involves strategic planning (Simone, McComiskey & Andersen, 2016). As a result of the shortage of trained and experienced professional nurses, it has become necessary to utilise enrolled nurses in the critical care units in this private healthcare group to assist in alleviating the shortage of staff.

According to the Nursing Act of South Africa (Act No. 33 of 2005) “The enrolled nurse is a person educated to practise basic nursing in the manner and to the level prescribed”. A nurse is defined in the Nursing Act as, “a person registered in a category under section 31(1) in order to practice nursing or midwifery”. According to the British Association of Critical Care Nurses (BACCN), standards for safe nurse staffing in critical care, every patient in the critical care unit should have immediate access to a professional nurse with a post registration qualification in this specific speciality (Pitcher et al. undated). Scribante and Bhagwanjee (2007) states that the ideal ratio of nurses to patients in South African critical care units is supposed to be 1:1 (Matlakala, Bezuidenhout & Botha, 2015). However neither the British Association of Critical Care Nurse standards nor the norm put forward by the South Africa authors Scribante and Bhagwanjee (2007) are feasible in the current resource constrained critical care unit (CCU) environments and, in reality, this is ratio is often not met, even with the utilisation of the enrolled nurses.

In a previous study conducted by Dunsdon (2011), the professional nurses found that it was challenging to work with the enrolled nurses in the critical care units as their scope of practice limited their ability to function within the unit even though they were expected to practice like professional nurses. It was also found that despite the fact

that enrolled nurses are willing to practice within the critical care units, enrolled nurses are not skilled to practice in this environment and therefore place an added burden on the professional nurses. There is limited orientation for the enrolled nurses who are expected to function competently within the unit. Enrolled nurses are inadequately trained both theoretically and practically and often lack in experience to practice in the critical care environment. This has a knock on effect on the professional nurses leading to an increased workload and change in responsibility, increasing the stress levels of the professional nurses and resulting in a decrease in quality patient care (Dunsdon, 2011).

It is important for nurses practicing in the critical care units to be competent in their skills. Once the nurses are competent they have feelings of mastery and the ability to cope with and manage the critical care patient and to achieve a level of efficiency. Ongoing training within the critical care unit, which is referred to as in-service training is important in maintaining the competency level of the enrolled nurses. The adaptation program which is another name for an orientation program (also called transition program) is needed so that when the enrolled nurse commences work in the critical care unit they will be assisted to bridge the gap between ward nursing and critical care nursing. Such a program should also introduce the enrolled nurses to the more advanced skills required to safely care for a patient in the critical care unit.

1.2 PROBLEM STATEMENT

Enrolled nurses practicing in the critical care units are not trained to be competent to nurse the patients in the critical care units. Enrolled nurses do not have the same level of competence as a professional nurse which may lead to compromised patient care if placed in a CCU without specific training. This has an impact on the professional nurses who are then required to supervise and resolve the problems resulting from their deployment in the critical care unit. This, in turn, increases the workload and stress of the professional nurses (Dunsdon, 2011). Newly appointed enrolled nurses practicing in the critical care units often have questionable experience in critical care nursing. Adaptation programs are in place in the critical care units, however, the content of these programs and whether the competencies are assessed is questionable. It is also uncertain as to whether the enrolled nurses are tested for competence to practice within the critical care environment prior to their appointment

into the unit. It is essential to improve the competence of this category of nurse prior to them commencing work within the critical care units.

1.3 RESEARCH QUESTION

How can enrolled nurses working in the critical care units be prepared to develop competencies to provide safe care to compromised patients in the units?

1.4 PURPOSE OF THE STUDY

The purpose of this study is to develop an adaptation program for enrolled nurses practicing in the critical care units, to facilitate competent care of patients within the critical care units by enrolled nurses.

1.5 RESEARCH OBJECTIVES

A research objective is described as a statement of intent that declares specific goals that the researcher plans to achieve (Creswell, 2014). The research objectives for this study are:

Phase 1:

- To explore and describe the content and functionality of the existing adaptation programs in the critical care units.

Phase 2:

- To develop a standardised adaptation program for enrolled nurses practicing in the critical care units to equip the enrolled nurses with the knowledge and competence to care for patients in the critical care units within their scope of practice.

Phase 3:

- To pilot the adaptation program for enrolled nurses within the critical care unit of a private hospital group

1.6 SIGNIFICANCE OF THE STUDY

Currently the enrolled nurses are not specifically trained to work in the CCU environment, but they are being placed there and it is essential that they provide safe patient care. An evidence based program needs to be developed to assist them to adapt and provide safe care.

1.7 OPERATIONAL DEFINITIONS

Adaptation Program

- For the purpose of this study adaptation program is the program that will be developed for enrolled nurses who are newly appointed to the critical care units of the private healthcare group where this study will be conducted.
- Quinn describes adaptation as “skills are internalized to such an extent that the nurse can adapt them to cater for special circumstances (Quinn, 2007)”.
- The Concise Oxford English Dictionary (The Concise Oxford English Dictionary, 2009:14) defines adaptation as “the action or process of adapting or being adapted”.

Auxiliary Nurse

- According to the Nursing Act of South Africa (Act No. 33 of 2005) “an auxiliary nurse or auxiliary midwife is a person educated to provide elementary nursing care in the manner and to the level prescribed”.

Competence

- Competence of enrolled nurses in this study refers to them being able to deliver safe patient care in the critical care units.

Critical Care (Intensive Care)

- For the duration of this study intensive care and intensive care units will be referred to as critical care and critical care units. These units are the units that were selected as part of the pilot study in the large high tech hospital. The units were the surgical and the medical critical care unit.
- The patients that are admitted to these units all have a higher acuity and require a higher level of care to meet the higher demands of these patients who are at higher risk then the patients that are nursed within the general wards.

Enrolled Nurse

- The enrolled nurses are the selected participants’ of this research study. An enrolled nurse is a nurse that has undertaken two years of study and is registered under the Nursing Act of South Africa (Act No. 33 of 2005) as an

Enrolled Nurse. They are licenced to practice basic nursing care under the direct and indirect supervision of the professional nurse.

- A person who is trained to perform basic nursing care and works under the direct or indirect supervision of the professional nurse (Antonie & van der Heever, 2015)

Nurse

- The Nursing Act of South Africa (Act No. 33 of 2005) states that a nurse is "a person registered in a category under section 31(1) in order to practice nursing or midwifery".
- The Oxford Dictionary of nurses (2008) defines a nurse as "A person who has completed a program of basic nursing education and is qualified and authorised in his or her own country to practice nursing".

Nursing

- According to the Nursing Act of South Africa (Act No. 33 of 2005), "nursing means a caring profession practised by a person registered under section 31, which supports, cares for and treats a health care user to achieve or maintain health and where this is not possible cares for a health care user so that he or she lives in comfort and with dignity until death".

Professional Nurse

- The Nursing Act of South Africa (Act No. 33 of 2005) states that a professional nurse is "a person who is qualified and competent to independently practice comprehensive ;nursing in the manner and to the level prescribed and who is capable of assuming responsibility and accountability for such practice".

Scope of Practice

- The scope of practice in this study refers to the acts and duties that the enrolled nurse may perform and which she has been trained to undertake whilst working in the critical care unit.

1.8 ABBREVIATIONS

APP	Advanced Practice Provider
BACCN	British Association of Critical Care Nurses
CAUTI	Catheter Associated Urinary Tract Infection
CCU	Critical Care Unit/s
CLABSI	Central Line Associated Blood Stream Infection
COPD	Chronic Obstructive Pulmonary Disease
CPD	Continuous Professional Development
CRRT	Continuous Renal Replacement Therapy
CVP	Central Venous Pressure
ECG	Electro Cardiogram
ENA	Enrolled Nursing Auxiliary
EN	Enrolled Nurse
GCS	Glasgow Coma Score
HGT	Haemo Gluco Test
HR	Human Resources
IABP	Intra-Aortic Balloon Pump
ICU	Intensive Care Unit
JPM	Joint Performance Management
MCQ's	Multiple Choice Questions
NNLI	Novice Nurse Leadership Institute
OSCE	Objective Subjective Clinical Evaluation
PDA	Patient Documentation Audit
POP	Plaster of Paris
PN	Professional Nurse
SOAPIE	Subjective, Objective, Assessment, Planning, Implementation and Evaluation
SSI	Surgical Site Infection
TAZ	Therapeutic Assessment Score
UKCC	United Kingdom Central Council for Nursing, Midwifery and Health Visiting
UMMC	University of Maryland Medical Centre
VAP	Ventilated Associated Pneumonia

1.9 CHAPTER DIVISION

The research study will be discussed under the following chapters:

Chapter 1: Introduction and purpose

Chapter 2: Literature review

Chapter 3: Research methodology

Chapter 4: Findings of Phase 1 – Information Gathering

Chapter 5: Phase 2 - Design of the Intervention

Chapter 6: Phase 3 – Pilot Adaptation Program

Chapter 7: Conclusion, summary, limitations and recommendations

CHAPTER 2 : LITERATURE REVIEW

2.1 INTRODUCTION

A literature review can be referred to as a review of relevant literature and is defined by Burns & Grove (2013) as an "analysis and synthesis of research sources to generate a picture of what is known and not known about a particular situation or research problem". A literature review is conducted to enable the researcher to gain an understanding of what is known about a particular situation, phenomenon or problem and then to identify any knowledge gaps that exist (Burns and Grove, 2013). What have others written on the topic? (de Vos et al. 2014:). During review of current literature, the researcher will take note of what has already been researched and what still requires researching. This will also prevent the researcher from re-inventing the wheel and will enable the researcher to advance with the research topic (de Vos et al. 2014). The literature review summarises previous research on the topic and how the current study will be connected (de Vos et al. 2014).

This study involves the development of a standardised adaptation program for enrolled nurses in critical care units of a private healthcare group in South Africa. Adaptation programs are also referred to as orientation programs, but, in this context it is to assist enrolled nurses to adapt to working in an environment for which they were not specifically trained. The literature review will therefore explore firstly, the situation which has given rise to the need to use subcategory nurses in critical care units, then what is already known regarding orientation or adaptation, and orientation programs, competency as it is a crucial feature of this study that the enrolled nurses are found to be competent prior to being permitted to work in the critical care unit, enabling them to deliver safe, quality patient care to their allocated patient within the team that they work. It will also provide a background to the evidence relating to the competencies required for a nurse of this category to work in a critical care unit as this will inform the content of any program offered. Finally the chapter will explore evidence on the wisdom for, or methods of, providing a standardised education program.

2.2 **METHOD USED**

A search was done of the following data bases: Cinahl, Pubmed, Proquest (nursing allied). The following search words were used adaptation, adaptation program, orientation program, critical care unit induction, professional nurse induction, preceptors, induction program, nurse induction, competence, competency assessment, enrolled nurses, critical care units, safe quality care, professional nurse, nominal groups, expert group, knowledge assessment.

The literature revealed the following themes:

2.3 THE STAFFING CRISIS IN CRITICAL CARE UNITS

Worldwide there is a shortage of nurses. This is often due to the increase number of critical care unit (CCU) beds and expanding speciality programs resulting in the need for advanced practitioners. There is an ever increasing demand for nurse practitioners in all types of critical care units and the successful integration of professional nurses into the critical care units has become extremely challenging and involves strategic planning (Simone, McComiskey & Andersen, 2016). The Australian Health Workforce Advisory Committee in 2002, examined the critical care nursing workforce and identified that they faced a current under supply of nurses which would only worsen with the increasing demand to grow the size of the workforce. It was also stated that internationally the need for critical care services had increased as a result of the aging population and population growth as a direct result of improved survival resulting from injury and illness (Halcomb, et al. 2011). In a study conducted at the Maryland Medical Centre, it was found that staffing of a critical care unit is complex and is based on several factors including but not exclusive to patient acuity, types of patients and units. It is difficult to find nurses who are experienced in critical care nursing and often the demand for such staff members outweighs the supply (Simone, McComiskey & Andersen, 2016). The shortage of critical care nurses negatively affects the staffing in the critical care units and the staffing of the critical care units should be sufficient to address the workload as created by the patients regardless of the staff shortage and budget constraints. Staffing of the unit has become the responsibility of the unit managers on a twenty four hour a day basis (Antonie & Van der Heever, 2015). Nurses are the largest professional group represented in the critical care units and there is an ongoing worldwide need for critical care nurses which education needs to respond to (Lakanmaa et al. 2013). This is particularly prevalent within the South African context

and it is for this reason that it has become necessary to resort to the utilisation of enrolled nurses within the critical care environment. Enrolled Nurses working in the critical care units work under the direct and indirect supervision of the professional nurse due to their scope of practice (SANC Reg. R 2598).

All attempts at improving retention of nurses in the critical care environment are essential as the shortages are known to be of concern and to contribute to burnout in South African critical care units (Klopper et al. 2012). Mealer et al. (2014) point out that while nursing shortages exist everywhere, they are even more evident in critical care units and there is little likelihood of this situation ameliorating in future.

Bakon et al. (2016) emphasize the importance of skill matching and believe that if this does not occur appropriately, safety issues can arise and nurses may feel unsupported and worry about working beyond their scope of practice. These authors however do point out that not all nurses of the same category have the same skill sets as one another. While enrolled nurses are used in the study setting to mitigate against shortages of professional nurses, the use of lower categories to mitigate shortages in critical care units has been described by Landsperger et al. (2016). These authors found that patient outcomes were not jeopardised by task-shifting. Enrolled nurses practice under the direct and indirect supervision of the professional nurse. All acts and procedures which form part of the nursing regimen are planned for by the professional nurse and executed by the enrolled nurse. This is stipulated in Regulation 2598, governing the Scope of Practice of the Enrolled Nurse (SANC Reg. R2598).

Specialized orientation programs which support the new graduate professional nurses have documented an increase in the retention and decrease in turnover (Friedman et al. 2011). It is reasonable to assume that this will apply to enrolled nurses entering the critical care practice environment for the first time.

2.4 ORIENTATION PROGRAMS

It is difficult for nurses, of any category, to move from working in a general ward to a critical care unit as it is a high-stress environment where they face tragic outcomes and witness marked human suffering on a regular basis while still being expected to care empathetically for both families and the patient during crises (Mason et al. 2014; Sacco et al. 2015; Rushton et al. 2015). Newly qualified nurses are not exposed to a formal orientation program and available orientation programs vary from hospital to hospital and from unit to unit (Kopf et al. 2018). The term ‘transitional support program’ has a

similar meaning to ‘adaptation programs’ and ‘orientation programs.” The term is used by both Spector et al. (2015) and Hussein et al. (2016) to describe the importance of supporting nurses new to a particular nursing environment and new or different roles. While their work was with newly qualified professional nurses, the same issue arose for that category of nurse as does for enrolled nurses trained for a general hospital environment who are then placed in a critical care environment. Transition shock may arise which contributes to retention challenges. Transition shock can be referred to by many names but, broadly, it is multifaceted and involves the misunderstandings of practice and generational cohorts and mixed emotions. Participation in programs has shown to have improved retention rates and increased skill and competency as well as increasing job satisfaction, communication and leadership abilities. As such, programs provide additional support during the transition program and promote retention. Transition support was found to be useful by Dyess & Parker (2012) who found that involvement with the Novice Nurses Leadership Institute (NNLI) program through the College of Nursing in south eastern aspect of the United States, positively influenced retention in the nursing profession. All of the nurses involved in the program were still practicing four years later even though they might have moved to another employer (Dyess & Parker, 2012). The successful transition of the newly qualified or inexperienced critical care nurse does affect turnover and this was observed at the University of Maryland Medical Centre (UMMC) where the turnover decreased from 14% to 11.4% in two years. Employee satisfaction improved and this was directly linked to the orientation program (Simone, Mc Cominskey & Andersen, 2016).

During the review of the literature it is clear that orientation is of utmost importance for graduates and new employees coming into the critical care environment. Orientation programs impact positively not only on the retention of the orientees but also on the turnover rate of the unit and ultimately the hospital. This outweighs the costs of recruitment and vacancies. The aim of the orientation program in Finland is to ensure safe, quality patient care and to attract employees to the hospital (Peltokoski et al. 2015).

A positive practice environment in two Finnish hospitals can be created through the orientation program and is pivotal to the recruitment and retention of competent workforce (Peltokoski et al. 2015). It is common to have structured orientation programs in place to support novice critical care nurses for a defined period of time (Brindise et al. 2015). Participation in a transition or adaptation program showed an

improvement in the planning, prioritisation, communication, leadership, support and professional satisfaction of the newly graduated staff members and this was found regardless of the duration of the program. Nurses who attended an orientation program as well as integration into the workplace gained additional benefit than those who did not attend the orientation program. Taking part in a formal transition (orientation program) ensured improved transition experience into the workplace in Canadian Hospitals (Rush et al. 2015). Comprehensive orientation programs should be the healthcare organisations fundamental steps in retention strategies for the organisation (Peltokoski et al, 2015).

2.4.1 Duration and Content of the Program

There appears to be little consensus regarding the duration of the program nor the format. Several authors were unable to find evidence that the length or duration made a difference. Edwards et al. (2015) conducted a systematic review of thirty studies relating to orientation programs for nurses and concluded that the overall impact of the programs, whatever their nature, was positive irrespective of the type of support provided. The very fact that a program is provided seems to improve feelings of confidence and competence in nurses. Rush et al. (2013) had similar difficulty in concluding best practices for transition, or orientation, programs. Based on the literature reviewed they considered that the length, type of education and support provided varied considerably, and yet all seemed to result in improved retention and cost benefits. Xu and He (2012) point out that the content of the transition programs depends on the characteristics of the nurses attending them as deficits such as language and cultural issues may have to be addressed in addition to other content. In their comparison between the programs offered in three countries (United Kingdom, Australia and Canada), they did however, note that all three concentrated on regulatory issues. This notion is supported by Peltokoski et al (2015) who believe that orientation familiarises employees with the work environment, policies and expectations of the organisation The duration of programs reviewed were between one day and twelve months (Simone et al. 2016). Long et al. (2013) suggested that the duration could be extended, dependant on the progress of the individual graduate or orientee. They further suggest that both didactic and clinical components are important and should be included in the orientation program, and that preceptors are pivotal to the success of the program and should work on the unit with the orientees, who are allocated to them for the duration of the program.

In 2006, the Novice Nurse Leadership Institute began a practice-based program with the aim of supporting the transition of newly qualified professional nurses and assisting them with leadership development. This program utilised different teaching methods and these candidates selected from their organisations entered the program which began each September and lasted through to the end of June of the following year which is a 10 month program (Dyess & Parker, 2012). At the University Maryland Medical Centre the orientation program that newly hired practitioners attend is a two day hospital orientation, followed by a one day advance practice provider (APP) orientation. The total orientation program is twelve to twenty six weeks duration depending on the competency expectations of the individual nurse and the knowledge needs (Simone et al. 2016). In the study by Rush and Adamack (2013), it is suggested that the orientation should be at least four weeks in length and that the new graduate should work at least forty nine hours in a two week period (Rush et al. 2013).

Orientation programs that are specifically tailored to the new staff member coming into the critical care unit are especially beneficial. Orientation programs should be tailored to ensure a smooth transition process for the orientee and should be in line with the scope of practice of the category of nurse (Simone et al, 2016).

Orientation programs need to be structured and comprehensive and in so doing will ensure the successful integration of the new nurse into the critical care unit. A comprehensive program is necessary for the orientation program to contain standardized general and specific competency based training which will meet the needs of all types of critical care units (Simone et al, 2016).

2.4.2 Presentation of Orientation Programs

Orientation programs may take different forms including mentorship which can be formal or informal and can affect the satisfaction and retention of the nurse in the critical care environment. The mentor can be regarded as the preceptor who will then facilitate the growth of the individual nurse beyond the orientation period. This mentorship involves open communication, sharing of information and constructive feedback (Simone et al. 2016). In this healthcare climate where hospitals need to appear attractive to prospective employees is has been seen that employee orientation has the potential to influence the attractiveness of a hospital (Peltokoski et al. 2015).

In South Africa clinical facilitators or preceptors are utilised in the units to assist with the orientation of the newly appointed staff member to the unit. As stated by Sandau

and Halm (2010), preceptors assist orientees to acquire basic unit specific skills and become familiar with patients, protocols and units culture. The Critical Care Nurse Fellowship Program, a specialised critical care year program, was developed, utilising two tertiary hospitals in New York (Friedman et al. 2011). The program involved a one to one preceptorship with a clinically experienced critical care professional nurse on the unit of practice with the fellow (orientee). The preceptor is required to attend a preparatory class before they can be assigned to a critical care fellow. The critical care fellow shadows the exact work schedule of the preceptor to ensure educational continuity. A critical care competency checklist, now referred to as a clinical pathway, must be used by the nurse manager and preceptor as well as the fellow to document the clinically safe practices before the fellow can progress to subsequent semesters (Friedman et al. 2011). It is evident that the allocation of preceptors are pivotal to the successful orientation and socialisation of the orientee into the unit. Preceptors assist with a progression plan of patient management during the orientation program (Simone et al. 2016).

There are orientation programs which integrate interactive computer programs with didactic content (Radovich et al. 2011). This form of learning can form the basis for leadership development and affords the learner the opportunity to engage and apply their skills in the real life situations. It was mainly found to be utilised in manager orientation. It has also been found that where interactive computer programs have been utilised, some of the orientees require more engagement. Scenarios are given to the orientees to work through. Simulation is a tool which can be utilised in a variety of clinical settings and is an opportunity even in the orientation of novice managers to apply best practice knowledge and standards (Radovich et al. 2011).

Wilson, et al. (2015) described the utilisation of caring groups as part of a new graduate orientation program in order to facilitate a smoother transition into clinical practice. These caring groups assisted the new graduates to learn to value themselves and others and in so doing were eased into both professional and nursing practice.

2.5 COMPETENCY, COMPETENCIES AND COMPETENCE

The word ‘competence’ is often used rather loosely and it is important to interrogate the terminology and the issue of whether competence occurs at varying levels as this study inevitably needs to measure competence or competencies of the enrolled nurse as part of the adaptation program.

Sinah (undated) provides what may be an over-simplified explanation saying "competence describes what people can do while competency focuses on how they do it". This implies that the former refers to skills whilst the latter refers to behaviours. tenCate and Scheele (2007) seem to support this notion as they point out that while competencies are usually formulated as broad and general attributes, as soon as educators try to assess competencies, they draw up a list of skills or activities that the candidate is required to perform. Pijl-Zieber et al. (2014) refer to competence as a 'quality or state of being' and go on to say that competence implies that a person not only possesses competencies but is also able to use them in a given context. Competency, on the other hand represents an integration of knowledge, skills, values and attitudes. They further differentiate between generic skills and specific skills.

There have been various attempts to develop 'competency domains' in an attempt to group generic skills in order to make assessment feasible. This has been done for medical doctors (Englander et al. 2017), for psychologists (American Psychology Association, 2015), for midwives (Smith, Muldoon & Biesty, 2012) and nurses (Shin et al. 2014) – all in an attempt to introduce competency based assessments. These important efforts nevertheless still rely on reducing the various domains into observable behaviours.

The discussions and arguments about the differences between competency, competence and competencies have continued despite an earlier article (Cowan, Norman & Coopamah, 2005) where the authors, after an extensive literature review on the subject, concluded that the dichotomy between competence being perceived as either a psychological construct or behavioural objectives is redundant. They believe we should move towards a more holistic view of it and continue to conduct research into how better to assess such a holistic concept.

Levels of competence have also been debated for many years and various models suggest there are levels of competence. Benner (1982), suggested levels of competence – from novice to expert – where she discusses levels of clinical competence acquired as nurses gain experience. This was based on the work of Dreyfus (1980) who developed a skills development model suggesting five stages of competence viz. novice, competent, proficient, expert and master. For each of these skills levels, there are mental functions attached, namely recollection, recognition, decision, and awareness. This is a useful way of understanding competence in the context of this study where it is important to distinguish between the levels required by

the enrolled nurse working in critical care units and the specialist nurse working in the same environment. Some further insights were provided many years ago by Miller (1990) whose work is often quoted as a seminal work and his model referred to as "Miller's Prism of Clinical Competence" or "Miller's Pyramid". In this model the lower levels of competence relate to fact gathering or 'knowing' followed by 'knowing how' or interpretation and application. Both these levels are levels of cognition. The higher level is that of behaviour where learning is demonstrated and performance is integrated into practice (when one becomes an expert). Each level requires knowledge, skills and attitudes. Ramsburg (2010), in her attempts to develop a "skills acquisition model for nurse educators, developed descriptors for a novice, an advanced beginner, a competent person, a proficient person and an expert. In her 'competent domain", she defines the competent person as "performance reflects a mental model of how intent is achieved through…tasks, but depends on analysis and planning rather than intuition. (She) prioritises tasks and predicts …outcomes based on experience". Performance is based on a rigid plan that is not adapted to account for the unexpected." This definition of competence would seem reasonable to adopt for this study as this level of discernment is important in a critical care situation where "tasks being paramount to everything else" as in Ramsburg's definition of advanced beginner would not make the enrolled nurse a safe practitioner in a critical care environment. Elhami (2018) based a self-evaluation model on Benner's Theory. The purpose was a self-evaluation of nurses' clinical competence. This self-evaluation study was based in Iran and it was found that nurses working in the critical care environment were more competent than nurses from the general wards. It was found that self-evaluation was an effective method of reviewing competence (Elhami et al, 2018).

It is important to ensure that the orientees are 'competent" to work in the critical care units. Competence of the nurses working in the critical care units should be an outcome of an orientation program. In the United States, the National Council of State Boards of Nursing has made advanced efforts to address the competencies of newly licenced professional nurses transitioning into professional roles. Competence of nurses is defined by the United Kingdom Central Council for Nursing, Midwifery and Health Visiting (UKCC) in 1999 in Lakanmaa et al. as "the skills and ability needed to practice safely and effectively without the need for direct supervision". Competence in nursing is related to patient outcomes and patient safety issues e.g. medication errors and nosocomial infections (Lakanmaa et al. 2013). It has been proposed that in

addition to the requirements of general orientation, competency is demonstrated in several skill areas and these have been identified as: safety, interdisciplinary communication and measures for clinical nursing management of specific diseases. From the literature reviewed, it is evident that orientation programs culminate in the assessment of the orientees. Competency is assessed by competency based assessment tools which may vary. Lakanmaa et al. (2013) pursued the theory that competence can be examined through self- assessment, observation and mentor or peer evaluation. According to Cowan, Norman & Coopamah (2005), self-assessment is recommended as the most accurate and least threatening way of assessing competence. However, Lakanmaa et al. (2013) believe that self-assessment as a form of competence assessments in critical care units, should be regarded with caution. As competence is a multidimensional concept, Lakanmaa et al (2013) believe that a knowledge test, which is a more objective method of evaluation should always be used alongside self-evaluation competence evaluation instruments.

The different methods of evaluation which make up the assessment of competence are dependent on the individual institutions requirements but can include chart audits, observation of clinical practice, peer feedback, standardised competency assessments, ongoing professional practice evaluations and an annual 360-degree performance evaluation which is confidential anonymous feedback from work colleagues (Simone, McComiskey & Andersen, 2016). Baseline assessment and competence assessment before the commencement of the orientation helps to target clinical support and focus on educational needs and development (Peltokoski et al. 2015). Kopf (2018), showed that having a validated curriculum on which to base the program helps the newly qualified nurse improve their practice in the transition phase into the critical care environment. The Novice Nurse Leadership Institute Program (NNLI) Program was led by the University and a mixed methods approach was employed with a pre-post evaluation design (Dyess & Parker, 2012).

2.6 CONCLUSION

In this chapter a background has been given based on evidence in current literature related to orientation or adaptation programs generally and specifically for assisting enrolled nurses to adapt to the critical care environment. In the next chapter, the methodology used in this study will be described.

CHAPTER 3 : RESEARCH METHODOLOGY

3.1 INTRODUCTION

In this chapter the method of data collection is described. Research methodology is the principles and ideas on which researchers base their procedures and strategies (Holloway & Wheeler, 2010). The research method will involve how the research is conducted, including the population sampling, data collection and data analysis.

3.2 RESEARCH SETTING

The research setting is the location where the study is conducted (Burns & Grove, 2013). Brink, van der Walt & Van Rensburg (2013) refers to the research setting as the specific place where data is collected. The decision as to where data is to be collected is based on the nature of the research question and the type of data that is needed to be addressed (Brink, van der Walt & van Rensburg, 2013). There are 3 settings which are commonly utilised for conducting research, namely natural, partially controlled and highly controlled.

The setting which was utilised for this research study was a natural setting. The hospital that was chosen belongs to a private healthcare group, which is one of the largest healthcare groups in South Africa, providing healthcare mainly to the medical aid funded market. However, a smaller number of patients who do not have medical aid make use of these facilities and are called private patients. The hospitals within this private healthcare group are made up of small, medium, large and large high-tech hospitals. High-tech hospitals are hospitals using advanced technology e.g. hybrid theatres for vascular procedures and offer, amongst others invasive and non-invasive cardio-thoracic surgery and neurosurgery. It was decided to conduct the pilot of the research study in a large high tech hospital in Gauteng, South Africa. This hospital has a total of three hundred and thirty three (333) beds and seventy four (74) critical care beds. The rationale for choosing this hospital was that it is the largest hospital in the region where it is situated and has the highest number of critical care beds. The critical care units in this private hospital are classified according to the following disciplines, medical unit, neurosurgical unit, cardiac unit, cardio-thoracic unit, surgical

unit and neonatal unit. It was decided to utilise the medical and surgical critical care units as the participants in the research study were from these units.

The study was conducted in phases, and although all phases took place in the same hospital group, various phases utilised different parts of the group, in that not all hospitals participated in all phases of the study. The competency assessment was conducted within two units. The competency assessment was conducted on patients within the medical and surgical critical care units. The pilot adaptation program and the knowledge assessment, pre and post-test as well as the nominal groups and expert feedback group were conducted within the confines of the "classroom" setting. The venue that was provided was a mini boardroom, situated in the training centre, away from the critical care units. The environment was conducive to the nominal group and group sessions as it was private and quiet and allowed for sufficient space for the participants to be comfortable and to freely discuss the questions posed to them. The other two hospitals selected for nominal group discussions and who were not part of the pilot program was two medium size hospitals in Gauteng, South Africa. The one having a total of one hundred and thirty four (134) beds with eleven (11) critical care beds and the other one hundred and ninety four (194) beds with twenty six (26) critical care beds. A small hospital was selected for the study but they did not have enrolled nurse participants so they were then excluded from the study. These additional size hospitals were selected so that there could be representation from across the board and that this program could be replicated post study in all critical care units regardless of the size of the hospital or the critical care unit.

3.3 POPULATION

A population is the entire group of persons that is of interest to the researcher that meets the criteria that the researcher is interested in studying (Brink, van der Walt & van Rensburg, 2013). Population is a particular group of people that are the focus of the research (Burns & Grove, 2013). Inclusion criteria are utilised by researchers as the basis of whether an individual would be classified as a member of the population. There are criteria which would then lead the researcher to exclude certain individuals from the population (Brink, van der Walt & van Rensburg, 2013). Population is described by Creswell as a group of individuals who comprise the same characteristics (Creswell, 2014). The population for this study is enrolled nurses, and professional nurses qualified in critical care nursing working in a private healthcare group involved

in critical care. This study was done in the private healthcare group where a specific need had been identified to improve the competence of enrolled nurses.

3.4 SAMPLE

Sampling refers to the researcher process of selecting the sample from a population in order to obtain information regarding a phenomenon in a way that represents the population of interest (Brink, van der Walt & van Rensburg, 2013). The size must be adequate. A sample is a part or a fraction of a whole or a subset of a larger set, selected by the researcher to participate in the research study (Burns & Grove, 2013). The sample consists of a selected group from a defined population. A sample is a small representation of a whole. Size and representativeness are the most basic considerations in sampling. A sample comprises elements of the population considered for actual inclusion in the study. A sample is a small portion of the total set of objective, events or persons (de Vos and Strydom et al. 2014:223). The sample for this study comprised enrolled nurses who had been working in the critical care units for six months or more, as well as preceptors and unit managers of the said critical care units who were all professional nurses with a post basic qualification in critical care nursing.

Purposive, sampling was utilised to select the enrolled nurses, preceptors and unit managers to participate in the research study. Purposive sampling is also referred to as purposeful or selective sampling and the researcher consciously selects certain participants to be included in the study (Burns & Grove, 2013). Purposive sampling is purposeful and can also include the site or the setting of the research (Holloway & Wheeler, 2010: Kindle). Homogenous sampling was utilised. Homogenous sampling involves selecting participants who all belong to the same subculture or who have similar characteristics e.g. enrolled nurses and professional nurses who are unit managers or preceptors within the critical care units selected (Holloway & Wheeler, 2010: Kindle). This is the best way to gain insight and in depth understanding of the adaptation program. Enrolled nurses who were employed in the selected critical care units who met the inclusion criteria were selected. The unit managers of the selected units as well as the preceptors were also selected to be part of the research study and formed part of the nominal groups. There were fifteen enrolled nurses, four unit managers and three preceptors as part of the study. The enrolled nurses were selected after discussion with the individual unit managers to see which of them had been

working within the units for six months or more. They were then selected and invited to be part of the group. The unit managers and preceptors were chosen by default as they occupied the positions that were selected as part of inclusion into the study. The expert group was made up of experts in nursing education and critical care nursing as well as professional nurses selected from the critical care units where the study was undertaken, who are specialists in critical care nursing, as well as a medical doctor who is a specialist physician with vast critical care experience, will be utilised to give feedback on the pilot project.

3.5 RESEARCH DESIGN

This study is an intervention research study utilising multiple methods to explore the content of existing adaptation programs and to develop a standardised adaptation program for critical care units within critical care units of a private healthcare group in Gauteng, South Africa. Research design is the blueprint for conducting a study (Burns & Grove, 2013). The blue print is a broad pattern or guide. Qualitative research is a form of social enquiry and focuses on the way people make sense of their experiences (Holloway & Wheeler, 2010). Qualitative research focuses on the views of people involved in the research as well as their perceptions, this is applicable to the enrolled nurses' opinion of the past and piloted adaptation program (Holloway & Wheeler, 2010, kindle). Fraser (Fraser, et al. 2009, Kindle) describes interventional research as having six stages, namely:

Stage 1 - Problem Analysis

Stage 2 - Information gathering and synthesis

Stage 3 - Design of the intervention

Stage 4 - Early development and pilot testing

Stage 5 - Experimental evaluation

Stage 6 - Dissemination.

Only four of the six steps described by Fraser were be utilised in this research study as described below. The design of the research was divided into phases as follows:

- Phase 1 - Information gathering and synthesis
    - Document content Analysis
    - Nominal Groups

        - Enrolled Nurses
        - Unit Managers
        - Preceptors
    - Knowledge Assessment
- Phase 2 – Design of the intervention
    - Development of adaptation program content
    - Validation by expert group
- Phase 3 – Pilot testing – Early Development
    - Pilot adaptation program
        - Pre-test
        - Post-test
        - Practical assessment
        - Questionnaire
            - Enrolled Nurses
            - Professional Nurses
        - Discussion group (Validation by expert group)

Stage 1 is the proposal and stage 5 and 6 will be conducted post study as a larger group will be required for advanced development and rollout of the adaptation program.

Table 3.1: A representation of the Sample and Research Design

FRASERS STAGES	FRASERS RESEARCH STAGES	RESEARCH PHASES	METHODS	SAMPLE
1	Problem Analysis	Proposal		
2	Information gathering and synthesis	Phase 1	• Content analysis • Nominal groups • Knowledge assessment	• Enrolled Nurses • Unit Managers • Preceptors
3	Design of the intervention	Phase 2	• Development of material • Validation by expert group	• Professional Nurses who are qualified in critical care nursing and nursing education
4	Early development and pilot testing	Phase 3	• Pilot Adaptation Program • Pre-test • Post-test • Practical assessment	• Enrolled Nurses • Enrolled Nurses • Enrolled Nurses • Enrolled and Professional Nurseess

			• Questionnaire • Validation by expert group	• Professional Nurses, Unit Managers, Preceptors and Enrolled Nurses
5 & 6	Experimental evaluation and advanced development and dissemination	Post Study		

3.5.1 Qualitative research

Qualitative research is defined as a rigorous, interactive, holistic, subjective research approach used to describe life experiences and give them meaning (Burns and Grove, 2013). Qualitative studies are often utilised to examine the effectiveness of an intervention. Qualitative approaches offer substantial value to the development, feasibility and validation of nursing interventions (Burns & Grove, 2013). Qualitative research is a form of social enquiry and focuses on the way people make sense of their experiences (Holloway & Wheeler, 2010, Kindle). Qualitative research helps develop an understanding of human experiences qualitative research is described by Creswell as an inquiry approach useful for exploring and understanding a central phenomenon. In order to learn more about this phenomenon the researcher asks the participants broad, general questions and collects the detailed views of the participants in the form of words and analyses the information for description and themes.

During the research the researcher must be sensitive to the context of the research and the conditions in which the researcher gathers the date, the locality, the time are important. In qualitative research the events which are studied take place every day and this is seen in the study whereby the participants are evaluated in areas which are applicable to every patient nursed each day in the critical care units, this demonstrated that contextualisation is important in a qualitative study (Holloway & Wheeler, 2010, Kindle). During qualitative research the individuals give their explanations of an event or are able to give the researcher the insiders view and are best able to describe the situations and their own feeling in their own words.

This format of information gathering was utilised in the nominal groups where the participants provided information in their own words about the current adaptation programs (Holloway & Wheeler, 2010, Kindle).

3.5.2 Intervention Research

Intervention research is research which examines the effects of an intervention having relevance to nursing (Burns & Grove, 2013). Intervention research investigates the effectiveness of an intervention in natural settings (Burns & Grove, 2013). An intervention is an action which is undertaken to maintain the wellbeing or functioning of an individual or a group (de Vos et al. 2014). Intervention research is defined by de Vos and Strydom et al (2014:475) as studies carried out for the purpose of conceiving, creating and testing innovative human services approaches to preventing or ameliorating problems or to maintaining quality of life. Interventions should be deliberate, structured, sustainable, valid and reliable and lead to clearly identifiable outcomes and benefits for the participants of the program.

The outcomes of the adaptation program are to ensure that competent enrolled nurses enter the critical care units at the end of the program when they commence working within the critical care units, thus improving quality patient care and mitigating patient risks. Nursing interventions are deliberate actions.

Nursing interventions are all actions which are required to address a particular nursing problem or issue (Burns & Grove, 2013. During intervention research it must be specified as to what the researcher is doing, to whom, when, how often and where the research will be conducted. In so doing there will be reflection on the research intervention used. This is called monitoring interventions and in this way it can be ensured that the objectives and the uniform application of the intervention is achieved and that it is compared to other interventions and that it can be replicated in other settings (de Vos et al. 2014). Intervention based research encompasses a broad range of investigations which examines the effects of any interventions: having relevance to nursing.

Nursing interventions are defined as “deliberate cognitive, physical, or verbal activities performed with or on behalf of individuals that are directed towards accomplishing particular therapeutic objectives relatives to individuals health and well-being” (Grobe 1996, cited in Burns & Grove, 2013). Nursing interventions are nurse initiated. Nursing interventions can also be used to describe actions which are required to address a particular nursing problem or issue (Burns & Grove, 2013).

An intervention can be regarded as: a) a treatment, protocol or clinical tool to improve the patient care process and patient outcome. b) An educational program devised to

educate the patient. c) An educational program targeted at nurses. d) Leadership practice to change staffing patterns or improve the workplace environment (Burns & Grove, 2013). The adaptation program for enrolled nurses is an educational program which is targeted at the enrolled nurses working in the critical care units.

Sequencing of interventions is an important aspect of intervention research. A single intervention may be studied at one point in time and are reserved for interventions that require limited exposure to produce a response e.g. one time educational interventions (Burns & Grove, 2013). Stage-based interventions are tailored to a specific phase of recovery or response to treatment or change in behaviours. Therefore this is applicable to this study as it is staged and the intervention was assessed per phase and outcomes of each phase were assessed by means of post-tests and competency assessment.

The interventions can be delivered to: a) study participants as they progress into different phases along a continuum or recovery trajectory over time, or b) discrete or selected samples in various settings at various points in the recovery or along a continuum (Burns & Grove, 2013). According to Burns and Grove (2013), interventions are developed to address problems or issues in practice.

If a different practice strategy is developed to improve current services or current strategies are enhanced then intervention research is engaged (Fraser et al. 2009 Kindle). Fraser defines intervention research as the process of creating the elements of an intervention and refining those elements in a series of studies (2009: Kindle). During intervention research the researcher needs to understand the practice and conditions which affect the provision of the service (Fraser et al. 2009). An adaptation program has multiple nursing actions that are implemented to assess the nurse's competence to practice in the critical care units. Nursing interventions are all actions which are required to address a particular nursing problem or issue (Burns & Grove, 2013).

Intervention research includes evaluation and entails the formulation and evaluation of the new program. Intervention research results in two products, namely a detailed description of the new program and the evaluation of the effectiveness of the program (Fraser et al. 2009 kindle). According to Fraser, intervention research results in two products: 1), a detailed description of the new program. 2), an evaluation of the effectiveness of the program. The intervention was the development of an adaptation

program for enrolled nurses to ensure their competence in caring for patients within the critical care units which will be rolled out post study. The effectiveness of the new program was evaluated with a small pilot study. A full roll out as envisaged by Fraser will only be done as a post-doctoral study. During this research study Frasers 6 steps of intervention research were used.

3.6 DATA COLLECTION

Data collection is the precise, systematic gathering of information relevant to the research purpose of the specific objectives, questions or hypotheses of a study (Burns & Grove, 2013). Data collection in intervention research involves not only accurate collection of study outcomes but also accurate documentation of the study intervention. Investigators must keep track of any unexpected circumstances that may occur during the implementation of the study. This is done in the form of field notes and can be of vital importance to the interpretation of study participants' responses during data analysis phase (Burns & Grove, 2013). Data collection involves the selection of subjects and the gathering of data from these subjects. Data can be collected in many ways e.g. observation, testing, questioning and recording. The researcher is actively involved in the collection of data or supervisors others in the data collection process (Burns & Grove, 2013).

Data was collected between October 2015 and November 2017, utilising the Frasers intervention six stage method, incorporating the three phases of this research design as follows:

3.6.1 Problem Analysis and Project Planning

In Frasers model problem analysis is stage one, and this was covered by the proposal. The study begins with information gathering and synthesis.

3.6.2 Phase 1: Information gathering and Synthesis

3.6.2.1 Document Analysis

This phase consisted of a document analysis of existing adaptation programs which were in place in the hospitals which were included in the study. Content analysis was done of existing adaptation programs by means of a summative content analysis of all the different existing programs. A summative content analysis was chosen due to the nature of the data which consisted of mainly short phrases and single words. Summative content analysis was done by identifying particular words or content in a

text. This was then followed by the interpretation of the underlying context (Hsieh & Shannon, 2005). This was done to establish commonalities and gaps in the programs. The researcher took into consideration why the documents were originally developed. The documents that were analysed were all the documentation that was utilised in the current adaptation programs and were mainly tick sheets of content which needed exposure to by the newly appointed employee.

3.6.2.2 Nominal Groups

Nominal groups of enrolled nurses, preceptors and unit mangers were convened. In addition a knowledge assessment of enrolled nurses was conducted. Nominal groups involving the enrolled nurses, unit managers and preceptors were utilised to determine their perceptions of the effectiveness of existing adaptation programs and how they could be improved. Nominal groups are structured face to face meetings with a group to bring about group consensus. Nominal groups provide an orderly procedure for obtaining relevant information from a group of experts. The group responds to pre-determined structured questions (Harvey & Holmes, 2012). Nominal group technique also requires no preparation by the participants so is not labour intensive and does not take up any additional time. At the end of the session the outcome of the discussion is immediately available to the participants (Harvey & Holmes, 2012).

Nominal groups for enrolled nurses, unit managers and preceptors were held separately. This was to ensure that the enrolled nurses felt freer and less intimidated to speak openly without their line managers and preceptors being present in the same discussion group.

The sites selected were the critical care units of the two (2) medium hospitals and the medical and surgical critical care unit of the large high tech hospital.

The participants were selected utilising purposeful sampling. Participants comprised of enrolled nurses working in the critical care units who met the inclusion criteria. Unit Managers of the selected critical care units and clinical training specialists, who will be referred to for the purpose of this study as Preceptors. Nominal groups for Enrolled Nurses, Unit Managers and Preceptors were held separately. All the enrolled nurses from each facility were grouped together per hospital and then the Unit Managers and Preceptors were grouped together in another group at each facility

The information obtained during the nominal groups was then analysed utilising the summative content analysis method. The following questions were posed to each of the nominal groups during the sessions:

- What problems have you identified with the current adaptation program in your hospital?
- What do you think will improve the adaptation program to ensure competence of enrolled nurses in critical care units?

3.6.2.3 Nominal Group Sessions

The participants were purposefully selected and the groups were divided as specified above. The participants sat around a central table with the large “brown paper” centrally situated. The nominal group was facilitated by an expert in nursing education, who had previous experience in facilitating nominal groups. She holds a degree of Doctor Curationis and assisted with all the nominal group data collection for this research study. An external facilitator was utilised in order not to introduce bias from the researcher into the study who is both an expert in education and critical care nursing.

The researcher and facilitator was introduced to the group and the objectives of the research were communicated including the fact that ethical clearance had been obtained for this study from Medical Ethics Committee of the University of the Witwatersrand. The background leading up to the research was also discussed and questions answered for clarification. The consent information document was discussed (Annexure H) with the participants and consent was obtained (Annexure G). It was highlighted to them that they could withdraw from the study at any time. Question 1 and question 2 were discussed separately. Question 1: What problems have you identified with the current adaptation program in your hospital? Question 2: What do you think will improve the adaptation program to ensure competence of Enrolled Nurses in the critical care units? The question was read out to the participants and clarified (Annexure I). A hard copy of the question was available on the desk next to the “brown paper” for them to refer to.

Small square pieces of paper were handed out to each participant and they were asked to each write down their ideas on the piece of paper, without discussing this with one another at this stage, what problems they identified with the current adaptation program in their hospital. This is referred to by Harvey and Holmes (2012) as the silent

generation of ideas. They were given some time to think about this and further clarification was given where necessary. After some time, when they had all finished writing on their pieces of paper, they then handed their papers to the facilitator. At the same time as they handed their paper to the facilitator they discussed what they had written down on their paper. The paper was then affixed to the “brown paper”. The ideas were shared and the facilitator asked if there was anyone else who had the same idea. The ideas that were of same theme where then grouped together on the “brown paper” this discussion is referred to by Harvey and Homes (2012) as the round robin technique. They then continued to share their ideas around this one idea until this had been exhausted. They then moved onto the next idea in this same fashion until all the ideas had been affixed to the “brown paper”. A consensus was achieved and common themes were identified and it then emerged what were the common areas which indicated what they felt were problems with the current adaptation program. This is the final phase in the nominal group process and is referred to by Harvey and Holmes (2012), as the voting and ranking phase which involves asking the group to prioritise the ideas which had been recorded. They all agreed on the importance of all of the ideas that were generated during this session. This process was followed for the subsequent question.

This information was then analysed according to summative analysis of content.

3.6.2.4 Knowledge Assessment

A knowledge assessment test was compiled utilizing fundamental knowledge that would be expected to be in place for an enrolled nurse, working in the critical care environment and the Scope of Practice of an Enrolled Nurse. The knowledge assessment test comprised of twenty six (26) multiple choice questions (Annexure J). The questions covered the following systems; respiratory system, seven questions; neurological system, two questions; endocrine system, two questions; renal system, one question; cardiovascular, eight questions; pharmacology, five questions and neurovascular, one question.

A multiple choice question format was used to ensure objectivity. The questions were piloted tested on thirty two (32) student nurses at an institution other than the research site at the commencement of their academic year as they had also been exposed to two years training as are the enrolled nurses. The pilot was carried out to ensure the questions were valid and specifically a discrimination level and a difficulty level was determined for each question.

The answers to each question were loaded onto an Excel spreadsheet and marked as correct or incorrect. The difficulty index is calculated by dividing the number of candidates who gave a correct answer by the total number of students in the group.
A score of > 0.75 is considered to indicate that the question is easy and a score of < 0.25 is difficult. An acceptable score indicates that the average student will give the correct answer.
In order to calculate the discriminatory index, which is intended to assess whether a question discriminated between high level and low level candidates, the candidates are first ranked according to their results as high level or low level candidates. If a question does discriminate, which it should, the question will have a positive discrimination index (between 0 and 1). If, however, more low-performing candidates answered correctly, the question would have a negative discrimination index (between -0.1 and 0).

With the exception of one question or item on the multiple choice test, the discrimination and difficulty levels were acceptable and the test was used on the enrolled nurses included in the study.

The participants were purposefully selected after discussion with the Unit Managers. The small hospital was excluded from the study due to the fact that they did not have any enrolled nurses employed in the critical care unit at the time of the research study. A pre-test was conducted to evaluate the participants existing knowledge prior to the adaptation program and a post-test was conducted to evaluate if there was any improvement in this knowledge post adaptation program. Enrolled nurses from hospitals that were not part of the pilot program were utilised as part of the control group and also completed the post-test (Annexure L). The results of both the pre-testing of the multiple choice questions (MCQ's) and the knowledge assessment itself will be discussed in Chapter 4 of this research study.

3.6.3 Phase 2: Design of the Intervention

In this phase the researcher developed the intervention based on the information gathered and synthesised in phase 1. The intervention was designed and measured to assess its effects. The development of the adaptation program was done (written material) utilising data obtained from phase 1 (Fraser et al. 2009, Kindle). Information obtained from the content analysis of the existing adaptation programs and nominal

groups were utilised in the development of the program. Five (5) professional nurses who are qualified in critical care nursing and experts in critical care nursing and have further expertise in nursing education as well as a specialist physician with vast critical care experience, reviewed the draft adaptation program and made suggestions to the content of the program (Annexure K). The program was adapted and compiled according to these suggestions and implemented (Annexure N). The expert group was used to check for content and validity. This phase involved the development of the adaptation program utilising the steps of the ADDIE Model and evaluation of the program by the expert group. The ADDIE Model is an instructional system design model. Instructional design utilises a systematic approach to solving a systematic problem. It begins by identifying the performance problems of the learners and then decides if instruction is the appropriate solution. The ADDIE model is a cycle and is flexible and allows a step to be revisited at any time (Davis, 2013). Systemic approach consists of instructional design theories such as ADDIE (Davis, 2013). The goal of ADDIE is effective instruction that helps prepare the participants to meet their work requirements (Clayton Allen, 2006). By attending the adaptation program the researcher intends for the participants to be prepared to meet the work requirements which are to competently care for the critical care patient and deliver quality patient care. ADDIE was created to represent flexibility and during the process it allows for the developers to enter and re-enter the various stages of the model as needed (Clayton Allen, 2006) in so doing the researcher can adjust the training material to meet the needs of the participants of the study to maximise output. During each phase of the ADDIE process, evaluation of the phase occurred. ADDIE consists of the following steps: analysis, design, development, implementation and evaluation.

3.6.3.1 Analysis Phase

This phase incorporates analysis of job performance requirements and development of a task list. The job tasks are compared with the skills, knowledge and abilities of the participants. The difference between what they know and what the job requires those to know determines what instruction is needed (Clayton Allen, 2006). During the analysis phase of the study the researcher utilised the Joint Performance Management document (JPM) for enrolled nurses working in the critical care units. This was a document which is utilised by all critical care units within this healthcare group, detailing the expected outputs of an enrolled nurse working in the critical care units. It is signed

off as a contract of agreed outputs between the Unit Manager and the Enrolled Nurse within three months of employment and thereafter at the beginning of the financial year for every year of employment. This document was utilised to evaluate the said enrolled nurses performance every six months during the financial year of employment with a new “contract” being signed annually. This outlined the key performance areas and outputs that the enrolled nurse working in the critical care unit was responsible for. The Scope of Practice for Enrolled Nurses, Regulation R.2598, regulating all persons who are Registered or Enrolled under the Nursing Act of South Africa, was also utilised as a guide as to what the enrolled nurse could do whilst working within the critical care units. The researcher also utilised the themes which were identified from the nominal group discussions held for enrolled nurses, Unit Managers and Preceptors where the following questions were asked; 1) what problems have you identified with the current adaptation program in your hospital? 2) What do you think will improve the program to ensure competence? During the analysis phase the difference between the knowledge that was already in place and what knowledge the enrolled nurse were expected to have was tested in the form of a knowledge assessment test. This was in line with the ADDIE model which stated that the difference between what they already knew and what the job required them to know was an indication as to what instruction was necessary (Clayton Allen, 2006). The information from the content analysis of existing adaptation programs was also taken into account. In so doing the researcher developed the content for the standardised adaptation program for enrolled nurses working in critical care units. During the analysis phase the problem was identified (Davis, 2013). The problem was that the adaptation programs that were currently in place were not adequate and it was for this reason that a new and improved adaptation program needed to be developed. During this phase, it was decided what the learner must learn (Davis, 2013). Learning objectives were defined. This step formed the blueprint for the program. Timelines could also be developed during this phase of the ADDIE model (Davis, 2013).

3.6.3.2 Design Phase

Learning activities and assessments were determined (Davis, 2013). The adaptation program was designed utilising information obtained from research phase 1 and this will be described in Chapter 4 of this research study.

3.6.3.3 Development Phase

Learning content was built including assessments and assignments. Technologies to be utilised was also identified (Davis, 2013). The adaptation program was identified based on the design step. Once this was done the draft was then sent to the expert group for comment and feedback. The content was then refined based on this feedback. This will be described in Chapter 5 of this research study.

3.6.3.4 Implementation Phase

In this step prototypes are tested and if necessary instructors and then students are tested (Davis, 2013:205). The adaptation program was tested as a pilot project. This will be discussed further in Chapter 6 of the study.

3.6.3.5 Evaluation

This is the final stage of the ADDIE model. Formative and summative evaluations were conducted. Formative measurements of learning, are outcomes that are conducted during the instruction process and summative measurements is outcomes after instruction (Davis, 2013). The evaluation of the adaptation program was done in the form of a pre-test which was done prior to the commencement of the program and then at the end of the day a post-test was conducted. Six to ten (6-10) weeks after completion of the adaptation program a further post-test and competency assessment was done. A further evaluation of the program was done by means of an expert group discussion. This will be discussed in Chapter 6 of the research Study.

3.6.4 Phase 3: Early Development and Pilot Testing

In this phase the intervention was tested for the first time. The pilot testing of an intervention is useful as it determines whether the intervention will work and is feasible. It also guides the refinement of the intervention and works out any problems or issues with the implementation. It also refines the training program to ensure that the study program is understandable. During the pilot it determined how long it would take to implement the intervention which is the adaptation program. The pilot highlighted any problems in gaining access to study participants and how the participants reacted to the intervention. It also tested the feasibility of the design (Burns & Grove, 2013). Pilot studies should be conducted in a setting similar to those planned in the proposed study (Burns & Grove, 2013). It is for this reason that the critical care unit of a large high tech hospital was utilised as this could then be replicated in critical care units of all size

and level. The aim of the pilot program was to test the feasibility of the adaptation program (Burns & Grove, 2013) prior to national rollout at a later stage after completion of this study. The pilot was run using participants who met the inclusion criteria. There were ten (10) participants. However on the day of the program one of the participants was ill and was not able to attend the program. An independent facilitator who is a professional nurse, qualified in critical care nursing and an expert in the field of critical care facilitated the program. The program was run over one (1) day. During this phase the pre-test was conducted on the enrolled nurses immediately prior to commencing the program and then the post-test was conducted at the conclusion of the day, post completion of the adaptation program (Annexure L). The same post-test was again utilised in the evaluation of the enrolled nurses ten (10) weeks post adaptation program, as the participants needed time to consolidate their knowledge. The same pre-test and post-test was utilised on the enrolled nurses who were not part of the pilot program to assess their knowledge based on experience gained whilst working in the unit. A competency assessment was also conducted during this phase (Annexure M). On conclusion of the pilot the enrolled nurses who were part of the pilot, were requested to complete a semi-structured written questionnaire in which the following questions were asked to evaluate the program (Annexure O):

- How did you benefit from the new adaptation program?
- What did you find positive about the adaptation program?
- What did you find as negative about the adaptation program?
- What was the most significant difference between the original adaptation program and the new adaptation program?

The professional nurses working in the critical care units involved in the study were asked to complete a semi- structured written questionnaire in which the following questions were asked (Annexure P). This was to evaluate the impact of the adaptation program on the professional nurses working in the critical care units:

- Has the adaptation program lessened the burden on the professional nurses?
- Are the enrolled nurses more competent to work in the critical care unit?

An expert group was convened to discuss the findings of the pilot adaptation program and this was done in the form of a focus group. The focus group consisted of Unit Managers of the specific critical care units involved in the study, a Preceptor, a

Professional Nurse with a qualification in critical care nursing, an expert in Nursing Education who was also the facilitator of the nominal groups, enrolled nurses who had participated in the study as well as the study supervisor for this research study. A focus group involves a number of people, with common experiences or characteristics who are interviewed by the researcher for the purpose of eliciting ideas, thoughts and perceptions about a specific topic (Holloway & Wheeler, 2010, Kindle). This was done to obtain feedback regarding the pilot adaptation program. During the focus group the interviewer becomes the facilitator and during this focus group discussion the interviewer was the researcher (Holloway & Wheeler, 2010, Kindle). The skills that were needed to facilitate this group included the ability to stimulate the discussion and also to have insight and interest in the ideas of the members of the discussion group. As the researcher was deeply involved in the study it was quite easy for her to facilitate this group and to bring together all the points of the discussion and to draw out any information that was needed. An audio recording was utilised to record the discussion group and this was transcribed including, laughter and notes about pauses and any other disturbances during the discussion group (Annexure Q). During the focus group the facilitator utilised the opportunity to ask further questions which produced more ideas as well as prompting for clarification (Holloway and Wheeler, 2010, Kindle).

Kirkpatrick's Evaluation Model was utilised to evaluate the adaptation program for enrolled nurses as well as the expert group discussion. Kirkpatrick's Evaluation Model was introduced in 1959 when he first published a series of articles describing a four-stage evaluation model (Abernathy, 1999). In 1975 he published a book Evaluating Training Programs which then defined these originally published works and even though this is seminal work which was published long ago we find that it is still relevant today and his theory has now become arguably the most popular model for evaluating training and learning and is widely utilised by HR and training communities. Kirkpatrick four steps to evaluating training programs are summarised as: Step 1, reaction; Step 2, learning; Step 3, behaviour; Step 4, results (Kirkpatrick, 1979). The four levels of Kirkpatrick's evaluation model essentially measured the following:

- Reaction of the student – what they thought about the training
- Learning - the resulting increase in knowledge or capability
- Behaviour – extent of behaviour and capability improvement
- Results – the effects on the business or environment.

3.6.5 Evaluation and Advanced Development

In this phase intervention outcomes are assessed. This will be conducted post study.

3.6.6 Dissemination.

This involves dissemination of research findings and intervention materials and will occur post study.

3.7 TRUSTWORTHINESS

Trustworthiness in qualitative research refers to methodological soundness and adequacy (Holloway & Wheeler, 2010, Kindle). The results of the study must be accurate and dependable. The research described in detail and showed how the researcher came to her conclusion as suggested by Holloway & Wheeler (2002).Trustworthiness ensures the quality of the data and is based on the model of Lincoln and Guba and consists of four (4) criteria for developing trustworthiness of a qualitative study, namely, credibility, dependability, confirmability and transferability (Brink, Van der Walt & Van Rensburg, 2013).

3.7.1 Credibility

This refers to confidence in the truth (Brink, Van Der Walt & Van Rensburg, 2013). By conducting the evaluations and being present at the nominal discussions, the researcher to gained an in-depth understanding of the phenomenon as well as the participants. Feedback from professional nurses selected from the units was received. The researcher has been a professional nurse for thirty years and a critical care nurse for twenty eight years. The researcher also utilised the expertise of the expert group to validate the information received both from feedback on the adaptation program as well as during the development of the program and on conclusion of the program validation was obtained from an expert group. Holloway & Wheeler (2010) describes credibility as the researcher's findings are compatible with the perceptions of the participants that are being studies.

3.7.2 Dependability

This tests the stability data overtime and that the evidence will be the same if it were repeated in similar circumstances in a similar context the same results would be obtained (Brink, van der Walt & van Rensburg, 2013). Guba and Lincoln 1989, cited in Holloway and Wheeler (2013) state that if findings of a study are dependable then they should be consistent and accurate. The context of the research should be described

in detail with evidence of an audit trail (Holloway & Wheeler, 2010, Kindle). It is for this reason that more than one hospital was utilised as it was believed that the same result would be obtained over the different sites sampled. The study may not be replicated but in similar circumstances the study may be repeated with similar results.

3.7.3 Confirmability

This confirms that the data received represents the information provided by the participants and that the interpretation of data has not been fuelled by the imagination of the researcher (Brink, Van der Walt & Van Rensburg, 2013). Research is judged by the way in which the findings and conclusions achieve their aim and are not the result of the researcher's prior assumptions and preconceptions (Holloway and Wheeler, 2010, Kindle). The data received must not be biased and it is for this reason that the participants were not known to the researcher and the sessions recorded and transcribed verbatim. The study was not conducted in the hospital where the researcher works and the participants were not known to the researcher, nor did they report to the researcher. The data was described accurately and not tampered with and there was no danger that during interpretation the researcher imposed their own ideas and in so doing distorting the meaning of the participants information. During the nominal group session the researcher utilised the expertise of an independent assistant who was not known to the participants which ensured that the participants were not lead in any way and prevented bias in the study. When confirmability exists then the reader can trace the data back to its original source (Holloway and Wheeler, 2010, Kindle). An audit trail was kept. This was possible as there was evidence available of the nominal groups, knowledge assessments, pre and post-tests and expert group feedback.

3.7.4 Transferability

This ensures that findings in one context can be transferred to similar situations or participants (Holloway and Wheeler, 2010, kindle). The ability to apply the findings in other contexts or to other participants (Brink, van der Walt & van Rensburg, 2013). The strategy of purposive sampling was applicable here where enrolled nurses were purposively selected for this study which maximised the range of specific information which was obtained. Purposive sampling is a strategy which can be utilised to enhance transferability (Brink, Van der Walt & van Rensburg, 2013).

Trustworthiness was ensured during this study in the following ways:

Member checking. During expert group session the facilitator frequently summarised and referred back to what was said this was done in order that feedback was given to participants to ensure that there was an opportunity given to the participants to correct or change any mistakes which they feel that they may have made, to assess the researchers understanding of what was said and to interpret data. This was also valuable as it gave the participants the opportunity to challenge the ideas of the researcher. This ensured trustworthiness of the research and helped avoid misinterpretation or misunderstanding of the participants' words or actions (Holloway & Wheeler, 2010, Kindle).

Triangulation: This is where the process by which the topic is examined from different perspectives (Holloway and Wheeler, 2010, Kindle). The researcher utilised methodological triangulation in this study. This is where the researcher utilises two or more methods in one study to answer a similar question (Holloway & Wheeler, 2010, Kindle). The researcher utilised knowledge assessment, document analysis, nominal groups, pre-test, post-tests and competency assessment. The information received was then verified by the utilisation of expert groups, both to verify the content of the pilot program and then to verify the findings of the pilot program as well as feedback questionnaires from both the enrolled nurses who were part of the pilot program and the professional nurses currently working in the critical care units which were part of the study. The final expert group was utilised to cement the findings.

Reflexivity: This means that the researcher critically reflects on their own preconceptions and monitors their relationships with the participants and their reactions to participants' accounts and actions (Holloway & Wheeler, 2010, Kindle). This was ongoing throughout the study. The researcher ensured that there was an independent expert available to assist with the pilot adaptation program as well as the nominal group data collection to ensure and monitor their relationship with the participants. The participants were not known to the researcher in that the researcher had no direct managerial or line function to the participants. The participants and the researcher worked at different hospitals. Data was collected through the various means discussed in the chapter.

Peer examination: Peers or experts in the field of critical care and education were utilised during this study as experts and assisted with evaluation of the pilot program content and analysed the content and gave feedback on the proposed content. There

was also an expert group which then gave feedback at the end of the pilot program and assessment phase.

Audit trail: All research should have an audit trail by which others are able to judge its validity. This is a detailed record of the decisions made before and during the research and a description of the research process (Holloway & Wheeler, 2010, Kindle). This was available in the form of field notes. The documented evidence (brown paper documentation) of the nominal groups, feedback from the expert group in finalisation of the content of the adaptation program and the expert group discussion to evaluate the adaptation program. Feedback from the enrolled nurse and professional nurse questionnaires, knowledge assessment tests, pre and post tests and competency evaluation documentation, as well as feedback information from both the enrolled nursed and the professional nurses working in the critical care units as well as all the evaluation instruments available for audit purposes.

3.8 ETHICAL CONSIDERATIONS

The researcher is responsible for conducting research in an ethical manner through all the research phases and failure to do so may have negative consequences (Brink, Van der Walt & van Rensburg, 2013). Ethical considerations are aimed at protecting the research participants from harm when they are involved in the study (Dunsdon, 2011. There are three fundamental ethical principles which guide researchers namely; respect for persons, beneficence and justice and are based on following human rights that need to be protected, self-determination, privacy, anonymity, confidentiality, fair treatment and being protected from harm (Brink, Van der Walt & van Rensburg, 2013). The following ethical principles were taken into consideration by the researcher during this study:

3.8.1 Principle I: Principle of Respect for Persons

The participants have the right to autonomy. They have the right to decide if they want to participate in the study and they also have the right to decide to withdraw from the study at any time without any penalty. They also have the right not to give information and to ask for clarity and information at any time (Brink, Van der Walt & van Rensburg, 2013). This was explained to all the participants at the beginning of the study and all information was given to them in this regard when the consent to participate in the study was obtained. The participants had the right to expect that the information gathered would remain anonymous. Anonymity was ensured and identities were not

revealed during the course of the study. As far as possible the study information that was gathered will remain anonymous and this was explained to the participants. However, it was difficult to guarantee absolute anonymity with information obtained from the nominal group sessions as this was a face to face discussion and the information was shared in the group and it could not be guaranteed with other participants in the group. This was discussed and explained to the participants at the beginning of each nominal group session and all participants were comfortable with this. As far as the remainder of the research was concerned anonymity was guaranteed. Data was also processed anonymously. The participants in the study were not from the same hospital where the researcher was currently working, nor did the researcher have any supervisory relationship with any of the participants. None of the information gathered during proceedings of the groups was divulged to their managers, so their position was not jeopardized by participation in this research study. In the event that the participant was deemed incompetent in the competency assessments and the patients safety was jeopardized then it would be addressed by holding a discussion with the participant, preceptor and unit manager and a plan of action discussed. This was clearly explained in the information letter and consent document. Anonymity was guaranteed in the following ways. All participants were given a code and this code was used with the pre and post-tests as well as the competency evaluation. The master list of participants and the matching code numbers were retained in a safe place. The process of ensuring confidentiality refers to the researcher's responsibility for preventing data which has been obtained during the study from being linked to the individual participants and then made available to other parties (Brink, Van der Walt & van Rensburg, 2013). The rights of the participants were protected by obtaining an informed consent. An informed consent (Annexure H) was obtained from all participants prior to their involvement in the study. The participants were also given an information document (Annexure G) laying out the purpose of the study, procedure, risks/ discomfort, benefits, how confidentiality would be maintained, feedback on findings and where to address any queries.

3.8.2 Principle II: Principle of Beneficence

The researcher needs to secure the well-being of the participant and has a right to protect the participant from discomfort and harm (Brink, Van der Walt & van Rensburg, 2013). This was particularly relevant to the nominal group sessions where the researcher monitored the group to ensure that the participants were not uncomfortable

or placed in a position where they were uncomfortable or exposed, as the information that they were given was not entirely anonymous due to the nature of the group. As the researcher also conducted the competency assessments within the critical care unit it was important that respect was shown to the institution and the culture of the individual critical care units. During the data gathering phase the researcher ensured that the experience was a positive one for the participants and attempted to place them at ease and the evaluation was done in a non-threatening way. This was also done by reinforcing that their job was not in jeopardy by the outcome of the evaluation process but that it was there to obtain data.

3.8.3 Principle III: Principle of Justice

This is the participants rights to fair selection and treatment. The researcher must select with fairness the study population in general and the participants in particular. Participants should be selected for reasons directly related to the research project and not only because they are readily available (Brink, Van der Walt & van Rensburg, 2013). The participants were also not coerced to participate in the study and it was highlighted that they were free to withdraw from the study at any time without any reprisal.

3.9 CONCLUSION

In this chapter the methodology of the research study was discussed. This involved the research setting, how the participants were selected and the research design. Strategies to ensure trustworthiness and ethical considerations were also described.

CHAPTER 4 : FINDINGS OF PHASE 1 (INFORMATION GATHERING)

4.1 INTRODUCTION

Phase 1 of the study involves information gathering as described as stage 2 of Frasers Interventional research. The research methods were described in chapter three and this chapter describes the findings of phase 1 of the study.

Below is a diagrammatic representation of the sample and research design which was discussed in detail in chapter 3. The shaded area in Table 4.1 below indicates the research with methods and samples utilised in this chapter for the development of the educational program.

Table 4.1: A representation of the Sample and Research Design highlighting the phases and stages under discussion

FRASERS STAGES	FRASERS RESEARCH STAGES	RESEARCH PHASES	METHODS	SAMPLE
1	Problem Analysis	Proposal		
2	Information gathering and synthesis	Phase 1	• Content analysis • Nominal groups • Knowledge assessment	• Enrolled Nurses • Unit Managers • Preceptors
3	Design of the intervention	Phase 2	• Development of material • Validation by expert group	• Professional Nurses who are qualified in critical care nursing and nursing education
4	Early development and pilot testing	Phase 3	• Pilot Adaptation Program • Pre-test • Post-test • Practical assessment • Questionnaire • Validation by expert group	• Enrolled Nurses • Enrolled Nurses • Enrolled Nurses • Enrolled and Professional Nurses • Professional Nurses, Unit Managers, Preceptors and Enrolled Nurses
5 & 6	Experimental evaluation and advanced development and dissemination	Post Study		

During this phase data was collected from three main sources namely, existing adaptation programs (the document analysis), knowledge assessment of the enrolled

nurses and nominal groups held with the unit manager and preceptors. The data collected from each of these sources will be described separately.

4.2 CONTENT ANALYSIS OF EXISTING ADAPTATION PROGRAM

The content of the existing orientation program, which, going forward will be referred to as the adaptation program, was requested from the critical care units of the selected small, medium and large high-tech hospitals of this private healthcare group in Gauteng, South Africa. A summative content analysis was utilized to analyse the content of five existing adaptation programs. Particular words were identified in the content and this was done to establish commonalities and gaps in the programs. A summative analysis was chosen as the nature of the data consisted mainly of short phrases and single words. A detailed description of the findings of the summative content analysis will now follow.

4.2.1 Findings

An initial overview of the adaptation programs revealed that no formal adaptation program specific to critical care existed in any of the units identified. The adaptation programs took the form of a macro- and micro- unit specific induction program. Some of the content of the adaptation programs was clearly out of the scope of practice of the enrolled nurse, e.g. blood gas sampling, cardiac output monitoring, arterial pressure monitoring, management of a pacemaker and nursing a patient on continuous renal replacement therapy (CRRT). The adaptation program appears to be a generic adaptation program which can be inter-changeably utilized for professional nurses and enrolled nurses. One of the adaptation documents submitted was noted as being specifically for enrolled nurses, but, when the content was analysed it was not applicable to critical care, but was for the rehabilitation sector and was thus excluded from the sample. Each newly appointed employee of the small, medium 1 and the large high tech hospital was issued with the hospital / unit specific adaptation document which was in the form of a tick list of topics that needed to be covered. There was no documented time frame for the completion of the tick sheet. However, it was noted in the document from the large high tech hospital that the document needed to be completed within three months of commencing work in the critical care unit. In the documentation submitted from the medium hospital 2, it was noted that there was no tick sheet to be completed however, an adaptation program booklet was handed out to new appointees which then detailed the orientation to the unit. There was no

evidence that a record was retained as proof that the staff member had been inducted or found competent at the end of the program. There were also no outcomes or competencies stated nor any documented evidence submitted for analysis of assessment of competence of the enrolled nurses. The summative content analysis revealed that all content was divided up into the following main categories:

- General Orientation
- Human Resources
- Procedures / skills
- Nursing Care

The main content of the orientation program is illustrated in Table 4.2 below:

Table 4.2: Table illustrating the main content of the orientation programs

General Orientation	Human Resources	Procedures/ Skills	Nursing Care
Multi-Disciplinary team interaction	Organogram	CCU Procedures	Nursing
Equipment	Optimal staff utilisation	Protocols	Nutrition
Quality Policy	HR issues and training	Job Skills	Prescription chart
Communication		Pharmacy	Specific diseases
Review Meetings		Laboratory	Quality
Client services		Blood and Blood Products	General
Dr specific guidelines		Blood gas	Documentation
Support services		Chest x-ray	Training
EN responsibilities		Blood Values	
Duties of the EN		12 Lead ECG	
Doctor communication		ICD	
Abbreviations		General assessment	
Orientation		Ventilation	
Unit layout		Administration of medication	
Safety Health environment		Drug dose calculation	
CCU routine		Policies and procedures	
		CCU medication	

It was evident that the adaptation program currently in place involves completion of a tick list, which was signed off by another staff member. There was also no evidence that there was any assessment of knowledge base. The tick list could also be utilised to indicate that the staff member had been shown or instructed in that element and there is no assessment of the understanding or competence, nor, specifically, what was demonstrated or taught. The adaptation document (tick chart) required signoff by an evaluator in the large high tech hospital, but it was not evident who the evaluator was or should be, or what the criteria required to be an evaluator. The document was signed off by an inductor in the small hospital with no specification or criteria for the inductor. The large high-tech hospital also provided the new employees to the unit with an orientation manual which covered the following broad topics in addition to the adaptation tick chart:

- Prescription charts
- Administration of medication
- Telephonic prescriptions
- Communication with Doctors
- Drug Dosage calculations
- Accepted abbreviations

4.3 CONTENT ANALYSIS OF NOMINAL GROUPS

Details of the method followed for this section was given in chapter 3.

Nominal groups involving the enrolled nurses, Unit Managers and Preceptors were utilized to determine their perceptions of the effectiveness of existing adaptation programs and how the adaptation program could be improved.

Nominal groups for enrolled nurses, unit managers and preceptors were held separately. There was a total of twenty two participants of the nominal groups. The two questions where then discussed with the participants and consensus obtained as to the important themes.

Question 1, what problems have you identified with the current adaptation program in your hospital? Question 2, what do you think will improve the adaptation program to ensure competence of Enrolled Nurses in the critical care units?

Three themes were identified in respect of question one with six categories, and four themes were identified in respect of question 2 with twelve categories as shown in table 4.3. below.

Table 4.3: Themes and categories identified during nominal groups

QUESTION	THEME	SUB-THEME
What problems have you identified with the current adaptation program in your hospital?	Lack of a standardised program	• Not specific to ENs • Not consistent from unit to unit
	Lack of time	• Staff time • Training time
	CCU Documentation	• Complex documentation • Insufficient training
What do you think will improve the adaptation program to ensure competence of Enrolled Nurses in the critical care units?	Standardised program	• Training materials / requirements • Time and timing • Control • Outcomes • Teaching methods
	Mentoring	• Support • Role modelling
	Soft Skills	• Inter-personal skills • Caring • Stress management
	Improved selection/ staffing	• Adequate numbers • Proficiency

4.3.1 Problems with Current Adaptation Programs

The members of both the manager's group and the enrolled nurse group had been selected to participate in the nominal group due, at least in part, to the fact that they were familiar with the current programs having either designed the, worked in the units with the nurses being orientated or had themselves been orientated recently. They were clearly dissatisfied with the current practices in relation to orientation.

4.3.1.1 Lack of a standardised program

Concerns related to this theme were raised by enrolled nurses and managers alike who believe that, should a standardized program that is used throughout the hospital group be developed, many of the other problems would be obviated. Comments such as "there is no formal program", "they are not all on the same level", "there are no

specific competencies", "there is no standardisation" and "each unit has a different orientation document" were made in both groups.

The concern that there was no program specific to enrolled nurses was felt mainly by the enrolled nurses themselves who felt that the current orientation document which was utilised was aimed at the professional nurses and that there was no specific orientation document for the enrolled nurses. Clinical training specialists were, however, not sure what to assess the enrolled nurses on, there was no standardised skills with a lack of time to do these assessments, whereas the enrolled nurses complained that differing amounts of time were spent in the different units. This lack of standardisation meant that enrolled nurses were assessed differently from one another and had differing amounts of time to learn new skills which is not fair or educationally sound.

4.3.1.2 Lack of time

It was evident from the nominal groups that both the managers and the enrolled nurses felt that not enough time was currently spent on orientation to ensure the nurses were safe and confident practitioners. The problem stemmed from both a shortage of trained staff (and therefore not enough time to spend on orientation) and a lack of time dedicated specifically to orientation.

The unit manager and preceptors stated "that there was lack of time for orientation due to the fact that the unit was too busy". This lead to the current program being done ineffectively with little follow up. Night duty also posed a challenge as it was "difficult to orientate on night duty".

The enrolled nurses were very loquacious about this issue stating that "there is no time for the shift leaders to do any orientation", "shift leaders have no time to teach and the shortage of staff (workload) impacts on the time available to orientate". The business of the unit also adds to this problem and, in the opinion of the enrolled nurses, is a very important factor as to why the orientation is not taking place.

With regards to lack of training time as such, it was also stated that "there was little time for orientation and often less than five minutes at a time" and "I was allocated a ventilated patient and thrown in at the deep end." "There was not time to go to orientation" and "sometimes we are not even orientated and when we are given the booklet we get the booklet late for six months." One enrolled nurse said, "It takes a long period for a person to undergo orientation program after being employed" and

another “in the unit you don’t get orientation, you have to ask around until you are used to the unit and also how to use the monitors. Sometimes the sisters are very busy”.

The enrolled nurses stated that this made the orientation ineffective and this was clarified as not having enough time to be orientated. They clearly had an understanding of the issues causing the lack of time for orientation in that “it is difficult to replace the staff when the enrolled nurses is sent for micro orientation” and “the preceptors have many units to cover and are not there every day.”

4.3.1.3 CCU documentation

Not as much time was spent on this theme as those discussed above back the problems were clearly of major importance to patient safety and of great concern to the enrolled nurses.

The CCU documentation is unlike that in the general wards and therefore enrolled nurses who trained in the organization would not have encountered the documentation during their training. The enrolled nurses found the documentation to be complex and difficult to understand. The enrolled nurses stated that “there was limited orientation to the CCU documentation and there was no orientation to the CCU chart specifically” The CCU chart is the document used for routine and regular patient data. One enrolled nurse stated “I am struggling with the CCU chart and there is a lack of orientation of CCU documentation.”

4.3.2 Improvement of the Program

While the participants in both groups had been keen to air their concerns about the current programs in the previous section, they were equally forthcoming with ideas on how to remedy those problems.

4.3.2.1 Standardized program

In the section above the participants had expressed a need for a standardized program. When asked how to improve the adaptation program this issue was addressed. In the opinion of the nominal groups, standardization should involve standardized material, time, outcomes and teaching methods and there should be a standardized method of controlling or checking compliance to the program.

With regard to the training materials, participants felt that there should be standardised guidelines, training materials as well as requirements and that orientation books should be printed with protocols etc. included in them. One of the managers also stated that

there “needs to be a specific orientation tool for the enrolled nurses to complete as stated by the preceptors and unit managers.”

Several participants in both groups raised the issue of standardising the time needed or given to orientation. The times suggested for a suitable adaptation program varied from “three to six months” to “at least a week” and “a short course for three days” to “monthly in-service training.” Some simply stated that “time frames need to be agreed upon” and that “enough time needs to be spent with the facilitator to learn specific skills”. One of the enrolled nurses stated that “they should have at least one week dedicated to the program where they are not working with patients.”

There was little agreement to the exact amount of time participants felt was needed but there was consensus on the matter of standardizing and organizing the time and that it should be effectively used.

With regard to control, it was clear from the nominal groups that participants wanted ways to be implemented to ensure competencies were met by the enrolled nurses. There appeared to be consensus that a printed orientation book was required but the suggestions as to how control should be enacted varied. One participant suggested that the enrolled nurses should “do an OSCE” (Objective Structured Clinical Evaluation), several thought that specific competencies should be stated in this printed books and that nurses should be given a specific time in which to get these signed off as competent.

The many references to outcomes and competencies indicated that a document should indicate what the requirements should be before the enrolled nurse was deemed competent.

Not a great deal was said about teaching methods but participants indicated that facilitators needed to spend time with the enrolled nurses so that they could practice with guidance and under supervision. One participant indicated “a need for rotation through the various units to gain a broader knowledge and understanding of the work in case of transfer to other units”. The enrolled nurses indicated that “the preceptors should participate more in the critical care units.” The words facilitator and preceptor seemed to be used interchangeably.

4.3.2.2 Mentoring

Participants in both groups were of the opinion that the enrolled nurses needed support during the orientation period in order to be effective members of the team. Mentoring in this context is to mean support from more senior members of the team. Ways of providing such support, or mentoring varied between “a buddy system”, preceptors and managers being allocated to specific enrolled nurses, mentors being allocated within a unit, all senior staff being required to provide mentorship, that preceptorship, mentoring and coaching should be included. One enrolled nurses said that “the mentoring should include discussion of a patient’s condition and about the patients themselves”.

With regard to role modelling, there was consensus between the groups that “the preceptors and managers need to be positive and send the right message” and that “the role model needs to be passionate” and also, more broadly, that “it is important also to have a correct role model.”

4.3.2.3 Soft skills

There was an understanding within the groups that skills and knowledge on their own do not make a competent enrolled nurse and that “something more” was required. These soft skills related to attributes that enabled the enrolled nurses to be part of a harmonious team and to work effectively with other people and patients. The specific issues the participants raised were inter-personal skills, caring and stress management.

The unit managers and preceptors were of the opinion that the enrolled nurses “need to be taught how to greet patients and need to be like an air hostess”, and that “communication and customer care skills should be included in the program”.

Both groups identified caring as important with the managers’ group saying that “soft skills are important to utilize the (company’s) principles of ‘*gentle care*’ of how to treat patients and colleagues” and emphasized that “attitude is also very important”. The enrolled nurses on the other hand spoke in more specific terms saying that ‘soft skills (including caring and inter-personal skills) incorporates patients, family and the multi-disciplinary team and should be specific to CCU” and that “this is important for communication and customer care”.

Both groups raised the issue of stress management and the importance of teaching the enrolled nurses to manage the stressful environment in CCU.

4.3.2.4 Improved selection and/or staffing

Throughout the nominal group session with the enrolled nurses, the issue of shortage of staff and proficiency of staff was raised and the concern related both to trained staff available to teach the enrolled nurses and to the enrolled nurses themselves. One enrolled nurse stated that “the units need to have enough staff to allow someone to orientate them”. Another emphasized the level of training required to orientate enrolled nurses adequately saying “there needs to be enough trained CCU staff or shift leaders to teach the enrolled nurses.”

The consensus statements across the nominal groups regarding the above identified themes were utilised when developing the adaptation program for the pilot group. The theme of lack of standardisation of adaptation programs and specific adaptation programs for enrolled nurses, is linked to the findings of the content analysis of the existing adaptation programs which shows that there is currently no standardised adaptation program nor is there an adaptation program designed specifically for the enrolled nurses working in the critical care units.

4.4 KNOWLEDGE ASSESSMENT TEST

As explained in chapter 3, the multiple choice questions that were used for the pre- and post-test were subjected to testing for difficulty level and to calculate a discrimination index, developed as per the table.

Table 4.4. Below, indicates the results of this process. The pink cells indicate where questions were calculated to be difficult and the green cells indicate the questions were calculated as easy. When the discrimination index was calculated, three answers were problematic but only two of these also showed the question were either ‘easy’ or ‘difficult’.

The knowledge assessment test was compiled utilizing fundamental knowledge that would be expected to be in place for an enrolled nurse, working in the critical care environment and the Scope of Practice of an Enrolled Nurse. The knowledge assessment test comprised of twenty six (26) multiple choice questions. The questions covered the following systems; respiratory system, seven questions; neurological system, two questions; endocrine system, two questions; renal system, one question; cardiovascular, eight questions; pharmacology, five questions and neurovascular, one question (Annexure L).

Table 4.4: Results of validation of multiple choice questions

Question	Correct answer	Number correct	Difficulty index	Number students in lower group with correct answer	Number students in higher group with correct answer	Difference	Discrimination index	
1	a	29	0.9	14	15	1	0.03	
2	d	6	0.2	2	4	2	0.06	
3	a	16	0.5	5	11	6	0.19	
4	a	27	0.8	11	16	5	0.16	
5	c	23	0.7	11	12	1	0.03	
6	a	22	0.7	7	15	8	0.25	
7	d	5	0.2	1	3	2	0.06	
8	b	9	0.3	2	7	5	0.16	
9	b	29	0.9	14	15	1	0.03	
10	d	23	0.7	10	13	3	0.09	
11	a	26	0.8	12	14	2	0.06	
12	a	19	0.6	7	12	5	0.16	
13	d	5	0.2	3	2	-1	-0.03	*
14	a	9	0.3	3	6	3	0.09	
15	a	26	0.8	14	12	-2	-0.06	*
16	c	15	0.5	4	11	7	0.22	
17	b	2	0.1	1	1	0	0.00	
18	c	2	0.1	0	2	2	0.06	
19	a	31	1.0	15	16	1	0.03	
20	a	23	0.7	13	10	-3	-0.09	
21	a	31	1.0	15	16	1	0.03	
23	a	31	1.0	15	16	1	0.03	
24	d	21	0.7	8	13	5	0.16	
25	b	29	0.9	13	16	3	0.09	
26	b	29	0.9	14	16	2	0.06	
		Indicates "difficult" question.						
		Indicates "easy question"						
		indicates a "problem" with discrimination						
	* indicates question where both difficulty and discrimination were a problem							

The participants were purposefully selected after discussion with the Unit Managers. The small hospital was excluded from the study due to the fact that they did not have any enrolled nurses employed in the critical care unit at the time of the research study. The results of the knowledge assessment reflect as follows:

- Neurovascular system = 100% of the questions answered correctly
- Pharmacology = 79% of the questions answered correctly
- Endocrine system = 63% of the questions answered correctly
- Cardiovascular system = 59% of the questions answered correctly
- Respiratory system = 54% of the questions answered correctly
- Neurological system = 36% of the questions answered correctly
- Renal system = 0% of the questions answered correctly

On analysis of the knowledge assessment test the renal system scored the lowest, followed by the neurological system, the respiratory system and the cardiovascular system. The endocrine, pharmacology and neurovascular system were the areas where the knowledge was found to be the best. It became evident from this that the systems of renal, respiratory, neurological and cardiovascular needed to be included in the adaptation program. These systems are also fundamental in the management of the patient within the critical care unit.

The pass mark was taken as 50% as this is the pass mark for tests at the Nursing College affiliated to this Healthcare Group. The individual participant's scores showed that all of the participants passed the knowledge test with the average for the group being 63%. The lowest was 53% and the highest percentage achieved was 82%. This is illustrated in Table 4.5 below.

Table 4.5: Knowledge assessment results of individual participants

PARTICIPANT	PERCENTAGE
FKA1	56
FKA2	53
FKA3	67
FKA4	82
FKA 5	62
FKA6	56
FKA7	59
FKA8	62
RHLH1	56
RHLH2	73
RHLH3	68
AVERAGE %	63%

4.5 CONCLUSION

The information gathered from the content analysis of existing adaptation programs, the themes identified from the nominal groups and the knowledge assessment test was utilised in the development of the material for the adaptation program and will be discussed in Chapter 5 of this study.

CHAPTER 5 : RESEARCH PHASE 2 (DESIGN OF THE INTERVENTION)

5.1 INTRODUCTION

The information obtained from analysis of the existing adaptation programs, the nominal groups and the knowledge assessments written by the enrolled nurses were used to design the intervention which will be described in this chapter. The intervention (educational program) was designed according to the ADDIE Model.

5.2 DESIGN OF THE INTERVENTION

Below is a diagrammatic representation of the sample and research design which was discussed in detail in chapter 3. The shaded area in Table 5.1 below, indicates the research with methods and samples utilised in this chapter for the development of the educational program.

Table 5.1: A representation of the Sample and Research Design highlighting the phases and stages under discussion

FRASERS STAGES	FRASERS RESEARCH STAGES	RESEARCH PHASES	METHODS	SAMPLE
1	Problem Analysis	Proposal		
2	Information gathering and synthesis	Phase 1	• Content analysis • Nominal groups • Knowledge assessment	• Enrolled Nurses • Unit Managers • Preceptors
3	Design of the intervention	Phase 2	• Development of material • Validation by expert group	• Professional Nurses who are qualified in critical care nursing and

FRASERS STAGES	FRASERS RESEARCH STAGES	RESEARCH PHASES	METHODS	SAMPLE
				nursing education
4	Early development and pilot testing	Phase 3	• Pilot Adaptation Program • Pre-test • Post-test • Practical assessment • Questionnaire • Validation by expert group	• Enrolled Nurses • Enrolled Nurses • Enrolled Nurses • Enrolled and Professional Nurses • Professional Nurses, Unit Managers, Preceptors and Enrolled Nurses
5 & 6	Experimental evaluation and advanced development and dissemination	Post Study		

The ADDIE model was utilised in developing the program to be utilised in the pilot Adaptation Program. The ADDIE model is a five-step instructional design (Danks, 2011) and comprises the following steps; analysis, design, develop, implementation and evaluation. By attending the adaptation program the researcher intends for the participants to be prepared to meet the work requirements which are to competently care for the critical care patient and deliver quality patient care.

The method of developing the program was explained in chapter 3.

5.2.1 Analysis

During this phase the researcher developed a detailed plan of instruction, utilising the information gained from the analysis phase, Phase 1. - Content analysis was done of the existing adaptation programs, common threads identified from the nominal group feedback and the information was gathered from the document analysis of the existing adaptation programs, as well as the information gained from the knowledge assessment. Once the information was identified and gained the researcher then developed a detailed list (Table 4.2) from each of the areas where data was collected which were identified as shortfalls or lacking in the initial adaptation program, or knowledge assessment. This list was then utilised to in the development of specific content and criteria which was utilised in the development of the adaptation program.

5.2.2 Design of the Adaptation Program

In designing the adaptation program the researcher utilised the four curriculum components namely, learning outcomes, subject matter, teaching process and assessments (Quinn & Hughes, 2007). The researcher decided to utilise an outcomes base approach in the design. Mtshali (Uys & Gwele, 2005) believes that outcomes based curricula require competencies to be developed and refer to knowledge, skills and attitudes required to be demonstrated by students when performing a task-(Mtshali in Uys & Gwele, 2005) which was an important aspect for the adaptation program. Tam (2014) warns against the use of the word “competencies“ as they are so often referred to as skills only and advocates avoiding the use of the word in an outcomes based curriculum as there is no common understanding of the term. This issue was raised in chapter 2 of this study and accordingly, the term ‘learning outcomes’, when used on an individual level define what the learners are intended or expected to achieve and how they will demonstrate those achievements (Tam, 2014). They do however, include knowledge, skills and outcomes and this adaptation program was designed to assist the enrolled nurse to integrate these domains in order to achieve this outcomes. Adam (2015) also points out that outcomes are “contextually demonstrated end products of specific learning processes”. The context in this case was the critical care units in the private hospital group.

An outcomes based curriculum concentrates on what the learner is intended to learn rather than concentrating on what will be taught, hence the emphasis on assessing what the student should know, understand and what they should be able to do as a result of learning.

Outcomes based education can be defined as education which is learner centred, starting with a clear picture of what is important for students to do. The curriculum, instruction and assessment of the student is then organised in such a fashion ensuring that education takes place (Singh & Ramya, 2011). Outcomes based education is aimed at ensuring that the learners are equipped with the necessary knowledge and skill when they exit the program and that they meet the identified selected outcomes for all the students (Singh & Ramya, 2011).

5.2.3 Development of the Adaptation Program

After making decisions on the design of the program the researcher then set about developing the adaptation program. This was done utilising the information that was gathered during the analysis phase and an interactive process was followed. The comprehensive list of areas and topics referred to in 5.2.1 was used as a starting point. The researcher used her knowledge of the content for which the program was being developed, being the situations which the enrolled nurses encountered in there every day work in the critical care environment. Based on this information the learning outcomes were developed. A learning outcome can be described as the knowledge, skills attitudes and values that the enrolled nurse should have acquired at the end of the adaptation program (Quinn & Hughes, 2007).

Each outcome should include: 1. An action word that identifies the performance level of understanding and significance of the learning to be achieved by the student. 2. A statement that specified the conditions of the performance level of understanding and/or significance of learning and 3. A broad statement of the criterion or standard for acceptable performance, level of understanding and / or significance of learning that has taken place (Armstrong, 2017)

The researcher listed per identified systems, the embedded or basic knowledge that should be in place. After this the researcher then listed the content which was to be covered in order to meet the outcome. The practical component of the program where the enrolled nurse can be observed in executing certain procedures and in the final competency assessment (Quinn & Hughes, 2007) was also considered when developing the outcomes and the knowledge, skills and attitudes. The program was developed utilising the specific outcomes, embedded knowledge (fundamental knowledge that was expected to be in place), criteria to be covered (subject matter) to meet the specific outcomes. The cognitive domain level was indicated as well as the

method of instruction, which was either a contact session or practical exposure in the critical care unit or simulation. The method of assessment was then identified and this was either by means of a knowledge assessment or assessment of competency – in this case the patient competency assessment (Annexure M). The systems included were the respiratory system, the cardiovascular system, the neurovascular system, the renal system, the gastro intestinal system and then pharmacology.

Once the outcomes were developed, the Canada College (undated) checklist for assessing the quality of the outcomes was applied (Annexure R). This checklist includes the following criteria:

1. Does the outcome support the program objectives?
2. Does the outcome describe what the program intends for students to know (cognitive), think (affective, attitudinal), or do (behavioural, performance)?
3. Is the outcome important/worthwhile?
4. Is the outcome: a. Detailed and specific?
   b. Measurable/identifiable?
   c. A result of learning?
5. Do you have or can you create an activity to enable students to learn the desired outcome?
6. Can the outcome be used to make decision on how to improve the program?

This then formed the draft adaptation program which was then placed into a document and sent to the expert group for analysis and feedback (Annexure K). The expert group consisted of five professional nurses, specialised in critical care nursing and who in addition to this were experts in nursing education and a physician who is a specialist in critical care. The draft document was emailed to each member of the expert group for their analysis. The expert group then emailed their feedback back to the researcher. Additional comments were also provided by the participants of the expert group. The researcher collated the information received from the review by the expert group and included the topics that were found to be essential and useful. Content that was deemed not important was not included in the adaptation program. Table 5.2 below demonstrates the planned content to be covered in the adaptation program and then the analysed findings of the expert group.

Table 5.2: Expert group feedback of the Draft Adaptation Program Content

Specific Outcome	Required Action	Expert Group feedback regarding the Adaptation Program planned content
Comprehensive assessment of a high care / seriously ill patient to plan nursing care	• Discuss and demonstrate the physical assessment of a high care patient utilising the following technique: ○ Inspection ○ Palpation ○ Percussion ○ Auscultation	• All five participants of the expert group stated that it was essential to include the physical assessment of the high care patient into the adaptation program. However two of the participants expressed a concern as to whether it is within the scope of practice for an Enrolled Nurse to care for a seriously ill patient. *Final Outcome: The physical assessment was included in the adaptation program.*
	• Discuss the completion of the critical care flow chart (documentation)	• All five participants of the expert group found it essential to include the discussion of the documentation in the adaptation program *Final Outcome: The discussion of the documentation was included in the adaptation program*
Management of the respiratory system within the scope of practice of an Enrolled Nurse	• Identify deterioration in respiratory condition of an at risk patient	• All five participants of the expert group stated that it was essential for this to be included in the adaptation program *Final Outcome: Identification of the deterioration in the respiratory condition of the patient at risk was included in the adaptation program.*
	• Identify the signs and symptoms of hypoxia in a respiratory compromised patient	• All five participants of the expert group stated that it was essential to include this into the adaptation program *Final Outcome: Identification of hypoxia was included in the adaptation program*

Specific Outcome	Required Action	Expert Group feedback regarding the Adaptation Program planned content
	• Identify the signs and symptoms of respiratory distress utilising the following assessment techniques of: ○ Inspection ○ Palpation ○ Percussion ○ Auscultation	• All five participants of the expert group stated that it was essential to include this in the adaptation program. *Final Outcome: Identification of respiratory distress was included in the adaptation program*
	• Describe the methods of oxygen therapy and link them to the indication for oxygen utilisation.	• All five of the participants of the expert group found it essential to include this in the adaptation program. *Final Outcome: Indication for and methods of oxygen therapy were included in the adaptation program*
	• Explain the management of a patient receiving oxygen therapy	• All five participants of the expert group highlighted this as being essential to be included in the adaptation program. *Final Outcome: The management of a patient receiving oxygen therapy was included in the adaptation program*
	• Interpret an arterial blood gas under the direct supervision of a professional nurse	• This was evaluated by the five participants of the expert group. Four of the participants found it essential to be included in the adaptation program and one of the participants stated that it would only be useful to be included but not essential to be in the program *Final Outcome: Due to the fact that the majority of the expert group was in favour of this, it was included in the adaptation program.*

Specific Outcome	Required Action	Expert Group feedback regarding the Adaptation Program planned content
	• Demonstrate the method that would be utilised to obtain an arterial blood gas from an arterial line under the direct supervision of a professional nurse.	• This was evaluated by five participants of the expert group. Four of the participants stated that they felt that it was essential to include this element in the adaptation program and one of the participants of the group stated that it might be useful for them to know about this in the program. *Final Outcome: Due to the fact that the majority of the expert group was in favour obtaining an arterial blood gas from an arterial line, it was included in the adaptation program.*
	• Interpret a chest x-ray linking the findings to the patients diagnosis	• This element was evaluated by five participants of the expert group. Four of the participants stated that this was important to be included in the adaptation program and one participant felt that is should not be included in the adaptation program. *Final Outcome: Due to the fact that the majority of the expert group found it essential to include the interpretation of a chest x-ray and as it is already part of the continuous professional development program of this healthcare group for enrolled nurses, the researcher decided to include this in the adaptation program.*
	• Demonstrate management of the following artificial airways. During the demonstration, highlight the potential complications of each airway.	• Airway management and the potential problems of airway management in the adaptation program were evaluated by the expert group. Two of the participants had a query if this should be included in the program. Four of the participants stated that the management of endotracheal tubes was essential in the program and one

Specific Outcome	Required Action	Expert Group feedback regarding the Adaptation Program planned content
	○ Endo tracheal tubes ○ Tracheostomy ○ Suctioning (in line) ○ Oropharyngeal airways	of the participants said that this was useful *Final Outcome: As the majority of the expert group found this essential it was decided to include this in the program as enrolled nurses do manage artificial airways and this is done under the direct or indirect supervision of the Professional Nurse.* • The management and potential problems of tracheostomy tubes by the enrolled nurses was found to be essential by four of the participants of, however, one participant felt that this was on a useful aspect to be covered. *Final Outcome: It was decided to include this into the adaptation program as the management of tracheostomies are often encountered by the enrolled nurses and the majority of the expert group found it essential that this was included into the program.* • In line suctioning was evaluated by five participants of the expert group two participants agreed that it was essential to be included in the adaptation program two of the participants stated that only open suction should be covered in the program and one participant said the they felt that it was useful but not important to be included.

Specific Outcome	Required Action	Expert Group feedback regarding the Adaptation Program planned content
		Final Outcome: It was decided by the researcher to include this in the program as it is an important adjunct to the management of artificial airways. • Oropharyngeal airways were evaluated by five participants. Four of the participants of the expert group felt that it was essential to be included in the adaptation program and one of the participants said that it was useful to be included. *Final Outcome: It was decided to include this into the adaptation program*
	• Demonstrate management of a patient with an artificial airway	• The management of artificial airways was evaluated by five participants of the expert group and four of the participant said that it was an essential to be part of the program and one of the participants stated that it would be useful but not essential. *Final Outcome: It was decided to include this as it was found essential by the majority of the expert group to be included in the adaptation program*
	• Explain the management of a mechanically ventilated patient	• This was evaluated by five participants of the expert group and two of the participants said that is was essential for the enrolled nurses to know the management of a patient with mechanical ventilation, two of the participants queried whether this was within the scope of practice of an enrolled nurse and one of the participants stated that it was not important to be included in the program.

Specific Outcome	Required Action	Expert Group feedback regarding the Adaptation Program planned content
		Final Outcome: This was removed from the program
	• Explain and demonstrate the management and care of a patient with an underwater drain, highlighting the complications which might occur with underwater drain and demonstrate the management thereof.	• This was evaluated by five participants of the expert group and all participants found that it was essential to include this into the adaptation program. *Final Outcome: due to the fact that this was agreed upon by all five participants of the expert group, this was added to the adaptation program*
Management of the cardiovascular system within the scope of practice of an Enrolled Nurse	• Demonstrate the usage of invasive and non-invasive devices for haemodynamic monitoring	• This was evaluated by five participants of the expert group and four participants said that it was essential to include this into the adaptation program. One participant of the expert group said that this would be useful but not essential to be included. *Final Outcome: This was included in the adaptation program*
	• Discuss the haemodynamic monitoring of a high care patient.	• All five participants of the expert group in their feedback agreed that it is essential for this to be included in the program. *Final Outcome: This was included in the adaptation program due to the fact that all of the expert group agreed to it being essential*
	• Demonstrate the documentation of all haemodynamic monitoring	• All five participant that evaluated this stated that is was essential for this to be included in the adaptation program.

Specific Outcome	Required Action	Expert Group feedback regarding the Adaptation Program planned content
		Final Outcome: The discussion of the documentation was included in the adaptation program
	• Explain the utilisation of central venous lines and discuss the role of the enrolled nurse in assisting the physician with insertion and placement of the central venous • Discuss and describe the dangers of central venous catheters. • Demonstrate the care and the removal of central venous lines.	• Five participants of the expert group evaluated the inclusion of central lines in the program and all five participants agreed that it is essential to include the assistance with insertion into the program • Five participants of the expert group evaluated the placement of the central venous lines and four of the participants found that it was essential to be included and one participant found it useful but not essential to be included. • It was found that all five participants of the expert group found it essential for the dangers of central venous lines to be included in the program. • All five participants of the expert group found it essential to include the care and the removal of the central venous lines in the adaptation program. *Final Outcome: Due to the fact that the general consensus of the expert group was that it is essential to include central venous catheters*

	• Explain and discuss interpretation of an electro-cardiogram and the following rhythms:
	  ○ Normal sinus rhythm
	  ○ Sinus tachycardia
	  ○ Sinus bradycardia
		• Five participants evaluated the interpretation of the electrocardiograph and 3 of the participants stated that it was essential to include this into the adaptation program. Two of the participants stated that only basic ECG interpretation should be included into the program.
		• All five participants that evaluated the program found it essential to include the interpretation of a normal sinus rhythm, sinus tachycardia and sinus

Specific Outcome	Required Action	Expert Group feedback regarding the Adaptation Program planned content
	○ Atrial fibrillation ○ Ventricular fibrillation ○ Asystole • Demonstrate obtaining an ECG recording • Accurately analyse the ECG for any abnormalities under the direct supervision of the professional nurse.	bradycardia. Four of the five participants found it essential to include the evaluation of atrial fibrillation with one of the participants found it useful but not essential. All five participants stated that it was essential to include the interpretation of ventricular fibrillation and asystole in the adaptation program. *Final Outcome: Due to the fact that the ability to recognise an abnormality on an ECG is very important and that the majority of the expert group identified that this is an essential areas for inclusion in to the program, it was included.*
Management of the gastro intestinal system within the scope of practice of an Enrolled Nurse	• Describe the various feeding methods, including artificial means of patient feeding ○ Naso gastric feeds ○ Oro gastric feeds ○ Peg feeds	• All five participants of the expert group found it essential to include various feeding methods in the adaptation program *Final Outcome: This was included into the adaptation program as all five participants of the expert group stated that it was essential to be included.*
Management of the renal system within the scope of practice of an Enrolled Nurse	• Explain and discuss decreased urinary output in a high care patient • Demonstrate the method of calculating the expected amount of urinary output per hour /ml/ kg	• All five participants of the expert group found it essential to include decreased urinary output in the adaptation program *Final Outcome: This was included into the adaptation program due to the fact that all participants of the expert group found this essential.*

Specific Outcome	Required Action	Expert Group feedback regarding the Adaptation Program planned content
	• Describe the causes of decreased urinary output	• All five participants of the expert group found it essential to include the causes of decreased urinary output in the adaptation program. *Final Outcome: This was included into the adaptation program due to the fact that all participants of the expert group found this essential.*
	• Demonstrate the completion of the intake and output chart	• All five participants of the expert group found it essential to include the correct utilisation of the intake and output chart in the adaptation program. *Final Outcome: This was included into the adaptation program due to the fact that all participants of the expert group found this essential.*
Management of the neurological system within the scope of practice of an Enrolled Nurse	• Explain the deterioration in the level of consciousness of a patient	• All five participants of the expert group found it essential to include the identification of deterioration of the neurological status of the patient in the adaptation program. *Final Outcome: This was included into the adaptation program due to the fact that all participants of the expert group found this essential.*
	• Demonstrate a complete neurological assessment of a patient. • Demonstrate the assessment of the Glasgow Coma	• All five participants of the expert group found it essential to include the assessment of the GCS in the adaptation program. *Final Outcome: This was included into the adaptation program due to the fact that all*

Specific Outcome	Required Action	Expert Group feedback regarding the Adaptation Program planned content
	Score (GCS) on a patient	*participants of the expert group found this essential.*
	• Explain the management of raised intracranial pressure in a patient with a head injury	• This element was evaluated by five participants of the expert group and four of the participants stated that it was essential to include the management of raised intracranial pressure in the adaptation program. One of the participants of the expert group stated that they found it not important to be included into the program *Final Outcome: It was decided to include this in the adaptation program as the majority of the expert group had found it essential to include in the program*
Interpretation of diagnostic procedures to identify abnormalities within the Scope of Practice of an Enrolled Nurse	• Systematically analyse tests and results ○ Haemo Gluco test (HGT) – Demonstrate conducting a HGT evaluation and the analysis of the results ○ Potassium serum : analyse the latest Serum Potassium result under the direct supervision of the professional nurse and relate the results to the patient's condition ○ Chest X-rays: Interpret a chest x-ray linking the findings to the patients diagnosis ○ Arterial Blood gases: Analyse an	• The interpretation of diagnostic procedures and the analysis of test results was evaluated by five participants of the expert group. Five participants found it essential to include the systematic analysis of the HGT, Serum Potassium. One participant found it Useful but not essential to include the analysis of the arterial blood gas and ECG and one participant found it not important to include the analysis of the chest x-ray into the adaptation program. *Final Outcome: This was included in the adaptation program including*

Specific Outcome	Required Action	Expert Group feedback regarding the Adaptation Program planned content
	arterial blood gas result under the direct supervision of a professional nurse ○ ECG: Accurately analyse the electro cardiogram (ECG) for any abnormalities under the direct supervision of the professional nurse.	
	• Discuss tests and results with the Professional Nurse	• All five participants of the expert group agreed that it was essential to include the discussion of the test results with the professional nurse. *Final Outcome: This was included in the adaptation program*

Additional comments

The expert group also gave further comments which were taken into account by the researcher and were discussed under the individual systems.

- Comprehensive assessment:
  It was highlighted that the physical assessment and rationale of the patient needed to be discussed.

- Respiratory system:
  The importance for the enrolled nurse to understand normal respiratory function in order for them to be able to understand abnormal function was highlighted. The question was raised by two respondents regarding the interpretation of the chest x-ray with respect of this being covered within the scope of practice of the enrolled nurse. The management of ventilated patients by enrolled nurses was also a concern as they do not nurse ventilated patients in the critical care units where these members of the expert group work. Respondent five commented that the

management of ventilated patients was too complicated for enrolled nurses due to the fact that ventilator changes needed to be made and they do not have the background knowledge behind these ventilator changes therefore it is too complicated for an enrolled nurse.

- Cardiovascular system:
  It was commented on by respondent one that cardiac pharmacological should be included into the adaptation program. Respondent five stated that under haemodynamic monitoring, some invasive monitoring such as cardiac output monitoring may be out of scope of practice of an enrolled nurse. It was commented by two of the respondents that ECG interpretation needed to remain at basic interpretation. It was felt by respondent five that it is important for and enrolled nurse to have the knowledge of how to prepare for a central line and the enrolled nurses also needed to have the knowledge to detect when there was something wrong. The enrolled nurses needed to be able to detect abnormalities on an ECG. Electrolyte monitoring was also important for cardiovascular monitoring.

- Neurological system:
  The comment was made that the management of raised intracranial pressure was above the scope of practice of an enrolled nurse as it was difficult to manage a patient with raised intracranial pressure without the knowledge of the pathophysiology

In addition to the above the researcher also included topics which are encountered by the enrolled nurse in their day to day activity in the unit and which were covered in the basic competencies of the enrolled nurse in this private healthcare group. Once all this information was collated the researcher then compiled a list of content which would be included in the adaptation program.

During this phase the material is developed and can include many forms of lesson materials and interactive course work including training devices (Clayton Allen, 2006). After the information received from the expert group was analysed and amendments made and content removed as per the recommendations of the expert group the content which would be presented was then finalised and the adaptation program was compiled (Annexure N).

5.2.3.1 Program planning

After the program was compiled the program needed to be planned. This was done in conjunction with the role players at the hospital where the pilot program was held. The researcher sourced and selected a facilitator who would be responsible for running the pilot program. The facilitator who was selected by the researcher to present the adaptation program was a professional nurse, with a post basic qualification both in critical care nursing and nursing education. At the time of the pilot, the facilitator was not permanently employed and was working independently in the critical care units via a nursing agency. The facilitator, therefore could not display bias towards the study. The facilitator had recently been employed as a clinical facilitator for this healthcare group covering the critical care units and general nursing areas so was familiar with nursing education. A meeting was held with the facilitator and the content of the program (Annexure N) including the program roster was discussed. The Healthcare group has an active continuous development program (CPD) with training material available on their intranet (Gateway). It was decided to utilise some of this existing material which was available. Content that was not available was then developed by the facilitator. The facilitator in conjunction with the researcher decided that the physical assessment of the critical care patient would be used as the foundation for instruction of the program and that all teaching would stem from the physical assessment.

5.2.3.2 Planning at hospital level

Once the program was developed the final stage of the program development was to plan the implementation at hospital level. It was therefore necessary to meet with the stakeholders at the hospital where the pilot adaptation program would be run. A meeting was held with the Critical Care Manager. During this meeting the program layout and roster was discussed and the planned off duties of the participants was discussed with the unit managers and critical care manager. At this point the efficiencies of the individual critical care unit and the planned scheduled off duties of the participants had to be taken into account. The off duties, needed to be structured in such a way that all the participants could attend the two day training sessions and still ensure that the critical care units were covered, this was due to the fact that the enrolled nurses were to be removed from the units for two days. This was not allowed to negatively impact on the nursing costs of the individual units. The logistics of

notifying the unit mangers and the participants as well as securing a venue for the two day training was undertaken by the critical care manager.

5.3 CONCLUSION

The ADDIE model is described as being part of a quality improvement program. Quality improvement objectives are to foster continuous improvement (Clayton Allen, 2006). ADDIE was successfully utilised to develop the adaptation program for enrolled nurses in critical care units and in so doing addressed the gap between the expected job outputs and the fundamental knowledge and skill that the enrolled nurses working in the critical care units possessed. Chapter 6 will detail how this program was piloted and the feedback that was obtained regarding the content of the program as well as the impact the training had on the fundamental knowledge.

CHAPTER 6 : RESEARCH PHASE 3 (EARLY DEVELOPMENT AND PILOT TESTING)

6.1 INTRODUCTION

This chapter describes research phase 3, involving the early development and pilot testing of the Adaptation Program for Enrolled Nurses in Critical Care Units of a Healthcare Group in Gauteng, South Africa.

Below is a diagrammatic representation of the sample and research design which was discussed in detail in chapter 3. The shaded area in Table 6.1 below indicates the research with methods and samples utilised in this chapter for the pilot testing of the educational program.

Table 6.1: A representation of the Sample and Research Design highlighting the phases and stages under discussion

FRASERS STAGES	FRASERS RESEARCH STGES	RESEARCH PHASES	METHODS	SAMPLE
1	Problem Analysis	Proposal		
2	Information gathering and synthesis	Phase 1	• Content analysis • Nominal groups • Knowledge assessment	• Enrolled Nurses • Unit Managers • Preceptors
3	Design of the intervention	Phase 2	• Development of material • Validation by expert group	• Professional Nurses who are qualified in critical care nursing and nursing education
4	Early development and pilot testing	Phase 3	• Pilot Adaptation Program • Pre-test • Post-test • Practical assessment • Questionnaire	• Enrolled Nurses (9) • • Enrolled Nurses (9) • Enrolled Nurses (9)

FRASERS STAGES	FRASERS RESEARCH STGES	RESEARCH PHASES	METHODS	SAMPLE
			• Validation by expert group	• Enrolled (9) and Professional Nurses(13) • Professional Nurses, Unit Managers, Preceptors and Enrolled Nurses (Total 10)
5 & 6	Experimental evaluation and advanced development and dissemination	Post Study		

6.2 Pilot Testing the Program

This phase involved the early development and pilot testing and the research phase 3 as discussed in chapter 3 of this study.

6.2.1 The purpose of the pilot test

The aim of the pilot program was to test the feasibility of the adaptation program (Burns & Grove, 2013) prior to national rollout at a later stage after completion of this study. During this phase the intervention was tested for the first time. The pilot testing of an intervention is useful as it determines whether the intervention will work and is feasible. It guides the refinement of the intervention and identifies any potential problems or issues which may occur with full implementation and assists in refining the training program to ensure that the study program is understandable. The pilot determines over how many days the program should be run and highlights any problems in gaining access to study participants due to the staffing requirements in the critical care units and how the participants have reacted to the intervention. The pilot is also useful as it tests the feasibility of the design of the intervention (Burns & Grove, 2013).

6.2.2 The Site of the Pilot Study

Pilot studies should be conducted in a setting similar to those planned in the proposed study (Burns & Grove, 2013). It is for this reason that critical care units of a large high tech hospital were utilised. This could then be replicated in critical care units of all size and level when the adaptation program is rolled out after the study. The medical and the surgical critical care unit of the large high tech hospital was utilised and this comprised of thirty three beds in total. The demographics of the patients nursed in these units were adult patients admitted with any medical diagnosis and any patient admitted following surgical or trauma e.g. following a motor vehicle accident or major surgical intervention. The site was also purposively selected. According to Holloway & Wheeler (2010, Kindle) purposive sampling may also include the site or setting of the research study.

6.2.3 Participation in the Pilot Study

The participants in the pilot study were enrolled nurses who were working within the medical and surgical critical care units of the large high tech hospital of the private healthcare group in Gauteng, South Africa. They were selected utilising purposive, homogenous sampling. Purposive sampling is also referred to as purposeful or selective sampling and the researcher consciously selects certain participants to be included in the study (Burns & Grove, 2013). Homogenous sampling involves selecting participants who all belong to the same subculture or who have similar characteristics e.g. in this case it was the enrolled nurses who were selected as the research participants in the pilot study, (Holloway & Wheeler, 2010, Kindle). The enrolled nurses met the inclusion criteria. The inclusion criteria was that the participants had to be enrolled nurses, working in the critical care units. Selecting the participants in this manner was the best way to gain insight and in depth understanding of the adaptation program.

Initially ten participants were selected to take part in the research study. However, on the day of the program one of the participants was ill and was unable to attend the program. Therefore only nine participants took part in the pilot study.

6.2.4 The pilot Program

An independent facilitator who is a professional nurse, with a post basic qualification in critical care nursing and nursing education and an expert in the field of critical care was selected by the researcher to facilitate the program. During the planning phase it

was planned that the duration of the program was to be run over a two day period. On the day that the program was due to commence not all the selected participants arrived for the program. On further investigation this was due to operational and personal issues. The operation issues were that they were not able to be released from the respective units for the planned time frame as planned with the critical care managers. This was due to a shortage of staff in the unit and an increased occupancy in the selected units. After discussion with the facilitator and the critical care manager, it was decided that there was no other alternative but to run the program over one day, as there would be a problem to release the participants for more than one day due to the operational requirements of the selected units. A meeting was then held with the facilitator and the content of the program was restructured to ensure that all the approved and listed content could still be covered in the limited time frame of one allocated day.

The pilot program was hosted at the large high tech hospital and the venue that was chosen was one of the small meeting rooms within the training unit. This was conducive to the training as it was quiet and could comfortably host the selected participants. On the day of the pilot the purpose of the research study was discussed with the participants, which is to develop an adaptation program for enrolled nurses practicing in the critical care units, to ensure competent care of patients within the critical care environment by enrolled nurses. Once this had been done the information document for the consent to be a research participant was discussed with them, clarification given and any questions answered (Annexure G). Thereafter the participants completed the consent to participate in the research (Annexure H). It was reinforced that inclusion in the study was completely voluntary and that they could withdraw from the study at any time. Confidentiality was also highlighted and the results of the information gained during this program would not be made known to the participants line managers. At the beginning of the program, a pre-validated pre-test was completed by the participants. The aim of this was to bench mark the fundamental knowledge of each participant. These marks would then be compared with the post-test which would be conducted on completion of the program. The pre-test comprised twenty six (26) multiple choice questions, incorporating the respiratory, cardiovascular, neurological, endocrine, renal, neurovascular systems as well as pharmacology, and was compiled utilizing fundamental knowledge that is expected to be in place for an enrolled nurse, working in the critical care environment and the Scope of Practice of

an Enrolled Nurse. The pre-test was the same test that was utilised as the knowledge assessment evaluation in phase 1 of the research study.

Thereafter the adaptation program was run for the duration of the day. The training of the program was planned in the design phase as set out in the adaptation program plan (Annexure N). Due to the training being condensed into one day, the program needed to be changed. The facilitator utilised the head to toe physical assessment method as the basis for the instruction that took place. Emphasis was placed on the nursing documentation in the form of the CCU chart and the importance of correct, concise and accurate documentation.

6.2.5 Pre and Post-Test 1

On conclusion of the training day the participants were then requested to complete a post-test (Annexure L). The post-test was the same test as the pre-test which was conducted in the morning prior to the commencement of the training day. The rationale for this was so that a comparison could be made to ascertain the increase of knowledge after the training was completed compared to what the existing fundamental knowledge base was prior to the commencement of the training day. A comparison between the pre-test and the post-test revealed the following results as shown in Table 6.2 below:

Table 6.2: Comparison between the results of the Pre-test and the Post-test

PRE TEST		POST TEST	
PARTICIPANT	**PERCENTAGE**	**PARTICIPANT**	**PERCENTAGE**
A1	65	A1	62
B1	62	B1	62
C1	76	C1	79
D1	62	D1	62
E1	74	E1	65
F1	71	F1	79
G1	53	G1	65
H1	71	H1	74
I1	56	I1	68
AVERAGE	65		68

6.2.5.1 Pre-test analysis

Of the nine participants that wrote the pre-test all nine participants passed the assessment. The pass mark was set at 50% as this is the pass mark which is set for

the nursing college affiliated to this private healthcare group for any test that is written at the institution. The lowest percentage was 53 % and the highest percentage was 76%. The average percentage for the group was 65%.

6.2.5.2 Post-Test 1 Analysis

All nine participants that wrote the post-test passed the test as they obtained a percentage above 50%. The highest percentage was 79% which was achieved by two of the participants. This is 3% higher than the highest percentage obtained by one of the participants in the pre-test. The lowest percentage was 62%. This was achieved by three participants and is 9% higher than the lowest percentage achieved in the pre-test. The average percentage for the group was 68% compared to 65% for the pre-test.

6.2.5.3 Pre-test / post-test 1 comparison

A comparison was done between the percentage marks achieved in the pre-test compared to the percentage marks achieved in the post-test 1. This revealed an increase in percentage in five of the participants. The highest increase in percentage was by 12% and this was for two participants who increased from 53% to 65% and from 56% to 68% respectively. The lowest increase was for two participants who increased by 3% from 76% to 79% and from 71% to 74%. There was one participant who increased by 8% from 71% to 79%. The average percentage for the group was 68% and increase of 3%. Two participants' results remained unchanged at 62% and a further two participants' percentages had shown a decrease between the pre-test and the post-test 1. One participant had decreased from 65% to 62% a decrease of 3% and the other from 74% to 65% a decrease of 9%. The reason for this decrease in percentage is unknown. In a study undertaken by Brooks et al. (2016) it was noted that there was a decrease in competency from the initial testing that was done on the competency of electrocardiograph interpretation and it is unknown as to whether the work environment plays a part in the retention of knowledge.

In spite of the results indicating an increase in the overall percentage achieved and an increase in percentage for some of the participants the results do not show conclusively that the adaptation program increased the fundamental knowledge of the enrolled nurses.

6.2.5.4 Control group

During the same time frame a control group, which was made up of participants from the hospitals which did not take part in the pilot group, also completed the post-test 1 (Annexure L). The results of the post-test 1 of the control group are as follows in comparison with the experimental group as seen in Table 6.3 and Table 6.4 below:

Table 6.3: The control group post-test results

CONTROL PRE-TEST		CONTROL POST-TEST	
PARTICIPANT	**PERCENTAGE**	**PARTICIPANT**	**PERCENTAGE**
LFWH 1	59	LFWH 1	61
LFWH 2	68	LFWH 2	62
LFWH 3	53	LFWH 3	62
RHLH1	52	RHLH1	Resigned
RHLH2	73	RHLH2	79
RHLH3	70	RHLH3	65
AVERAGE	62	**AVERAGE**	65

Control group pre-test analysis

Analysis of these results showed that there were 6 participants who initially completed the pre-test. The average result of the group for the pre-test was 62%. All participants passed the test and a 50% was utilised as the pass mark as this is the pass mark set by the Nursing College affiliated to this healthcare group. The lowest percentage was 52% with the highest percentage being 73%.

Control group post-test analysis

At the time of completion of the post-test one participant had withdrawn from the study, thus five participants completed the post-test. When the post-test was concluded the average percentage had increased by 3% to 65%. There were three participants whose percentage had increased compared to the pre-test from 59% to 61%, a 2% increase and from 53% to 62%, an increase in percentage of 9% and from 73% to 79%, an increase of 6%. There were two participants whose percentage had decreased from the pre-test. The percentage decreased from 68% to 60%, an 8% decrease and from 70% to 65%, a 5% decrease.

Table 6.4: The comparison between the pre-test / post-test results of the experimental group and the pre-test / post-test results of the control group

EXPERIMENTAL GROUP PRE TEST		EXPERIMENTAL GROUP POST TEST	
PARTICIPANT	**PERCENTAGE**	**PARTICIPANT**	**PERCENTAGE**
A1	65	A1	62
B1	62	B1	62
C1	76	C1	79
D1	62	D1	62
E1	74	E1	65
F1	71	F1	79
G1	53	G1	65
H1	71	H1	74
I1	56	I1	68
AVERAGE	65		68
CONTROL PRE-TEST		**CONTROL POST-TEST**	
PARTICIPANT	**PERCENTAGE**	**PARTICIPANT**	**PERCENTAGE**
LFWH 1	59	LFWH 1	61
LFWH 2	68	LFWH 2	62
LFWH 3	53	LFWH 3	62
RHLH1	52	RHLH1	Resigned
RHLH2	73	RHLH2	79
RHLH3	70	RHLH3	65
AVERAGE	62	**AVERAGE**	65

Analysis of the control group post-test results shows that during the same time period that the adaptation program was taking place the control group also had an increase in knowledge. The adaptation program does not appear to have improved the knowledge of the enrolled nurses who were participants in the pilot program when compared to the control group. The pre and post-test was utilised to assess the knowledge and skills of the enrolled nurses. However, the small sample size has impacted the results in that it has made it impossible to conduct an adequate comparison of the results that were received.

6.2.6 Adaptation program feedback

On conclusion of the adaptation program the participants were requested to complete a semi-structured written questionnaire to evaluate the pilot program. The following questions were asked in the questionnaire which was handed to each enrolled nurse (Annexure O):

- How did you experience the adaptation program?
- What did you find positive about the adaptation program?
- What did you find as negative about the adaptation program?
- What was the most significant difference between the original adaptation program and the new adaptation program?

All enrolled nurses who attended the adaptation program completed the questionnaire. Raw data was summarised as follows:

- Question 1: How did you experience the adaptation program?

  There was no one specific theme identified when analysing the response to this question. The overall response to this question was however positive comments. Most of the recipients stated that they found the program interesting and informative. They found the facilitator to be professional and conveyed the information in a way that was well understood. Spending time with the facilitator was the strength of the program irrespective of what she taught them. She appears to have had a positive influence on the enrolled nurses. The respondents felt that they better understood what was expected of them since completing the program and they gained role clarification. They did state that there was a positive knowledge gain and the knowledge that was received gave them clarity in their actions.

- Question 2: What did you find positive about the adaptation program?
  In response to this question the overall feedback was that there was an improved knowledge. This was further broken down by the respondents by saying that they learnt more about assessment of a patient and that they found that the information they received on the interpretation of the diagnostics was positive.

- Question 3: What did you find as negative about the adaptation program?
  When the response to this question was analysed there was nothing negative noted by any of the respondents. This was fairly predictable considering that the two previous questions had been answered in a positive tone. The only negative notation was that they had not received the results of the pre and post-test.

- Question 4: What was the most significant difference between the original adaptation program and the new adaptation program?
  Once again mainly positive feedback was given by the respondents in that they stated that they found the program very informative and that they increased their knowledge. They found the facilitator very well equipped to present the program and that they had understood what she had explained to them. They did state that in the adaptation program they learnt more about systems compared to the initial program that was attended. There was one negative comment where the respondent stated that there was no difference between the first program that they had attended and the pilot adaptation program.

When one looks at the four questions that were asked of the participants it appears that overall they were positive about the adaptation program and they felt that they had benefited from attending the program. Their knowledge had increased and they felt that they were better equipped to look after the patients in the critical care environment. The data will be unified utilising Kirkpatrick's model as a guide to analysis.

6.3 COMPETENCY EVALUATION

Approximately ten weeks after completion of the pilot adaptation program the researcher met with the participants on an individual basis to conduct a competency assessment. The competency assessment took the form of a comprehensive patient assessment (Annexure M). The comprehensive patient assessment consisted of a comprehensive assessment whereby all outcomes could be assessed. This linked the cognitive domain to the practical component of the evaluation. Each criteria was evaluated separately and the following key to scoring was utilised:

- 0 – Fails to act
- 1 – Has minimal knowledge or skill
- 2 – Has basic knowledge / needs assistance and supervision
- 3 – Has sufficient knowledge and skill to practice independently.

The total was scored out of 135 point and then the percentage was worked out accordingly. There was also space for remarks or comments to be documented by the evaluator.

The researcher conducted the comprehensive patient assessments with the participants, due to the fact that she was not involved in the presentation of the pilot adaptation program and wanted to make contact with the participants to obtain in-depth feedback regarding the program and to evaluate and have a discussion with each participant regarding the adaptation program. The researcher made individual appointments to meet with each participant whilst they were on duty in the respective critical care units of the large high tech hospital where the pilot study was conducted. The participants were given sufficient prior notification of the planned assessment. The assessment took place whilst the participant was on duty and the evaluation took place on a patient that the enrolled nurse had been allocated to for that shift, thus the patient was known to the participant. The researcher discussed the aim of the assessment with the participant explaining that it was necessary to assess the knowledge that was gained during the adaptation program and what had been put into practice and internalized during the ten week between completion of the program and the evaluation. A consent to post-test competency assessment document was explained to each participant and it was again highlighted that the participant could withdraw from the study at any time (Annexure S). Confidentiality was maintained and each participant signed the consent prior to commencing the physical assessment.

6.3.1 Results of the comprehensive physical assessment

The physical assessment was conducted on each of the nine participants after adequate preparation as stated above and the results were analysed as follows:

The assessment criteria was divided up into different systems for evaluation and each system was then analysed:

6.3.1.1 General Section

The general section comprised of the assessment of the general aspects of the patient assessment and covered,

- Patient Introduction:

  This portion of the assessment evaluated as to whether the participant introduced the researcher to the patient and confirmed that consent had been obtained from

the patient. This was well done in in 85% of the participant. One participant failed to introduce the researcher to the patient.

- Identification of the patient

  The participant was required to show that they were able to identify the patient and this was done through identifying the patient with the identification band and the patient sticker as well as verbal verification of the patient. This was done well by 85% of the participants. One participant did not identify their patient and another patient introduced himself to the researcher.
- History of the Patient

  In this section of the patient assessment it was expected of the participant that a brief history would be presented by the participant of the patient, covering the current diagnosis and what the patient is currently complaining of. Past medical and surgical history needed to be provided and discussed by the participants. Risk factors and allergies as well as other relevant co-morbidities needed to be discussed at this point. This was well done by 96% of the participants with one participant providing a brief history where the history was not tied up with the admitting current diagnosis of the patient.
- Bedside safety

  This is the environmental safety and the participant should be able to assess the patient's immediate surroundings for safety. Emergency resuscitation equipment should be readily available, cot sides should be available and up as needed. Alarm limits set and activated. This was done well in 92% of the participants. The remaining participants count not ensure fully the bedside safety. It could not be demonstrated that all areas had been checked and that alarm limits where necessarily within the correct parameters.
- Vital Data

  The participants needed to state the significance of the findings of the vital data and where possible link to the diagnosis and possible pathophysiology. The vital data needed to be well documented and incorporated all vital data applicable to the patient that they were assessing. This was well done in 92% of the participants. But the gap was where the observations discussed could not be tied up to the diagnosis of the patient.
- The overall percentage for this section of the assessment was 90%

6.3.1.2 The head

This section comprised of a complete physical assessment of the head of the patient and involved working systematically to assess the head and abnormalities identified and discussed. The following results from the participants were obtained:

- GCS

  It was expected of the participant that they would have accessed the GCS (Glasgow coma score) of the patient and accurately assessed the patients level of consciousness and the neurological status and correctly allocated the patient a score out of 15. This was well done by 100% of participants.
- Eyes
- The eyes were assessed for pupil reaction and for any other abnormalities e.g. raccoon eyes, swelling, lacerations or any other abnormalities. One patient was excluded from this part of the evaluation as he was blind. This was well done in 87% of the participants. However one participant failed to do an eye examination on the allocated patient.
- Ears

  The ears were checked bilaterally for any discharge from the ears or any other abnormalities. This was well done in 88% of the participants. With one participant failing to check the ears for any abnormalities.
- Nose

  The nose was assessed for nasal flaring and the breathing pattern needed to be discussed. Discharge from the nose was to be commented on as well as any other abnormalities notes. Any indwelling objects in the nose could also be noted and discussed at this point e.g. nasal cannula, naso-gastric tube and naso-tracheal tube. This was well done in 74% of the participants with two participants not checking the nose for abnormalities. One participant did not comment on lesions which were visible on the top of the patient's nose
- Mouth

  When assessing the mouth, the participants commented on the assessment of the tongue, the colour e.g. cyanosis, if the tongue was pale, the lips for colour and dryness denoting dehydration, the teeth in that they were present or absent, if there was halitosis. Any injuries to the oral cavity was noted and any abnormalities including any indwelling objects e.g. endotracheal tubes or oro-gastric tubes. This was well done by 87% of the participants with two of the participants not discussing

the mouth. Mouth ulcers that were present were also not discussed by one of the participants.

- Skin colour

  The participants' needed to discuss the colour of the head and the face, was it pale or cyanosed, and tie up the meaning of this if they could. This was done well in 92% of the participants with two participants not being able to accurately assess the patient's skin as one participant stated that the skin was pink but in actual fact the patient presented with a very pale white skin.

- The overall percentage for this section of the assessment was 88%.

6.3.1.3 Neck

This section comprised of a complete physical assessment of the neck of the patient and involved working systematically to assess the neck and abnormalities identified and discussed. The following results were obtained:

- Trachea

  This was assessed for any deviation and the implications thereof discussed e.g. tension pneumothorax. If a tracheostomy was insitu it was expected that the participant would discuss the tracheostomy and anything important surrounding the care and management of a patient with the tracheostomy. Only 55% was achieved for this section. 45% of the participants did not access the trachea for centrality.

- Carotid pulse

  The participant was to assess the neck for the presence of the carotid pulse and was to comment on the quality of the pulse. 66% was the percentage achieved for this section with 34% of the participants did not assess the patient's carotid pulse.

- Indwelling objects

  The participants needed to describe any indwelling objects in the neck e.g. Central venous lines (CVP), Quinton catheter for dialysis, tracheostomy tubes etc. and describe any other abnormalities noted. This was well done as 100% was achieved for this.

- The overall percentage for this section of the assessment was 56%

6.3.1.4 Chest

This section comprised of a complete physical assessment of the chest of the patient and involved working systematically to assess the chest and abnormalities identified and discussed.

The following results were obtained:

- Inspection

  The participant was to assess the patient's chest utilising inspection and describe and discuss findings. This was well done by most participants as the percentage achieved was 88% with one participant not inspecting the chest of the patient.
- Palpation

  The participant was to assess the patient's chest utilising palpation and describe and discuss findings. This was very poorly done a 0% was achieved for this section as none of the participants palpated the chest as part of the physical assessment.
- Percussion

  The participant was to assess the patient's chest utilising percussion and describe and discuss findings. This was poorly done. A 0% was achieved for this section as none of the participants percussed the chest as part of the physical assessment.
- Auscultation

  The participant was to assess the patient's chest utilising auscultation and describe and discuss findings. This was well done. A 100% was achieved for this section.
- Air entry

  The participant needed to comment on the air entry and chest sounds that was heard on the auscultation section. This was well done and 100% was achieved
- Symmetry of the chest.

  The participant was to describe and discuss the symmetry of the chest. This was done well in 77% and two participants were not able to describe chest symmetry.
- Respiratory function

  The participant needed to describe the respiratory function and what finding there was and how they found the respiratory function of the patient. This was poorly assessed as the percentage achieved was 33%. Six participants were unable to adequately and accurately assess the patient for respiratory function.
- Heart sounds

  The participant was to auscultate the heart sounds and describe and discuss the findings thereof. This was poorly done as only one participant was able to do this and to describe the heart sounds and what had been found on heart auscultation. The percentage achieved for this was 11%.

- Cardiac rhythm identification

  The participant needed to identify and describe the cardiac rhythm on the cardiac monitor. This was fairly well done, however, there was some difficulty in describing the meaning of the term sinus and the term was easily and frequently utilised by all participants. The normal conduction pathway was not known by the participant when asked about this. The participants found difficulty in describing the heart rhythm that was recorded on the CCU chart and did not know the definition of a sinus tachycardia or sinus bradycardia. The percentage achieved for this was 70% with only two participants able to give a clear description of the cardiac rhythm of the patient.
- Indwelling objects

  The participants needed to describe any indwelling objects in the chest e.g. underwater drains. This was well described as only one participant was unable to do this and the percentage achieved was 88%.
- The overall percentage for this section of the assessment was 56%

6.3.1.5 Abdomen

This section comprised of a complete physical assessment of the abdomen of the patient and involved working systematically to assess the abdomen and abnormalities identified and discussed. The following results were obtained:

- Inspection

  The participant inspected the abdomen and described and discussed the findings. The participant needed to discuss any abdominal distention as well as the colour of the abdomen and the presence of any visible discoloration e.g. bruising or visible signs of trauma. This was well evaluated as a percentage of 88% was achieved with only one participant not being able to adequately assess this element.
- Palpation

  The participant was to assess the patient's abdomen utilising palpation and describe and discuss findings. This was poorly done as only four of the participants were able to correctly palpate the abdomen and discuss the findings. A percentage of 44% was achieved.
- Percussion

  The participant was to assess the patient's abdomen utilising percussion and describe and discuss findings. This was poorly done. A 0% was achieved for this

section as none of the participants percussed the abdomen as part of the physical assessment.

- Auscultation

  The bowel sounds are to be described and findings discussed. This was only done adequately by four of the participants and a percentage of 44% was achieved.

- Indwelling objects

  The participants needed to describe any indwelling objects in the abdomen e.g. drains. This was well described as only one participant was unable to do this and the percentage achieved was 88%.

- The overall percentage for this section of the assessment was 52%

6.3.1.6 Genitalia

This section comprised of a complete physical assessment of the genitalia and involved working systematically to assess the genitalia and abnormalities identified and discussed. The following results were obtained:

- Assessment for abnormalities

  Four of the participants did not assess the genitalia. Only 55% was achieved for this section.

- Indwelling objects

  The participants were required to describe any indwelling objects e.g. catheters. Comment needed to be made on the urinary output and if this was adequate for the patient. Comment was also to be made on the condition of the urine e.g. colour and the urine analysis commenting on any abnormalities found. This was well described with a percentage of 92% being achieved for this section.

- The overall percentage for this section of the assessment was 73%

6.3.1.7 Limbs

This section comprised of a complete physical assessment of the limbs of the patient and involved working systematically to assess the limbs and abnormalities identified and discussed. The following results were obtained:

- Comment on the presence of all limbs and if there is any evidence of trauma

  This was well done as 96% was achieved for this section

- Pulses

The participant needed to assess for the presence of pulses in all limbs and identify which pulse was felt and describe the pulse e.g. weak, thready, and bounding. This was well assessed as 96% was achieved for this section.

- Perfusion

  This was assessed by checking for the temperature of the limb and assessing capillary refill. This was well done with 81% being achieved as a percentage for this section. One participant did not assess for perfusion and another participant was uncertain about the capillary refill.

- Clubbing

  Each participant needed to identify if clubbing was present. This was only done in three participants. The participant that did not assess for clubbing did not know what clubbing was. A percentage of 33% was achieved.

- Oedema

  Each participant needed to assess if oedema was present and to relate this to the condition where possible. This was well done and was well assessed and identified in all participants except for one. A percentage of 88% was achieved.

- Movement

  Each patient was assessed for full range of movement. This was well done in all participants. A percentage of 100% was achieved.

- Position of limbs

  The participant needed to comment on the position of the patients limbs e.g. decerebrate or decorticate and what this could indicate. This was well assessed and described and 96% was achieved.

- Skin turgor

  The participant needed to comment on the skin turgor and the implications of these findings. This was fairly well done with three participants not assessing for skin turgor and another participant could not tie up with dehydration. A percentage achieved for this section was 59%

- Indwelling objects

  The participants needed to describe any indwelling objects e.g. Arterial lines, Intra-aortic balloon pump (IABP), plaster of paris (POP), external fixators, Lautenbach irrigation catheters and intravenous therapy etc. This was well described as 100% was achieved.

- The overall percentage for this section of the assessment was 83%

6.3.1.8 Therapeutic Assessment Score

The participant were required to discuss the completion of the TAZ (Therapeutic assessment score) score and the rationale behind the score that was given. This score is an indication of the level of care depending on the score that is reached. Level 1 > 35 is specialised CCU care, Level 2 20 – 34 is CCU care and Level 3 is a score of 11 – 19 is a level of high care nursing. The therapeutic assessment score (TAZ) was well assessed by all the participants. One participant, the score could not tie up with the patient's condition. Percentage for this section was 88%.

6.3.1.9 Assessment of risk of falling

The participant were required to assess the patient for the risk of falling and to comment as to whether the patient has been identified as a risk of falling and to discuss what measures were put in place to prevent the patient falling. The patient's risk of falling was assessed utilising the Heindrich II risk for falling tool which is also found on the critical care chart. This was not completed by one participant and not correctly done by another participant. The overall score for this section was 85%.

6.3.1.10 Assessment of risk for pressure ulcers.

The participants were required to comment as to whether the patient was at risk for developing pressure ulcers utilising the Waterlow pressure sore prevention score analysis, which is on the critical care chart. Measures needed to be discuss which were put in place to prevent the patient developing pressure ulcers. Care was planned accordingly. This element was well assessed and 92% was achieved for this section.

6.3.1.11 Planning of care based on assessment completed

The participant needed to briefly discuss the care that was planned for the patient based on the completed physical assessment. This section was well completed and the participants could adequately discuss the care that had been and this could be linked to the findings of the physical assessment. One of the participants needed assistance with this. An overall percentage of 96% was achieved for this section.

6.3.1.12 11 Medication

The participant discussed the relevant medication briefly and the indication for the drugs that were prescribed. This was well discussed and described and the indications known by all participants except for one participant which required assistance. A percentage of 96% was achieved for this section.

6.3.1.13 Documentation

The critical care chart was then evaluated by the researcher in conjunction with the participant to ensure that it had been completed in full utilising the SOAPIE principles. The presence of the shift leader overseeing the enrolled nurse was also necessary to be visible. One of the participants was unable to complete the documentation as she had recently come on duty so her documentation was incomplete at the time of the evaluation. Two participants documentation was not up to standard and needed supervision and assistance. The nursing care plan was incomplete and not up to date for what had occurred with the patient and another was of poor quality and incomplete. The overall percentage for this section was 91%.

The individual percentages achieved by the participants will follow in the form of a table (Table 6.6).

All nine participants of the adaptation program who participated in the comprehensive physical patient assessment passed the evaluation. The pass mark was set at 50% as this is the pass mark which is set for the nursing college affiliated to this private healthcare group for any test that is written at the institution. The lowest percentage was 61% with the highest percentage being 88%. The average percentage for the group was 76%.

On analysis of the results of the physical patient assessment it is evident that two lowest scoring areas are the assessment of the chest which achieved a 56% average and the assessment of the abdomen which achieved an average of 52%. This means that going forward in further refinement of the program greater emphasis and training needs to be devoted to this section and its contents. Planning of care and knowledge of medication were the highest scoring areas. It is also evident that due to the fact that the program was condensed into one day insufficient time was allocated to the practical component of the program and so these areas were not adequately covered during the presentation of the program to ensure that the enrolled nurses had adequate exposure to this element.

Once the comprehensive patient assessment was concluded on each participant, a further post-test was completed by each participant of the experimental group.

6.4 POST-TEST 2

The post-test 2 was conducted at the same time as the competency evaluation (patient comprehensive physical assessment), approximately ten weeks since the completion of the adaptation program. The same test that was utilised for the pre-test and post-test 1 was utilised for the post-test 2. The aim of conducting the post-test 2 was to ascertain as to whether there had been any improvement in the knowledge gained over the ten weeks since the completion of the adaptation program, through experiential learning. Experiential learning is described by Quinn & Hughes (2007) as learning which takes place by action and not necessarily by formal learning, so we can say that this is learning that takes place whilst working and is gained through experience. This would be knowledge which the enrolled nurses gained through experience whilst they are working in the critical care unit and not through the format of formal lectures or programs. The results of the post-test 2 are seen in Table 6.5 below:

Table 6.5: Results of the Post-test

POST TEST 2	
PARTICIPANT	**PERCENTAGE**
A1	62
B1	56
C1	79
D1	68
E1	74
F1	79
G1	68
H1	71
I1	62
AVERAGE	**69**

The results show that all participants passed the post-test 2. The pass mark was again taken as 50% as this is the pass mark recognised by the nursing college affiliated to this Healthcare group. The Lowest percentage was 56% with the two participants achieving the highest percentage of 79%. The average for this test was 69%. A comparison was then done between the pre-test and post-test 1 and post-test 2, and the result is the following Table 6.6:

Table 6.6: The difference between the pre-test and the two post-tests

PRE TEST		POST TEST 1		POST TEST 2	
PARTICIPANT	PERCENTAGE	PARTICIPANT	PERCENTAGE	PARTICIPANT	PERCENTAGE
A1	65	A1	62	A1	62
B1	62	B1	62	B1	56
C1	76	C1	79	C1	79
D1	62	D1	62	D1	68
E1	74	E1	65	E1	74
F1	71	F1	79	F1	79
G1	53	G1	65	G1	68
H1	71	H1	74	H1	71
I1	56	I1	68	I1	62
AVERAGE	65		68		69

PHYSICAL PATIENT ASSESSMENT	
PARTICIPANT	PERCENTAGE
A1	70
B1	73
C1	68
D1	77
E1	77
F1	84
G1	86
H1	88
I1	61
AVERAGE	76

The two post-tests were written approximately ten weeks apart and the comparison between post-test 1 and post-test 2 is as follows:

All participants passed the post-test. The pass mark was again taken as 50% as this is the pass mark recognised by the nursing college affiliated to this healthcare group. Three participants demonstrated an increase in their percentage, 62% to 68%, a 6% increase in percentage, 65% to 75% a 9% increase in percentage and from 65% to 68% a 3% increase. Of the remainder of the participants, three participants did not demonstrate an increase in percentage. Three participant decreased in percentage. When analysing the results of these three participants it is noted that when we look at participant B1 the result of the Post-test 1 shows no increase from the pre-test which means that there was no increase in knowledge from before the adaptation program compared to after the program. When comparing the results of post-test 1 with post-test 2 it is noted that there is a decrease in percentage from the post-test 1 by 6 percent over the ten week period. This could be attributed to the fact that this participant did not understand the questions that were asked or that this participant is not interested in learning or has a problem where fundamental knowledge is lacking. In the analysis of participant H1 it is noted that there was an increase in the percentage obtained from the pre-test to the post-test 1 by 4% which is an indication that learning did take place during the phase of the adaptation program. However when tested ten weeks later the post-test 2 results reveal that the percentage has returned to that of the pre-test result which indicates that the knowledge that was gained during the adaptation program has been lost. This could be an indication that the participant has a very short retention span and managed to increase the percentage as the post-test 1 was done directly after the program and therefore the knowledge was fresh in the participants mind, but

ten weeks later this knowledge had been lost as it was not cemented. This could also be due to the fact that the program was too crammed and was run over one day not allowing time for internalisation and retention. Participant I1, showed that there was an increase in percentage of 12 % between the pre-test and the post-test 1, however, when evaluating the post-test 2 results we can see that this has decreased by 6%. There was still some knowledge retention but some of the knowledge that was gained during the adaptation program was lost during the ten week period. This could also be due to the fact that some knowledge was still fresh in the participants mind when the post-test 1 was written so this contributed to the increased percentage, but had been lost in the interval between post-test 1 and 2. The duration of the program could once again be a contributing factor to this.

The average of the group increased from 68% to 69%. If one looks at the increase in percentage between the post-test 1 and post-test 2 it appears that there was a certain amount of experiential learning which also took place during the ten weeks between the completion of the adaptation program and the evaluation process.

A comparison was done comparing the results of the pre-test at the beginning of the Adaptation program and the final post-test at the end of the pilot with the following results as illustrated in Table 6.7 below:

Nine participants completed the post-test. Utilising 50% as the pass mark as this is the standard pass mark at the nursing college affiliated to this healthcare group, all the participants achieved a percentage greater than 50%. The highest percentage was 79%, achieved by two participants and the lowest percentage was 56%. The average of the post-test was 69% and this was an increase of 4% from a 65% in the pre-test. There were five participants who increased their percentage marks in the post-test compared to the pre-test. 76% to 79% an increase by 3%, 62% to 68% an increase of 6%, 71% to 79% an increase of 8%, 53% to 68% a 15% increase and 56% to 62% increase a 6% increase. Two participants remained at 71% and 74% respectively and two participants decreased in percentage. 65% to 62% and 62% to 56%.

Table 6.7: Comparison between the results of the pre-test and the final pilot post-test

PRE TEST		POST TEST 2	
PARTICIPANT	**PERCENTAGE**	**PARTICIPANT**	**PERCENTAGE**
A1	65	A1	62
B1	62	B1	56
C1	76	C1	79
D1	62	D1	68
E1	74	E1	74
F1	71	F1	79
G1	53	G1	68
H1	71	H1	71
I1	56	I1	62
AVERAGE	65	**AVERGE**	69

6.5 ADAPTATION PROGRAM EVALUATION

6.5.1 Feedback from Professional Nurses

After completion of the adaptation program and following completion of the second post-test and the patient comprehensive physical competency assessment a questionnaire was handed to the professional nurses working in the critical care units where the enrolled nurses were working post adaptation program (Annexure P). The following open ended questions were posed to the professional nurses:

1. Has the adaptation program lessened the burden on the professional nurses?
2. Are the enrolled nurses more competent to work in the critical care unit?

Fourteen professional nurses completed the questionnaire and they responded as follows:

Question 1, has the adaptation program lessened the burden on the professional nurses?

The overall feedback from the professional nurses was that the enrolled nurses lessened the burden on the professional nurses. The adaptation program had a positive impact in that it made the enrolled nurses feel more comfortable and confident when working in the critical care unit. Two of the respondents felt that since completing the program the enrolled nurses were able to work more independently, with less supervision from the professional nurses and this was because they were now able to

know what to look for and were better equipped to look after the critical care patient. Some of the professional nurses felt that sometimes this lessened the burden. However, the enrolled nurses were better than prior to the program. Two of the respondents felt that this did not lessen the burden on the professional nurse, with one of the professional nurses stating that the enrolled nurses are already good and competent without the program and was unaware of the training taking place.

Question 2, are the enrolled nurses more competent to work in the critical care unit?

The overall majority of the respondents stated that the enrolled nurses are more competent to work in the unit and that they now have the necessary skills. It was even suggested for them to now do the six month high care program offered by the nursing college affiliated to the healthcare group. Some professional nurses gave feedback that not all enrolled nurses are competent and even if they are more competent and independent than previously some still need full support. A strong feeling was that the enrolled nurses lack critical assessment and thinking ability and most of the enrolled nurses do not understand the dynamics of a patient changing condition and need to be available at all times to monitor should there be a change in patients condition.

6.5.2 Validation by an expert group

A discussion was held with an expert group to validate the findings of the pilot adaptation program. The group consisted of Unit Managers, a Preceptor, a Professional Nurse with a qualification in critical care nursing, an expert in nursing education who was also the facilitator of the nominal groups, enrolled nurses who had participated in the study as well as the study supervisor for this research study. The aim of this group was to validate the findings of the adaptation program and to discuss the outcomes of the program. The discussion group was convened at the large high tech hospital in the training department and a small meeting room was utilised. This was conducive to this type of discussion as it was private and interruptions could be kept to a minimum. The purpose of the study was reinforced which was to develop an adaptation program for enrolled nurses practicing in the critical care units to ensure competent care of patients within the critical care units by enrolled nurses. The following questions were addressed to the group (Annexure T):

1. Were the training topics that were presented during the pilot adaptation program relevant to your needs or the needs of an enrolled nurse working in the critical care unit?

2. Have you seen any change in customer feedback or incidents since the pilot adaptation program?
3. Has the new adaptation program equipped the enrolled nurses with the necessary knowledge and expertise to care for patients in the critical care units?
4. Is there anything about the adaptation program that you would change that could be utilised in the future for full implementation of the program?

The information document was discussed with the group and any questions were addressed. Consent to participate in the study as well as the consent to audio taping was discussed with the group and consent was obtained (Annexure Q). It was highlighted to the participants that participation in the study was voluntary and that they could withdraw from the study at any time. Confidentiality was only guaranteed as far as this was a face to face discussion. The session was audiotaped and the session was transcribed verbatim and feedback analysed which will be discussed in the evaluation section of this chapter (Annexure U).

6.5.3 Feedback from the program facilitator

The facilitator that was utilised to present the program evaluated the program and gave feedback which could be divided up into five main focus areas:

Table 6.8: Feedback from the program facilitator

FOCUS AREAS	DESCRIPTION	
Duration of the program	The program was planned to be run over two days. Due to external factor the training then took place over one day.	*'The training took place over one day instead of two as planned, but this did not affect the training. We still managed to cover the same content in a day".* *The practical element could be added to assist them in their adaptation and thus keep the training two days e.g. explaining tracheostomy care and A line to a nurse that has never been exposed to CCU will be challenging".*

FOCUS AREAS	DESCRIPTION	
Group	The group made up of enrolled nurses was interactive	"*The group was interactive and asked a lot of questions of clarity regarding current practices in the CCU's".*
Program	The program was insightful	Discussions were held with the enrolled nurses and this helped them to understand the reasons behind some of the practices that they do in the units e.g. why a COPD cannot be put on a poly mask. *""The program was insightful and through discussion it helped them to understand the reasons behind some practices that they do in the units, e.g. why a COPD patient cannot be put on a poly mask".*
	Some content is out of their Scope of practice	*"There is content that is above their scope of practice but invariably they are exposed to it. So the key in the training was to enable them to identify potential complications and report them, even if they will not directly mange them".*
	Training went smoothly because all enrolled nurses are already exposed to the CCU environment.	*"This might not have been the case with ENS who are not familiar to the CCU in terms of the terminology and intensity of nursing care required".*

FOCUS AREAS	DESCRIPTION	
		Ï recommend that you include infection prevention bundles I.e. CAUTI, SSI, VAP, and CLABSI in the training as it is part of the nursing care and they must be aware about them".
Documentation	Actual recording was identified as a need	*In addition to the relevant documentation, the actual recording was identified as a need. They are aware of which document must be used when but what to record is not always clear".*
Frequency	The program should be run frequently	*"The group suggested the program should be every three months, so maybe adaptation program can be followed by refresher program (one day) especially for those who are new to the CCU environment because most things will only make sense once they are in the clinical setting".*

Feedback received from the facilitator will be utilised in the recommendations which will be covered in Chapter 7 of this research study.

6.6 EVALUATION OF THE PROGRAM

As explained in Chapter 3, Kirkpatrick's evaluation model was utilised to evaluate the Adaptation Program for Enrolled Nurses (Table 6.9).

6.6.1 Reaction - of the participants

This can best be described as how well the participants like the program (Kirkpatrick, 1979). The participants in this evaluation are taken to include not only the enrolled nurses who followed the program but all those involved directly and indirectly in the

program including the professional nurses with whom they work, the clinical facilitators and the managers. It was possible to gauge the reaction from the enrolled nurses and professional nurses from the post program questionnaire for the enrolled and professional nurses, and all participants were involved in the expert group which was most useful in finding out what they thought of the training.

The relevance of the program for the enrolled nurses is an important factor to consider. The content which is included in the program needed to meet the needs of the enrolled nurses and needed to contribute to them delivering quality, safe patient care due to the information that they gained during the program. When the enrolled nurse works in the critical care unit, they work under the direct and indirect supervision of the professional nurse. The information which was included in the program was found to be informative in that some of the information taught them about aspects of their everyday tasks which are not necessarily within their scope of practice as an enrolled nurse.

This is a potentially controversial aspect of the adaptation program as the scope of practice is a regulation and as such should, presumably, be adhered to. In examining the scope of practice of the enrolled nurse (SANC, 1991) it is clear that a requirement for the enrolled nurse is to provide care that is "part of the nursing regimen planned and initiated by a professional nurse … and carried out under his direct or indirect supervision." This is then said to include, "carrying out of nursing care to fulfil the health needs of a patient or a group of patients." While the document continues with a list actions and procedures it does not preclude an enrolled nurse caring out other actions and procedures providing they are initiated by a professional nurse, part of the nursing regimen and under the professional nurse's direct or indirect supervision.

Geyer (2016) points out that the scope of practice is meant to be a flexible framework rather than a prescriptive list of actions that the nurse is allowed to carry out. In a literature review of the Scopes of Practice for nurses in Australia, Scanlon et al (2014) concluded that scopes of practice cannot keep up with the rapidly evolving roles of the nurse and that the context in which they practice is ever changing. This is one of the problems in South Africa in that the current scope of practice under which enrolled nurses currently practice has not been updated since 1991 and the long awaited amended scopes of practice have not been promulgated. This leaves the enrolled nurse and her employer in a difficult situation and it is necessary to view the scope of

practice as Geyer (2016) does as a flexible framework while remaining within the requirement, as this adaptation program did, that the enrolled nurse works under the direct or indirect supervision of a professional nurse and that the enrolled nurse provides care which is part of the nursing regimen planned and initiated by a professional nurse.

The enrolled nurses gained insight into tasks of which they did not previously have any back ground knowledge and this has better equipped them to care for the high risk patient and in so ensuring a delivery of safer quality patient care, because they are now aware of the risks involved in carrying out these advanced procedures.

Constructivist theory tells us that individuals create their own subjective ideas of objective reality through reflection and experience, which gives rise to insight into their situation. In this program, an outcomes based approach was used but the students still seemed to have reflected on what was taught and had some “ah hah” (Kizilirmak et al. 2016) moments. The program was held over a short time period and yet the nurses were, as evidenced by their comments in the expert group, had gained confidence which seemed to come about from their new understanding of the reason for the skills that they had been performing without such insight. This could have come about as they were in a small group and guided by an expert educator who gave them the opportunity to think and apply knowledge to their situation. Eng & Pai (2015) demonstrated that self-reflection, insight and competence were inter-related. Foster & Ooms (2015) believe that mentoring helps to develop insight, which may have played a role in this program. Cioffi (2017) provides an interesting perspective on the issue as she believes that insight is not necessarily the result of logic, but rather that they are based in observations that attract attention. In this program, specific critical issues were singled out for inclusion that were found to be important in phase 1 of this study. It is hoped that by “attracting attention” to those issues, the enrolled nurses may well have developed new insights if Cioffi (2017) is to be believed. It is also, however, important to consider Roessger’s (2014) contention that requiring people to reflect on their performance may, in fact lower the quality of performance as they are subjected to cognitive overload.

The enrolled nurses found the training program favourable and relevant to their current jobs because the program was informative and interesting. A major factor which has impacted the enrolled nurses ability to function in the critical care unit is that they now

have the knowledge to recognise when there is an abnormality with a patient and can take the appropriate action as they are now able to recognise the abnormal and alert their seniors so that appropriate action can be taken and this is beneficial to their patients.

It is a well-known idea in education that, if learning is relevant to a student, or they can see the relevance of what they are expected to learn, it is easier to learn and they are more likely to understand it (Steffens, 2015; Saunderson, 2013). What makes it relevant to one student may not make it relevant to another and circumstances, ambitions, or locality may play a role, or it may simply be because the learning is new or challenging (TKI, 2017). Yardley, Teunissen & Dornan, (2012) also point out that learning material needs to be applied in an appropriate way for it to be relevant and therefore effective.

The success of any adaptation program of this nature must, therefore, not only have what the educators consider to be relevant but it would be important to consult the participants in any adaptation program to find out what they consider relevant to their day to day work, and may even include aspects that are no necessarily part of their work now but are sufficiently new and challenging to make them relevant to the nurses' needs. If the literature is to be believed, it would also be ideal to tailor make the adaptation program for each learner. This may be challenging but it may be possible in future to include a core module and to have elective learning opportunities that can be added onto the core.

The facilitator of the program played a pivotal role in the success of the program as the manner in which she imparted the information to the participants had a far reaching impact. The facilitator had been purposefully selected due to her recent clinical experience in critical care units and her up to date theoretical knowledge and her dynamic personality which went a long way to motivate and encourage the participants.

Belland, Kim & Hannafin (2013) state that students engage automatically in their learning when teachers present authentic case-based or problem-based examples to illustrate aspects of the course. Whereas the researcher was fortunate to engage the assistance of a facilitator who was up to date with her knowledge, one of the additional successes of the program was that the facilitator was familiar with the environment in which the enrolled nurses were working and was thus able to provide authentic examples. In reviewing the adaptation program and thinking of its future roll out, one

would need to consider whether, if it is not possible always to have such a facilitator available, one could compile 'authentic' cases and use them as group of self-study opportunities. One does need to consider, however that motivation in both teacher, and learner are important factors in learning as is perceived teacher support (Yıldırım, 2012). It is likely, therefore that, as stated earlier, one of the key factors in the success of this adaptation program was the skill, knowledge and motivation of the facilitator.

6.6.2 Learning - the Resulting increase in Knowledge or Capability

In this second step of Kirkpatrick evaluation model, learning is assessed. Learning can defined as what facts were understood by the participants in the adaptation program (Kirkpatrick, 1979). During the adaptation program the enrolled nurses perceived increased knowledge was due to learning which was gained by means of the structured adaptation program. The control group also gained knowledge during the same period of time without attending the adaptation program. This could be due to learning due to experience gained whilst working in the critical care unit, but even the enrolled nurses attending the program were exposed to the units during this time.

Taylor & Hamdy (2013) believe that while becoming a member of the health team requires skills, knowledge and a process of growing into the professional community, it is the employer's responsibility to make available the time and resources for effective learning to happen. The result of this program are ambivalent, but even if learning does occur on the job and that additional opportunities to follow a short course do not show clear improvements over those not exposed, opportunities should nevertheless be made for them to learn. Roholt & Fisher (2013) make the point that we are never certain when designing learning activities and courses whether they will be beneficial or not and quote Dewey (1916) having said over a century ago that "experiences can be 'mis-educative' just as easily as they can be 'educative'.

One important lesson for the context of this study can be learned from Mezirow's (1991) transformative learning theory which indicates that people modify their ideas and assumptions and that these should lead to changes (or transformations) in behaviours and actions. This means that adaptation programs may be useful after initial exposure to the clinical area as only after such experiences can one reflect on those practices and then change one's behaviours. This certainly appear to have happened in the adaptation program where the enrolled nurses indicated that they now understood why they were required to do certain things. Whether their improved

performance is not known as, although a competency test was performed, no pre-test had been done so it is not possible to assess the impact of the course alone.

There is no doubt that some learning took place with knowledge gain in the enrolled nurses that were on the adaptation program. However, if this was solely due to what learning took place due to the knowledge gained from the program or if it was due to the fact that they were made to feel good about being on the program and this gave them as sense of purpose and a sense of pride as well as a sense of achievement, which could all have attributed to the perceived feeling of increased knowledge. The program did give a number of the enrolled nurses a yearning for learning and they realised that they had the potential to become more than enrolled nurses. Some of the participants of the program have already enrolled in programs to ensure their betterment e.g. the Bridging program.

Any decision of whether learning has taken place or not has to be based on assessment which means that this has to be appropriate in order to know whether learning has truly taken place or not. In this program, multiple choice questions (MCQs) were used in order to provide some objectivity and consistency to the pre-and post-testing. The MCQs used were subjected to validity testing but the small number of students and MCQs tested provided some challenges. Smith (2018) showed that MCQs measure content knowledge to an acceptable degree, but construct knowledge was less well assessed which may be a problem in a program such as this where application of knowledge is of paramount importance. While there are advantages in using MCQs, mainly for reasons of feasibility and objectivity, there are undoubtedly weaknesses in the use of MCQs, Donnelly (2014) believes that it is fairer to the students if a blended approach is used in assessment, and this may be even more so when applied to second-language learners as MCQs are highly reliant on understanding of the language used. In considering future changes to this adaptation program, short answer questions may be an appropriate method addition to the testing of students in conjunction with the competency assessment that appears to have been successful. This success was based not only on the content of the assessment which is tried and tested in the company but also the consistency of its application as one, experienced and knowledgeable nurse educator conducted the assessment on all the candidates which may not be possible in future adaptation programs, especially once rolled out throughout the company in all parts of the country.

6.6.3 Behaviour – Extent of Behaviour and Capability Improvement

The third step in Kirkpatrick's evaluation is looking at the behaviour of the enrolled nurses in the critical care units since completion of the adaptation program.

In this step the behaviour of the enrolled nurse since completion of the pilot adaptation program is addressed compared to how they performed prior to the program (Abernathy, 1999). The enrolled nurses have gained insight into their duties. Previously it was noted that they carried out actions or tasks without any insight at all and never questioned what they were doing. Subsequent to the program the evidence provided by their supervisors and clinical facilitators, they now know why they perform certain duties and they have become more enquiring and ask questions.

Confidence levels were not measured in this program but the perceptions of both the participants and their supervisors were that this had improved. It is possible to measure confidence levels and this may be considered in a subsequent offering of the program but should not be seen as an important criteria on its own as confidence without knowledge could be problematic. It is also interesting to note that students are known to gain more confidence when learning skills through simulation than through traditional demonstration and practice (Kim, Hwang & Lee, 2014; Cummings & Connelly, 2016) and may provide a useful add-on component to a future program.

Due to the fact that the enrolled nurses are more insightful they are aware of more things regarding the patient and the patients' environment and more easily alerted to problems which they escalate timeously and this is less detrimental to the patient wellbeing (Massey, Chaboyer & Anderson, 2016). As they have gained more knowledge and more confidence they are willing to teach their fellow colleagues and junior nurses and this imparting of knowledge has assisted in improving the team work within the unit. They are also more part of the team due to their contributions that they make. They have developed a sense of empowerment which has assisted in building their self-confidence. Due to the increase in their self-confidence they are stepping up to the plate more and are taking on more responsibilities within the unit. Patient in critical care units are, of necessity, nursed by teams of people and the contribution of each member of that team makes a difference in recognising and responding to clinical deterioration and thus improving outcomes. If information is incomplete it will not be possible for the team to make a prompt diagnosis, consider alternatives in care and put these decision into action (Bucknall et al. 2016).

The manner in which the enrolled nurses on the program address people has also, according to their supervisors, improved. The researcher speculates that this may be associated with their apparent increased feelings of self-worth. No study was found measuring the relationship of these two concepts in sub-Saharan Africa, but a study conducted among East Asian cultural groups (Ogihara & Uchida, 2014) indicated that the negative effects of individualism (which included poor inter-personal relationships) can be decreased through competition and associating with other groups. It is possible that, purely by being part of a chosen group for this study and spending time with other participants in the group had such an effect and would be worthwhile exploring further, as would the long term 'halo effect' that participation in the program appears to have had in relation to the participants confidence and inter-personal skills.

6.6.4 Results – the Effects on the Business or Environment.

The fourth step of Kirkpatrick's evaluation looks at the effect on the business and in particular the effect of the adaptation program on patient satisfaction (Abernathy, 1999). The desired results of a training program include that of improved quality and improved morale (Kirkpatrick, 1979). The impact of the program on the business will only be able to be measured in the long term but the short term effects have already been identified. The program has impacted the patient satisfaction survey results to date. Where previously the patients had complained in particular, and specifically about the enrolled nurses and the attitude that was displayed towards the patients in the units. Subsequent to the program the patient satisfaction results have improved and the complaints have decreased. Management are receiving compliments regarding the enrolled nurses. The marked improvement in the attitude of the enrolled nurses has impacted the patient satisfaction scores for the individual units.

It should also be born in mind that staff attitudes and soft skills traditionally achieve lower scores than tangible aspects (Ganasegeran et al. 2015), and perceived service quality, which includes interpersonal aspects of care is the highest predictor of patient satisfaction (Zarei et al. 2015).

Rashid and Amina (2014) raises an interesting point in relation to this finding that, while health care service have increasingly depended on patient satisfaction scores to measure the quality of their services, there is little indication that taking action on the results of the surveys impacts on the quality improvement. While this may well be the case, the company in which this program was run uses the patient satisfaction as a

very important indicator in terms of measuring performance and as such this result of the program is most welcome.

Patient documentation audit results have also been impacted due to the fact that some of the critical gaps have now been closed. These areas were addressed during the program and the enrolled nurses now have had a greater attention to detail and with the broader knowledge have seen the bigger picture and this has enabled them to correctly identify e.g. critical indicators when nursing their allocated patients and in so doing improve the PDA (Patient documentation audit scores).

In assessing such aspects, it must be born in mind that the enrolled nurses work as part of a team, but as they frequently are the designated care provider in the unit and therefore required to make entries in the patient records, it may be a reasonable assumption that the program has assisted in this. The assumption would, however, need to be tested in subsequent programs and before a full roll out occurs.

The outcomes of this program have also raised the issue of whether teaching nurses to keep records according to set standards or whether teaching accountability is the more effective way of bringing about an improvement in record keeping.

Due to the fact that the enrolled nurses have been trained, they feel empowered. This, in turn has made them valuable members of the team. They feel that their input is valuable and this has improved the morale in the critical care units. The team work has improved and they are working more closely with the professional nurses. Anecdotal evidence shows that the professional nurses no longer see them as a burden but as a member of the team that can add value and can contribute.

Table 6.9: Evaluation of the Adaptation program for Enrolled Nurses utilizing Kirkpatrick's Evaluation Model

EVALUATION STEP	EVALUATION DESCRIPTION	EXAMPLE OF EVALUATION METHOD UTILISED	CRITICAL REVIEW OF THE PROGRAM
1	Reaction • How did the participants feel about adaptation program	• Post program enrolled nurse Questionnaire • Post program professional nurse Questionnaire • Participation in the post program expert group discussion	The information which was included in the program was found to be informative. • The enrolled nurses gained insight into tasks of which they did not previously have any back ground knowledge and this has better equipped them to care for the high risk patient and in so ensuring a delivery of safer quality patient care. Enrolled nurses now know the risks of nursing high risk patients. • The enrolled nurses found the training program favourable and relevant to their current jobs because firstly the program was informative and interesting. • The facilitator of the program plays a pivotal role in the success of the program.
2.	Learning • Evaluation of learning.	• Evaluation of learning • Pre and post implementation of the adaptation program	• During the adaptation program the enrolled nurses perceived increased knowledge was due to learning which was gained by means of the structured adaptation program.

EVALUATION STEP	EVALUATION DESCRIPTION	EXAMPLE OF EVALUATION METHOD UTILISED	CRITICAL REVIEW OF THE PROGRAM
	• Pre and post implementation of the adaptation program		• The control group also gained knowledge during the same period of time without attending the adaptation program. This could be due to learning due to experience gained whilst working in the critical care unit. • The program gave a number of the enrolled nurses a yearning for learning and they realised that they had the potential to become more than enrolled nurses.
3.	Behaviour • implementation once back in practice • Change in behaviour	• Implementation once back in practice • Change in behaviour	• The enrolled nurses have gained insight into their duties. • Subsequent to the program they now know why they perform certain duties and they have become more enquiring and ask questions. • Due to the fact that they are more insightful they are aware of more things regarding the patient and the patients environment and they are more easily alerted to problems which they escalate timeously and this is less detrimental to the patient wellbeing • They are willing to teach junior nurses as they have gained more knowledge. • Increased teamwork

EVALUATION STEP	EVALUATION DESCRIPTION	EXAMPLE OF EVALUATION METHOD UTILISED	CRITICAL REVIEW OF THE PROGRAM
			• Built their self-confidence and an increase in responsibilities within the unit. • Manner of approach has improved
4.	Results • What is the effect on the business or environment	• What is the effect on the business or the environment	• The program has impacted the patient satisfaction survey results to date. • Complaints about enrolled nurse attitude have decreased. • Compliments have now been received instead of complaints. • Subsequent to the program the patient satisfaction results have improved and the complaints have decreased. • The marked improvement in the attitude of the enrolled nurses has impacted the patient satisfaction scores for the individual units. • Patient documentation audit results have also been impacted upon due to the fact that some of the critical gaps have now been closed. • The team work has improved.

EVALUATION STEP	EVALUATION DESCRIPTION	EXAMPLE OF EVALUATION METHOD UTILISED	CRITICAL REVIEW OF THE PROGRAM
			• Professional nurses no longer see the enrolled nurses as a burden • Enrolled nurses are able to identify early warning signs if there is a problem with their patients. Leading to improve quality patient care.

6.7 CONCLUSION

In this chapter, as discussed in the pre, post-test and comprehensive assessment results and the expert discussion group, it has been shown that the pilot adaptation program has positively impacted the knowledge of the enrolled nurses working in the critical care units. It has not only had an effect on their knowledge, but it has helped them to grow professionally and they have displayed a change in their behaviour in that they have gained confidence and have become more assertive. Where there were complaints regarding attitude this has now decreased and the attitude of the enrolled nurses appears to no longer be problematic. They have become empowered and feel that they can confidently make assessments and decisions and can communicate their concerns regarding patient's conditions and deterioration thereof to the professional nurse without fear that they do not know what they are talking about and will be ridiculed. They are able to assess abnormalities in the patients and can confidently communicate the problems and identified changes in the patient's condition to both the professional nurses as well as the doctors, in chapter 7 the researcher will provide guidelines for further development of the program for post study roll out of the adaptation program.

CHAPTER 7 : CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

In the introductory chapter, an overview of the research study was presented and the problem statement was described. Chapter three described the research methodology and design. Chapter four described how information was gathered and synthesised utilising a content analysis, nominal group sessions and a knowledge assessment. The information gathered from this chapter was then discussed in chapter four of the study where the design of the intervention was described. This chapter involved the development of the material for the adaptation program for enrolled nurses and the validation of this content by the expert group. Development and testing of the pilot adaptation program was described in chapter six. This incorporated the pilot program, a pre and post-test, and a comprehensive patient assessment. Completion of questionnaires by the registered and enrolled nurses and culminated by validation of this adaptation program by an expert group. This chapter includes a summary of the findings, limitations, recommendations and the conclusion of the research study.

7.2 RESEARCH QUESTION AND OBJECTIVES

The research question was: *How can enrolled nurses working in the critical care units be prepared to develop competencies to provide safe care to compromised patients in the units?*

The objectives of the study that were followed in order to answer the research question were:

Phase 1:

- To explore and describe the content and functionality of the existing adaptation programs in the critical care units.

Phase 2:

- To develop a standardised adaptation program for enrolled nurses practicing in the critical care units, to equip the enrolled nurses with the knowledge and competence to safely care for patients in the critical care units within their scope of practice.

Phase 3:

- To pilot the adaptation program for enrolled nurses within the critical care unit of a private hospital group

It is the opinion of the researcher that the aforementioned objectives were reached on completion of this research study.

7.3 SUMMARY OF THE RESEARCH FINDINGS

The research study emanated from the researcher's own experience as a professional nurse trained in critical care and as a nurse manager of a healthcare institute, where it was noted that the enrolled nurses who were newly appointed in the critical care units had limited fundamental knowledge of the environment. The time period that it took them to build up this knowledge placed an added stress on the professional nurses working in the critical units and this impacted on the quality of patient care delivered. It was found that the enrolled nurses were inadequately trained to work in the critical care environment and that there had been a decrease in quality patient care rendered by the enrolled nurses as described by Dunsdon (2011).

During the research process the enrolled nurses formed the main participants in the research study. They were included in the nominal groups, participated in the pilot adaptation program, completed the pre and post-tests, comprehensive patient physical assessment and were then part of the validation group. Data was obtained from phases 1, 2 and 3 by means of content analysis of existing adaptation programs, nominal group sessions with the enrolled nurses, preceptors and unit managers, and knowledge assessments. The pilot program was compiled utilising data obtained and analysed from phase 1 of the study, validated by an expert group which comprised of professional nurses qualified in critical care nursing and experts in nursing education.

The enrolled nurses were participants in the pilot adaptation program. On completion of the pilot adaptation program, the program was validated by an expert group comprising of enrolled nurses, preceptors and units mangers.

During phase 1 when the existing adaptation programs were analysed, utilising a content analysis, it was evident that no formal adaptation program specific to critical care units existed in any of the units identified. They took the form of a macro- and micro- unit specific induction program with some of the content clearly out of the scope of practice of the enrolled nurse. Programs appeared to be generic in nature and could be used inter-changeably for professional nurses and enrolled nurses. They consisted mainly of tick sheets which needed to be completed and there was no documented time frame for the completion of the tick sheet. The large high tech hospital did however, give a time frame in that the document needed to be completed within three months. In the documentation submitted from the medium hospital 2, there was no tick sheet but rather an adaptation program booklet. Nowhere was it evident that a record was retained as proof that the newly appointed staff member had been inducted or found competent at the end of the program. There were also no outcomes or competencies stated nor any documented evidence submitted for analysis of assessment of competence of the enrolled nurses.

During the nominal group sessions, which were conducted separately with enrolled nurses, preceptors and unit managers, consensus was achieved that the following themes were identified as being problematic during the current adaptation program: lack of a standardised program, lack of time, CCU documentation, mentoring, soft skills and improved selection / staffing was listed as aspects that would improve the adaptation program to ensure competence of enrolled nurses.

During the knowledge test it was evident that fundamental knowledge was lacking especially around the areas of the renal, neurological, cardiovascular and respiratory systems and these were therefore included in the adaptation program.

During phase 3, the pilot adaptation program was scheduled and the participants completed a pre-test. On conclusion of the adaptation program which was run over one day, the participants wrote a post-test and the results revealed that more than half the participants had increased their percentage from the pre-test compared to the post-test result and the average percentage of the group had also increased. The

enrolled nurses were given a questionnaire to complete providing feedback on the adaptation program. The enrolled nurses responded positively to the questions put to them. They found that the program was beneficial, interesting and informative. They stated that their knowledge had increased. The participants also felt that since they had embarked on the adaptation program they understood better what was expected of them working in the critical care unit and that they had gained clarity on their actions and this was a positive experience. The facilitator of the program was found to be knowledgeable and professional. As the facilitator was a dynamic knowledgeable professional nurse. This was picked up by the participants and had a big impact on the positive perceptions on the outcome of the program. When comparing the previous adaptation program to the pilot program, the response from the participants was very positive.

After completion of the post-test 2 the participants were evaluated utilising a comprehensive patient assessment and the following was found: the nine participants of the pilot adaptation program completed the comprehensive patient assessment. The pass mark was set at 50% as this is the pass mark which is set for the nursing college affiliated to this private healthcare group for any test that is written at the institution. The lowest percentage was 61% with the highest percentage being 88%. The average percentage for the group was 76%. The percentages reflected higher scores than those of the theoretical results for the pre- and post-tests. During the evaluations of the comprehensive patient assessment it was found that the two lowest scoring areas were the assessment of the chest and the assessment of the abdomen. It is also evident that due to the fact that the program was condensed into one day insufficient time was allocated to the practical component of the program and so these areas were not adequately covered during the presentation of the program to ensure that the enrolled nurses had adequate exposure to this element. Planning of care and knowledge of medication were the highest scoring areas. It was found that interpretation of the vital data was well described and often well tied up to the disease process with some insight into the pathophysiology of the disease in some instances.

Questions were also posed to the professional nurses working in the critical care units via a questionnaire and the feedback was that the majority of the professional nurses who answered the questionnaire had a positive response towards the adaptation program. The burden on the professional nurses was lessened due to the fact that

the enrolled nurses were more comfortable working in the critical care units and were more confident in looking after their patients and could work independently with less supervision from the professional nurses. The professional nurses were of the opinion, despite this that their overall supervision was required, which is in line with the scope of practice. The fact that some of their burden was relieves can be seen as positive.

The feedback from the expert group post adaptation program was positive in that the enrolled nurses benefited from the program due to the fact that they have been empowered in such a way that the professional nurses now regard them as a valuable member of the team. It has been noted through patient satisfaction feedback that the attitude of the enrolled nurses has improved. The enrolled nurses come across as being more confident when looking after their allocated patients and due to the fact that they feel that their knowledge has increased they are able to correctly identify problems which occur and timeously alert the professional nurse
The program has motivated and uplifted the enrolled nurses. The enrolled nurses have become more insightful since completing the program. The expert group stated that the content was relevant to the functioning of the enrolled nurse within the critical care units and stated that the program should become a regular program within the unit. This study was undertaken to assess what adaptation programs are in existence in the critical care units and to develop a standardised adaptation program for enrolled nurses working in critical care units in a private healthcare group and ensure competent enrolled nurses who deliver quality patient care.

7.4 LIMITATIONS

The specific limitations of this study were as follows:

Sample size

This study, being as it was an intervention study going as far as piloting the program rather than doing a full roll out, was always intended to be have a small sample, confined to one private health care group, and then only in Gauteng. The planned sample was difficult to achieve firstly because, at the small hospital, there were no enrolled nurses employed in the critical care unit at the time of the study. Secondly, the sample group diminished as the study proceeded due to resignations of participants from the healthcare group and illness on the part of participants who were therefore not available to participate.

Lack of prior research studies on the topic

As the effectiveness or lack thereof, of the existing adaptation / orientation programs used in the healthcare group had never been researched or tested, it was not possible to compare data and make a judgement on whether this program was more effective or not.

Self-reported data

This study relied, as many qualitative studies do, to a large extent of self-reported data which is difficult to verify independently. The use of all categories of staff including managers and clinical facilitators in the research mitigated this possible limitation to some extent.

Lack of pre-testing

A pre-test of the physical patient assessment of the participants was not performed as with the pre-testing of the knowledge assessment.

Access

The problem of non-availability of some of the enrolled nurses has already been described. In addition to this, access to the enrolled nurses who remained in the study was difficult owing to the shortages of staff and workloads in the units which made it difficult for unit managers to release the nurses for the full period. This should, however, be seen as a potential and likely problem for the roll out of the program and the reality is that it may need to be limited to one day. The reduced time did not allow for the practice of skills such as inspection, palpation, percussion and auscultation of the chest and abdomen which were necessary to test the skills aspect of the planned outcomes. Further evaluation which had initially been planned for the second day of the program and would have included an OSCE (objective structured clinical evaluation) which may have tested different skills to the comprehensive assessment as it is skills based.

Due to the dynamic environment of the critical care unit, some of the physical patient assessment sessions which took place at the patient's bedside, had to be rescheduled to accommodate changes in patient's condition as well as the activity in the unit. The

nursing efficiencies impacted this as the enrolled nurses duty schedule was changed to meet the changing needs and occupancy of the unit.

Bias

As the enrolled nurses were junior to other participants, they may well have been influenced by social desirability bias in that they may have been reluctant to say anything negative about the program. This was counteracted by splitting the first focus groups so that managers and enrolled nurses were not together.

Although confidentiality was maintained, anonymity of the participants was a challenge due to the fact that they participated in nominal group discussions which involved face to face interactions with a group. This may have resulted in a reluctance to share information.

Fluency in a language

All qualitative research, by nature, relies on the use of language. The study was conducted in English which is the second language of most of the participants. English, is however, the official language of the institutions where the research took place. The researcher therefore had a reasonable expectation that the participants would be able to express themselves adequately in English.

7.5 RECOMMENDATIONS

In light of the research findings, and indicated limitations, the following recommendations for nursing practice, nursing education and nursing research are made:

7.5.1 Recommendations for Nursing Practice

- Due to the decreasing availability of professional nurses in the critical care units it is becoming an increasing necessity to utilise enrolled nurses as part of the nursing team to care for non-critical patients in the critical care units. This is also exacerbated by the high demand for critical care beds. The private sector is South Africa encompassing two hundred and fifty six hospitals, 84% have critical care or high care facilities and 86% of these facilities are located in the provinces of KwaZulu-Natal, Gauteng and the Free State (De Beer, Brysiewicz & Bhengu, 2013).

- Therefore management of healthcare institutions need to ensure that enrolled nurses working in the critical care units are equipped to deliver quality safe patient care. By presenting the adaptation program at each hospital and ensuring that all enrolled nurses who are appointed to work in the critical care attend this program, enrolled nurses will have a higher level of knowledge and will be enabled to deliver safe quality patient care to patients with a higher acuity in the critical care units.

7.5.2 Recommendations for Nursing Education

- The adaptation program needs to be rolled out post study to all hospitals within this healthcare group to ensure that enrolled nurses who are newly appointed to the critical care units are equipped to render quality, safe patient care to patients allocated to them in the critical care units.
- A preceptor needs to be allocated to critical care units. It will be the responsibility of the preceptor to ensure that the adaptation program is run on a regular basis when enrolled nurses are newly appointed to the critical care units. The preceptor will have the responsibility of working with the enrolled nurses at the bedside to ensure that they deliver quality safe patient care and remain up to date in their knowledge. The preceptor has the role of guiding and mentoring the new enrolled nurse as they enter the critical care environment. The ability of the preceptor to mentor the enrolled nurses will impact their performance in the unit as well as their retention to the company and their future career path (Blevins, 2016).
- All the enrolled nurses working within the critical care units of this healthcare group complete this program to enable them to continue working in the critical care unit.
- One of the main hindrances to the program was the constraint of the time available to release the enrolled nurses from the units to attend the program due to various operational needs. An innovative way to ensure that the enrolled nurses maximise the benefits of the program would be to combine the face to face instruction with an e-learning method of blended learning. In this manner the enrolled nurses will spend less time out of the units.

7.5.3 Recommendations for Nursing Research

- Further research needs to be undertaken post study to ascertain the ongoing impact the adaptation program has on the enrolled nurses knowledge and the care delivered to the patients in the critical care units over a longer period of time, utilising a larger sample size.
- A further study needs to be done, evaluating the impact of the adaptation program on the professional nurses working in the critical care units to ascertain if this has impacted the burden been placed on the professional nurses by the increasing number of enrolled nurses that have been introduced into the critical care units.
- A cost-analysis of the program should be undertaken to assess sustainability.

7.6 CHAPTER SUMMARY

This study has shown that it is possible to improve the competency level of enrolled nurses working in the critical care units in a relatively short period of time with targeted supervision and teaching. The study was conducted to determine whether this was a possibility in the light of the dire shortage of professional nurses to work in critical care units. While it is acknowledged that this piloted adaptation program needs further development and modification based on the feedback received both during the program and since the completion of the pilot, the program can, and will, be used to upgrade the enrolled nurses in the hospital group in order to prepare them to provide safe care to patients that are allocated to them, while remaining under the overall supervision of a professional nurse.

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ANNEXURES

ANNEXURE A: ASSESSOR APPROVAL LETTER

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

Private Bag 3 Wits, 2050
Fax: 027117172119
Tel: 02711 7172076

Reference: Ms Thokozile Nhlapo
E-mail: thokozile.nhlapo@wits.ac.za

11 June 2015
Person No: 1055928
PAG

Ms J Dunsdon
P O Box 59
Ridge Terrace
2168
South Africa

Dear Ms Dunsdon

Doctor of Philosophy: Approval of Title

We have pleasure in advising that your proposal entitled *The development of a standardised adaptation programme for enrolled nurses in critical care units of a private healthcare group in South Africa* has been approved. Please note that any amendments to this title have to be endorsed by the Faculty's higher degrees committee and formally approved.

Yours sincerely

Mrs Sandra Benn
Faculty Registrar
Faculty of Health Sciences

ANNEXURE B: HUMAN ETHICS APPROVAL PHASE 1

R14/49 Ms Jeananne Dunsdon

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M150620

NAME: (Principal Investigator)	Ms Jeananne Dunsdon
DEPARTMENT:	Nursing Education Life - Flora Clinic,Robinson,Dalview and Fourways Hospitals
PROJECT TITLE:	The Development of a Standardised Adaptation Programme for Enrolled Nurses in Critical Care Units of a Private HealthCare Group in South Africa
DATE CONSIDERED:	26/06/2015
DECISION:	Approved unconditionally
CONDITIONS:	Only Phase 1 Approved
SUPERVISOR:	Dr Sue Armstrong
APPROVED BY:	Professor P Cleaton-Jones, Chairperson, HREC (Medical)
DATE OF APPROVAL:	28/09/2015

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Secretary in Room 10004, 10th floor, Senate House, University.
I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report**.

Principal Investigator Signature Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

ANNEXURE C: HUMAN ETHICS APPROVAL PHASE (FULL STUDY APPROVAL)

R14/49 Ms Jeananne Dunsdon

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M160388

NAME: (Principal Investigator)	Ms Jeananne Dunsdon
DEPARTMENT:	Nursing Education Life Flora Clinic, Life Robinson, Life Dalview and Life Fourways Hospitals
PROJECT TITLE:	The Development of a Standardised Adaptation Programme for Enrolled Nurses in Critical Care Units of a Private Healthcare Group in South Africa
DATE CONSIDERED:	01/04/2016
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Dr S.J Armstrong
APPROVED BY:	Professor P Cleaton-Jones,Chairperson, HREC (Medical)
DATE OF APPROVAL:	07/10/2016

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary in Room 10004, 10th floor, Senate House/3rd Floor, Phillip Tobias Building, Parktown, University of the Witwatersrand. I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report**. The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in March and will therefore be due in the month of March each year.

Principal Investigator Signature Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

ANNEXURE D: LETTER OF REQUEST TO CONDUCT RESEARCH

Annexure D1: Letter to Hospital CEO

P.O. Box 59

Ridge Terrace

2168

Dear CEO

My name is Jeananne Dunsdon, I am PhD student from the University of the Witwatersrand and my topic is, The Development of a Standardised Adaptation Program in Critical Care Units of a Private Healthcare Group in South Africa.

Enrolled nurses practicing in the critical care units are not trained and competent to nurse the patients in the critical care units and do not have the same competencies leading to compromised patient care. The purpose of this study is to develop and adaptation programme for enrolled nurses practicing in the critical care units to ensure competent care of patients within the critical care units by enrolled nurses.

The objectives of the study are to:

Explore the content of existing adaptation programs

Develop a standardised adaptation program and develop competency assessments to evaluate the nurses on completion of the adaptation program

To pilot the adaptation program for enrolled nurses

Information will be gathered by means of nominal group technique. Nominal groups will consist of enrolled nurses, clinical training specialists and unit managers from the critical care units. The adaptation program will then be piloted in the critical care units and feedback will be given by means of a questionnaire.

During the study it is the responsibility of the researcher to ensure that the research is conducted in a confidential manner and that resources are managed in a confidential manner.

There will be no cost to the participants of the study and they may withdraw from the study at any time.

I would like to request permission to perform my research with the XXXXXXX Group

Ethical approval for this study was granted by the Assessors Committee and the Ethics Committee of the University of the Witwatersrand and my supervisor is Dr S. Armstrong, who may be contacted on (011) 488-3094, should you have any queries in this regard.

Should you wish, the results of this study will be made available to you once all the relevant data has been analysed and reported on.

Yours faithfully

Jeananne Dunsdon

Annexure D2: Request to conduct study letter

P.O. Box 59

Ridge Terrace

2168

Dear Sir / Madam

My name is Jeananne Dunsdon, I am a PhD student from the University of the Witwatersrand and my topic is, The Development of a Standardised Adaptation Program for Enrolled Nurses in Critical Care Units of a Private Healthcare Group in South Africa.

Enrolled nurses practicing in the critical care units are not trained and competent to nurse the patients in the critical care units and do not have the same competencies leading to compromised patient care. The purpose of this study is to develop and adaptation program for enrolled nurses practicing in the critical care units to ensure competent care of patients within the critical care units by enrolled nurses.

The objectives of the study are to:

1) Explore the content of existing adaptation programs
2) Develop a standardised adaptation program and develop competency assessments to evaluate the nurses on completion of the adaptation program
3) To pilot the adaptation program for enrolled nurses

Information will be gathered by means of nominal group technique. Nominal groups will consist of enrolled nurses, clinical training specialists and unit mangers from the critical care units. The adaptation program will then be piloted in the critical care units and feedback will be given by means of a questionnaire.

During the study it is the responsibility of the researcher to ensure that the research is conducted in a confidential manner and that resources are managed in a confidential manner.

There will be no cost to the participants of the study and they may withdraw from the study at any time.

I would like to request permission to perform my research at your hospital.

Ethical approval for this study was granted by the Assessors Committee and the Ethics Committee of the University of the Witwatersrand and my supervisor is Dr S. Armstrong, who may be contacted on (011) 488-3094, should you have any queries in this regard.

Should you wish, the results of this study will be made available to you once all the relevant data has been analysed and reported on.

Yours faithfully

Jeananne Dunsdon

Annexure D3: Request to Director of Nursing Services

P.O. Box 59

Ridge Terrace

2168

4 May 2015

Dear XXXXX

I am currently registered as a PhD student from the University of the Witwatersrand and my topic is, The Development of a Standardised Adaptation Programme in Critical Care Units of a Private Healthcare Group in South Africa.

Enrolled nurses practicing in the critical care units are not trained and competent to nurse the patients in the critical care units and do not have the same competencies leading to compromised patient care. The purpose of this study is to develop and adaptation program for enrolled nurses practicing in the critical care units to ensure competent care of patients within the critical care units by enrolled nurses. The objectives of the study are to:

1) Explore the content of existing adaptation programs
2) Develop a standardised adaptation program and develop competency assessments to evaluate the nurses on completion of the adaptation program
3) To pilot the adaptation program for enrolled nurses

Information will be gathered by means of nominal group technique. Nominal groups will consist of enrolled nurses, clinical training specialists and unit managers from the critical care units. The adaptation program will then be piloted in the critical care units and feedback will be given by means of a questionnaire.

During the study it is the responsibility of the researcher to ensure that the research is conducted in a confidential manner and that resources are managed in a confidential manner.

There will be no cost to the participants of the study and they may withdraw from the study at any time.

I would like to request permission to perform my research within the XXXXX Group

My supervisor is Dr S. Armstrong, who may be contacted on (011) 488-3094, should you have any queries in this regard.

Should you wish, the results of this study will be made available to you once all the relevant data has been analysed and reported on.

Yours faithfully

Jeananne Dunsdon

ANNEXURE E: HEALTHCARE GROUP PERMISSION LETTER

14 May 2015

The Chairperson
Ethics Committee
School of Health Sciences
University of the Witwatersrand
Johannesburg

Re: PHD study: The development of a standardised adaptation programme for enrolled nurses in critical care units in a private healthcare group in South Africa.

I would hereby wish to confirm that Jeananne Dunsdon is in full time employment with She is granted permission to undertake the above mentioned important study in

Should any further information is requested please do not hesitate to contact me.

Yours sincerely,

ANNEXURE F: SPECIALIST PHYSICIAN CONSENT LETTER

05/05 2015 2.45PM FAX 27117588308 0001/0001

MB BCh (Wits) FCP (SA)
SPECIALIST PHYSICIAN

Tel:
Fax:

Email:

1716

Ms J Dunedon

5th May 2015

Dear Jeananne;

Thank you for inviting me to assist with your exciting PHD study.

I hereby confirm that I will be available for discussion and advice regarding your project.

Thanks again.

Regards

ANNEXURE G: INFORMATION DOCUMENT FOR THE CONSENT TO BE A RESEARCH PARTICIPANT

My name is Jeananne Dunsdon, I am a PhD student from the University of the Witwatersrand and my research topic is:

THE DEVELOPMENT OF A STANDARDISED ADAPTATION PROGRAM FOR ENROLLED NURSES IN CRITICAL CARE UNITS OF A PRIVATE HEALTHCARE GROUP IN SOUTH AFRICA

I would like to invite you to give consent and to participate in this study. Herewith is information about the study, this will enable you to make an informed decision.

1. **PURPOSE OF THE STUDY**

   The purpose of this study is to develop an adaptation programme for enrolled nurses practicing in the critical care units.

2. **PROCEDURE**

   Information will be gathered by means of a nominal group discussion. Nominal groups will be held separately for enrolled nurses, preceptors and unit mangers from selected hospitals.

   Nominal groups are described as structured face to face meetings with a group to bring about group consensus. Nominal groups provide an orderly procedure for obtaining relevant information from a group of experts. The group responds to pre-determined structured questions. The information is interpreted and analysed.

   The adaptation program will then be piloted in 2 critical care units selected and the enrolled nurses from those units will be involved in feedback of the pilot adaptation program.

   A pre-test will be utilised at the beginning of the pilot adaptation program and at the conclusion of the adaptation program a post-test will be utilised as well as a

questionnaire which whereby feedback of the pilot adaptation program will be received. Results of these tests will in no way be utilised in the evaluation of your course.

RISKS / DISCOMFORTS

During the study it is the researcher's responsibility for ensuring that the research is conducted in an ethical and confidential manner and resources will be managed in a confidential manner. Due to the fact that data will be collected in a face to face manner via group discussions, some of your privacy might be lost during this study, however, data will be handled in a confidential manner. Where members of the nominal groups are known to each other, anonymity cannot be maintained, but the group leader will ensure that information can be shared without prejudice or reprisal. Every effort will be made to keep personal information confidential, absolute confidentiality cannot be guaranteed. Participation in this study is voluntary. You may withdraw from the study at any time and your decision whether or not to participate in the study will in no way affect you in the future.

3. BENEFITS

By participating in this study you will be contributing to a high standard of quality safe patient care of the critical care patient that is rendered by a competent enrolled nurse. However, there is no individual benefit in participating in this study.

4. CONFIDENTIALITY

During the study it is the researcher's responsibility for ensuring that the research is conducted in an ethical and confidential manner and resources will be managed in a confidential manner. Anonymity will be ensured and identities will not be revealed during the course of the study and post study during presentation and

publication of findings. All input will be coded, including questionnaires. You will be allocated a code in the nominal groups and all verbatim comments will be referred to by this code.

For the duration of the study participants will be treated fairly and with respect. Time frames will be adhered to. The participants will be protected from harm and discomfort.

5. PAYMENT

Participation will be regarded as on duty time and will take place as and when the activity of the unit allows. You will not receive additional payment for participation in this study.

6. QUESTIONS

Should you have any questions regarding the study, you are welcome to contact me on 011 796-6534 in this regard. Questions or complaints participants might have should be directed to the chairperson, Professor Cleaton- Jones at the HREC (medical) – Prof P Cleaton-Jones, Chairperson Tel 011 717 2301. Secretariat: Zanele Ndlovu and Langutani Masingi 011 717 7858/1234 zanele.ndlovu@wits.ac.za or langutani.masingi@wits.ac.za

7. FEEDBACK ON FINDINGS

Findings and information from this research study will be shared in the form of paper presentations and published articles.

ANNEXURE H: CONSENT TO BE A RESEARCH PARTICIPANT

PARTICIPATION IN THIS RESEARCH IS VOLUNTARY

Should you be willing to participate in the research study, you are requested to complete and sign below:

THE DEVELOPMENT OF A STANDARDISED ADAPTATION PROGRAM FOR ENROLLED NURSES IN CRITICAL CARE UNITS OF A PRIVATE HEALTHCARE GROUP IN SOUTH AFRICA

I _____ hereby voluntarily consent to participate in the above mentioned study.

I have received, read and understood the written information sheet regarding the study.

I am aware that the results of the study, including personal details and the answers I give will be anonymously processed into a study report and all information will remain confidential and there will be no penalty or loss of benefits resulting from my responses or participation.

I may, at any stage, without prejudice, withdraw consent and participation in the study and there will be no penalty or loss of benefits to my withdrawal.

I have had sufficient opportunity to ask questions and, of my own free will, declare myself prepared to participate in the study.

_____	_____
Signature of participant	Date and time
_____	_____
Signature of person obtaining consent	Date and time

ANNEXURE I: NOMINAL GROUP QUESTIONS

1. What problems have you identified with the current adaptation program in your hospital?
    a. Probing questions
        i. Duration of the current program?
        ii. Competency assessments not done?
        iii. Is it important to have competencies assessed?
2. What do you think will improve the adaptation program to ensure competence of enrolled nurses in critical care units?
    a. Probing questions
        i. Theoretical topics
        ii. Essential practical procedures
        iii. Important equipment necessary to be trained on

ANNEXURE J: KNOWLEDGE ASSESSMENT TEST ENROLLED NURSE CRITICAL CARE ADAPTATION PROGRAM

KNOWLEDGE ASSESSMENT TEST
ENROLLED NURSE CRITICAL CARE ADAPTATION PROGRAMME

HOSPITAL .....

DATE.....

INSTRUCTION
PLEASE USE PEN
ANSWER ALL THE QUESTIONS

TOTAL MARKS : **34**
DURATION : 1 HOUR 30

1. Which of the following indicators would show if the condition of the client with adult respiratory distress syndrome is improving?

   a. Arterial blood gas
   b. Bronchoscopy
   c. Increased blood pressure
   d. Sputum culture and sensitivity result

2. A comatose patient needs a nasopharyngeal airway for suctioning. After the airway is inserted, he gags and coughs. Which action should the nurse take?

   a. Remove the airway and insert a shorter one
   b. Reposition the airway
   c. Leave airway in place until the patient gets used to it
   d. Remove the airway and attempt to suction without it

3. Which of the following values are considered normal for intracranial pressure (ICP)?

   a. 0 – 15 mmHg
   b. 16 – 25 mmHg
   c. 35 – 45 mmHg
   d. 120/80 mmHg

4. Which of the following symptoms indicate hyperglycaemia?

   a. Polydipsia, polyuria, weight loss
   b. Weight gain, tiredness, bradycardia
   c. Irritability, diaphoresis, tachycardia
   d. Diarrhoea, abdominal pain, weight loss

5. Which of the following disease processes is caused by an absence of insulin or inadequate insulin resulting in a hyperglycaemia and leading to a series of biochemical disorders?

   a. Diabetes insipidus
   b. Hyperaldosteronism
   c. Diabetic ketoacidosis

d. Hyperosmolar hyperglycemic nonketotic syndrome

6. Fill in the missing word from the selection below:

_____is a common site for an arterial puncture?

a. Radial artery
b. Aorta
c. Temporal Artery
d. Jugular Artery

7. Which of the following tests is done to check the collateral circulation of the radial artery prior to puncture

a. Wilson test
b. Perfusion scan
c. Sacs test
d. Allens test

8 .Fill in the missing word from the selection below:

An arterial puncture site should normally be compressed for a minimum of _____ minutes after the puncture

a. 1 – 2
b. 3 – 5
c. 6 – 7
d. 8 – 10

9. What is the normal value of Ph

a. 7.20 – 7.30
b. 7.35 – 7.45
c. 7.45 – 7.50
d. Greater than 7.50

10. What is the normal PaO2 level

a. 50 – 60 mmHg
b. 50 – 70 mmHg
c. 70 – 80 mmHg
d. 80 – 100 mmHg

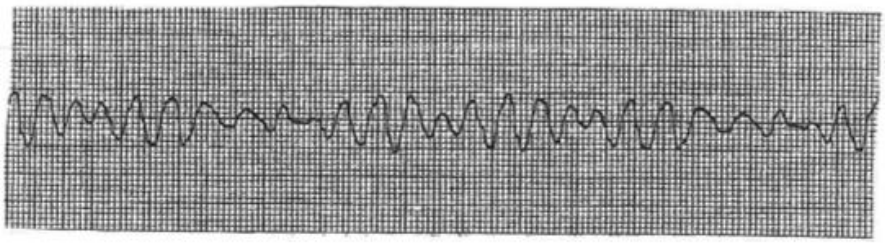
11. If a change is due to a change in the carbon dioxide level, it is:

a. Respiratory
b. Neurological
c. Homeostatic
d. Metabolic

12. If there is no P-wave present on a ECG rhythm strip, this implies the origin of the rhythm is not from the:

a. Sino-atrial node
b. Atrial-ventricular node
c. Bundle of His
d. Purkinje fibres

13. Identify the following rhythm:



a. Ventricular tachycardia
b. Sinus bradycardia
c. Sinus tachycardia
d. Ventricular fibrillation

14. The p wave on an electrocardiogram signifies:

a. Atrial contraction
b. Atrial depolarization
c. Ventricular contraction
d. Ventricular depolarization

15. Pitting oedema in the cardiac compromised patient may be due to:

a. Right ventricular failure
b. Pulmonary oedema
c. Mitral valve disease
d. Left ventricular failure

16. Interpret the following arterial blood gas

pH	7.46
pO2	64mmHg (8.5 kpa)
pCO2	30mmHg (7.2kpa)
H2CO3	20mEq/l
BE	+1mEq/l
Sat	92%

a. Respiratory acidosis
b. Metabolic acidosis
c. Respiratory alkalosis
d. Metabolic alkalosis

17. The definition of oliguria is:

a. Output between 100 and 500ml /24 hours
b. Urine output of <400ml/day
c. Urine output <50ml/day
d. Urine output <1/2 ml/kg/hour

18. A trauma patient was admitted following a head injury. Best eye opening response was to pain. No verbal response and he localized pain. His GCS will be scored as:

a. 7
b. 10
c. 8
d. 11

19. Erythrocytes are:

a. Red blood cells
b. Platelets
c. Lymphocytes
d. Monocytes

20. Volume of air remaining in the lungs after a maximum exhalation is:

a. Residual volume
b. Expiratory reserve volume
c. Vital Capacity
d. Total lung capacity

21. The enrolled nurse suspects inadequate arterial return to the patient's limb. The limb would feel:

a. Cool
b. Dry
c. Warm
d. Hot

22. Match the common drug in Column A with its action in Column B

	COLUMN A		COLUMN B
22.1	Analgesics	A	Control and prevention of seizures
22.2	Antacids	B	Lower raised temperature
22.3	Antibiotics	C	Treat and prevent allergic reaction
22.4	Anticoagulants	D	Reduce high blood pressure
22.5	Anticonvulsants	E	Relax bronchial smooth muscle
22.6.	Antiemetic	F	Reduce or prevent pain
22.7	Antihistamine	G	Alleviate nausea and vomiting
22.8	Antihypertensive	H	Counteract gastric acidity
22.9	Antipyretics	I	Bactericidal
		J	Breakdown blood clots in the circulation
		K	Reduce intestinal motility

23. The desired effect of a drug is called the:

a. Therapeutic effect
b. Drug allergy
c. Side effect
d. Cumulative effect

24. The name given to a drug by the drug manufacturer is called the:

a. Generic name
b. Official name
c. Chemical name
d. Trade name

25. The build-up of a drug in the blood due to impaired metabolism is called

a. Drug allergy
b. Drug toxicity
c. Drug interaction
d. Drug tolerance

26. Hypokalemia refers to:

a. Elevated serum potassium
b. Low serum potassium
c. Increased amounts of ionized calcium
d. Decreased ionized calcium

ANNEXURE K: DRAFT ADAPTATION PROGRAM ANALYSIS BY EXPERT GROUP

NAME: _____

INSTRUCTIONS FOR REVIEW OF CONTENT OF THE ADAPTATION PROGRAM FOR ENROLLED NURSES BY THE EXPERT GROUP

- Please would you review the content of the proposed adaptation program for Enrolled Nurses below
- Please place your name in the space provided above
- Indicate in the appropriate column, by means of a tick, the relevance of the content listed
- Additional comments can be made in the column provided
- Additional comments and or suggestions can be made at the end of the document in the space provided.

ADAPTATION PROGRAM FOR ENROLLED NURSES IN CRITICAL CARE UNITS

TARGET GROUP: Newly appointed enrolled nurses working in the critical care units

OUTCOMES : Enrolled nurses who can competently care for high risk and seriously ill patients within the critical care units

Specific Outcome	Embedded Knowledge	Criteria	Essential	Useful	Not important	Additional comments
Comprehensive assessment of a high care/ seriously ill patient	Comprehensive physical assessment of a patient	• Discuss the physical assessment of a high care/seriously ill patient • Discuss relevant documentation				

Management of the cardiovascular system within the scope of practice of an enrolled nurse	• Anatomy and physiology of the cardiovascular system
	• Common cardiac conditions
	• Normal parameters of observations
	• Obtaining of an electro-cardiogram
		• Discuss the usage of invasive and non-invasive devices for haemodynamic monitoring
		• Discuss haemodynamic monitoring
		• Documentation of all haemodynamic monitoring
		• Explain Central Venous Lines including
		  ○ Assistance with insertion
		  ○ Placement
		  ○ Dangers
		  ○ Care of
		  ○ Removal
		• Discuss relevant documentation
		• Explain and discuss interpretation of an elector-cardiogram and the following rhythms:
		  ○ Normal sinus rhythm
		  ○ Sinus tachycardia
		  ○ Sinus bradycardia
		  ○ Atrial fibrillation
		  ○ Ventricular fibrillation
		  ○ Asystole
		• Discuss relevant documentation				

Management of the gastro intestinal system	• Anatomy and physiology of the gastro intestinal system • Common conditions of the gastro intestinal tract	• Explain the various feeding methods • Discuss relevant documentation				

Specific Outcome	Embedded Knowledge	Criteria	Essential	Useful	Not important	Additional comments
within the scope of practice of an enrolled nurse						
Management of the renal system within the scope of practice of an enrolled nurse	• Anatomy and physiology of the renal system • Common conditions of the renal system	• Explain and discuss decreased urinary output and criteria thereof ○ Causes of decreased urinary output • Discuss correct utilisation of the intake and output chart • Discuss relevant documentation				

Management of the neurological system within the scope of practice of an enrolled nurse	• Anatomy and physiology of the neurological system
	• Common conditions of the neurological system including
	  ○ Stroke
	  ○ Seizures
	  ○ Raised intra cranial pressure
		• Discuss the identification of the deterioration of the neurological status of a patient i.e. decrease level of consciousness.
		• Explain the assessment of the Glasgow Coma Score (GCS)
		• Explain the management of raised intracranial pressure				

Interpret diagnostic procedures	Diagnostic tests and results
	• Chest x-rays
	• Arterial blood gases
	• Electro cardiogram
		• Systematically analyse tests and results
		  ○ HGT
		  ○ Potassium serum
		• Discuss tests and results with the professional nurse				

ADDIITONAL COMMENTS

ANNEXURE L: PRE AND POST TEST ENROLLED NURSE CRITICAL CARE ADAPTATION PROGRAM

PRE AND POST TEST
ENROLLED NURSE CRITICAL CARE ADAPTATION PROGRAMME

HOSPITAL .....

DATE.....

INSTRUCTION
PLEASE USE PEN
ANSWER ALL THE QUESTIONS

TOTAL MARKS : **34**
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---

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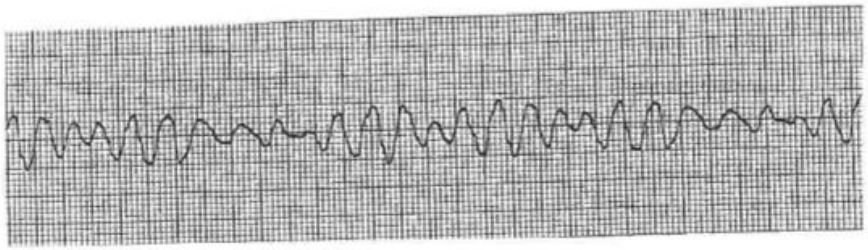
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25. The build-up of a drug in the blood due to impaired metabolism is called

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b. Drug toxicity
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d. Drug tolerance

26. Hypokalemia refers to:

a. Elevated serum potassium
b. Low serum potassium
c. Increased amounts of ionized calcium
d. Decreased ionized calcium

ANNEXURE M: COMPREHENSIVE ASSESSMENT OF PATIENT CARE ADAPTATION PROGRAM FOR ENROLLED NURSES

PARTICIPANT CODE:

PARTICIPANTS NAME: _____

ASSESSMENT FOR ENROLLED NURSES - PHYSICAL PATIENT ASSESSMENT

OBJECTIVES:

The enrolled nurse must demonstrate his/her understanding of the following:

- A systematic comprehensive patient assessment of an allocated patient
- Problem identification, integrating pathophysiology and diagnostic tests and results per system
- Planning of nursing care of the allocated patient

EVALUATION KEY:

- 0 – Failed to Act
- 1 – Has minimal knowledge or skill
- 2 – Has basic knowledge / needs assistance and supervision
- 3 - Has sufficient knowledge and skill to practice independently

	ASSESSMENT CRITERIA	0	1	2	3	REMARKS / COMMENTS
	Patient Assessment					
1.	**General**					
1.1	Introduction to Patient • The participant is to introduce the evaluator to the patient where possible, having obtained consent from the patient.					
1.2	Identification of Patient • Check the patients ID band with the sticker / file					
1.3	Brief History of Patient • Describe briefly the history of the patient covering the current diagnosis. What the patient is currently complaining of. • Past medical and surgical history. The circumstances surrounding the patient's admission. • Risk factors, including allergies and co-morbidities					
1.4	Bedside safety (environmental safety)					

	• Assess the patients immediate surroundings for safety – emergency resuscitation equipment available, cotsides, alarm limits set and activated					
1.5	Vital Data – Stating the significance of any findings. • Blood pressure, Pulse, Respiration, Temperature, • GCS, CVP • Intake and Output • ICP and any other relevant vital data applicable to the patient.					
1.6	Conducts a Head to Toe assessment as follows:					
2.	**Head** Working systematically asses the head					
2.1	GCS assessment for neurological status • score out of 15					
2.2	Eyes • Assess for pupil reaction to light • Assess for any other abnormalities e.g Racoon eyes (bruising around the eye, swelling, lacerations or any other abnormalities.					
2.3	Ears • Any discharge from ears e.g blood or fluid ? CSF • Any other abnormalities noted					
2.4	Nose • Assess for nasal flaring (describe breathing pattern) • Assess for discharge from nose • Assess for any other abnormalities • Describe any indwelling objects					
2.5	Mouth • Colour of tongue (cyanosis; pale; thrush) • Lips (colour; dryness)' • Teeth (present or absent) • Halitosis • Any injuries to the oral cavity • Assess for any other abnormalities • Describe any indwelling objects					
2.6	Skin Colour • Skin colour of the head and face, e.g. is it pale, cyanosed, red and the meaning of this					

3.	**Neck** Working systematically assess the neck for the following:					
3.1	Trachea • Assess the trachea for any deviation discuss what this could mean e.g. tension pneumothorax • If a tracheostomy is insitu discuss the tracheostomy including what secretions are being obtained during suctioning. Is the tracheostomy tube cuffed or non-cuffed.					
3.2	Carotid pulse • Assess for the presence of a carotid pulse • Describe the pulse e.g weak, thread, bounding etc					
3.3	• Describe any indwelling objects in the neck e.g CVP, Quinton catheter for dialysis, tracheostomy tube • Describe any other abnormalities noted					
4	**Chest** Working systematically assess the chest for the following:					
4.1	• Inspection: describe and discuss findings					
4.2	• Palpation: describe and discuss findings					
4.3	• Percussion: describe and discuss findings					
4.4	• Auscultation: describe and discuss findings					
4.4.1	• Comment on air entry and chest sounds					
4.4.2	• Symmetry of chest: describe and discuss findings					
4.5	• Respiratory function: describe and discuss findings					
4.6	• Heart Sounds: If the heart is auscultated describe and discuss findings.					
4.7	• Identify cardiac rhythm on cardiac monitor : describe and discuss					
4.8	• Indwelling objects : • Discuss any indwelling objects in the chest e.g. drains					
5	**Abdomen**					
5.1	• Inspection : describe and discuss findings • Discuss if any abdominal distention has been identified and possible abdominal girths are being measured					

	• Discuss the colour of the abdomen and are there any bruises or any other visible trauma or markings on the abdomen					
5.2	• Palpation : describe and discuss findings					
5.3	• Percussion : describe and discuss findings					
5.4	• Auscultation : describe bowel sounds and discuss findings					
5.5	• Indwelling objects: • Discuss any indwelling objects in the abdomen e.g. drains comment on drainage					
6	**Genitalia**					
6.1	Assess for abnormalities					
6.2	Indwelling objects • Discuss any indwelling objects e.g. catheters • Comment on urinary output and if this is adequate for the patient. • Comment can also be made at this time to the condition of the urine e.g. colour and urine analysis commenting on any abnormalities found					
7	**Limbs**					
7.1	• Comment if all limbs are present and if there are any obvious signs of trauma					
7.2	• Pulses ○ Assess that pulses are present in all limbs and identify which pulse is felt ○ Describe the pulse e.g weak, thread, bounding etc					
7.3	• Perfusion ○ Assess perfusion by checking for temperature of limb. ○ Comment on capillary refil and normal value < 2 seconds					
7.4	• Identify clubbing if present					
7.5	• Identify oedema if present and relate to condition where possible					
7.6	• Movement ○ Is there full range of movement					
7.7	• Position of limbs, eg if the patient is decerebrate or decorticate and what this could indicate					
7.8	• Skin turgor					

	○ Comment on this and what the implications of this is					
7.9	• Indwelling objects ○ Comment on the presence of indwelling objects e.g. Arterial lines; IABP, POP, external fixators, lautenbach irrigation catheters, iv therapy					
8.	**TAZ SCORE**					
	• Discuss the completion of the TAZ score and the rationale behind the score that was given					
9.	**ASSESSMENT OF RISK OF FALLING**					
	• Comment as to whether the patient has been identified as a risk of falling • Discuss measures put in place to prevent the patient falling					
10	**ASSESSMENT OF RISK OF PRESSURE ULCERS**					
	• Comment as to whether the patient is at risk for developing pressure ulcers. (Give the Score as per the Waterlow Scale on the CCU Flow chart) • Discuss measures put in place to prevent the patient preventing pressure ulcers					
11	**PLANNING OF CARE BASED ON ASSESSMENT COMPLETED**					
	Briefly discuss the care that was planned for the patient based on the completed physical assessment					
12	**MEDICATION**					
	Brief discussion of medication prescribed and indication for each drug					
13	**DOCUMENTATION**					
	• Has documentation been completed in full utilising the SOAPIE principles • Evidence of indirect supervision of the RN / Shift Leader					

FINAL POINTS OF DISCUSSION BY THE ASSESSOR

_____

_____

MARK /50 %

SIGNATURE OF ASSESSOR

SIGNATURE OF PARTICIPANT

ANNEXURE N: DRAFT ADAPTATION PROGRAM FOR ENROLLED NURSES IN CRITICAL CARE UNITS

TARGET GROUP:	Newly appointed enrolled nurses working in the critical care units.
OUTCOMES:	Enrolled nurses who can competently care for high risk and seriously ill patients within the critical care units
LEARNING ASSUMED TO BE IN PLACE:	Basic knowledge and competencies of an enrolled nurse Basic anatomy and physiology of all body systems Basic knowledge of common diseases and pathophysiology Knowledge of scope of practice of an Enrolled Nurse

Specific Outcome	Embedded Knowledge	Planned Content to be covered	Cognitive Domain level	Method of Instruction	Method of Evaluation
Comprehensive assessment of a high care/ seriously ill patient	Comprehensive physical assessment of a patient	• Discuss the physical assessment of a high care/seriously ill patient	• Level 1	• Classroom Lecture	• Comprehensive patient assessment
		• Discuss relevant documentation	• Level 1	• Classroom Lecture / Practical session in CCU at a selected patient bedside	• Comprehensive patient assessment at the patient bedside in the CCU
Management of the respiratory system within the scope of practice of an enrolled nurse	• Anatomy and physiology of the respiratory system • Common respiratory conditions • Basic nursing care of respiratory conditions • Underwater drainage	• Identify deterioration in respiratory condition of an at risk patient	• Level 1	• Lecture	• Post test • Comprehensive patient assessment
		• Identification of hypoxia	• Level 1	• Lecture	• Knowledge test • Comprehensive patient assessment

		• Identification of respiratory distress	• Level 1	• Lecture	• Knowledge test • Comprehensive patient assessment
		• Indications for and methods of oxygen therapy.	• Level 2	• Lecture	• Knowledge test
		• Management of a patient receiving oxygen therapy	• Level 3	• Lecture • Practical session in CCU at a selected patient bedside	• Comprehensive patient assessment
		• Discuss the basic interpretation of arterial blood gas	• Level 1	• Lecture • Practical session in CCU at a patient bedside with a selected arterial blood gas	• Knowledge assessment • Comprehensive patient assessment
		• Obtaining an arterial blood gas from an arterial line	• Level 3	• Lecture • Practical demonstration in an CCU or simulation laboratory	• Comprehensive patient assessment
		• Discuss the basic interpretation of a chest x-ray	• Level 1	• Lecture incorporating simulation of a chext x-ray	• Knowledge assessment

				• Practical exposure in an CCU with a chext x-ray of a patient incorporating the physical assessment findings of a patient	• Comprehensive patient assessment
		• Discuss management of airways including potential problems ○ Endo tracheal tubes ○ Tracheostomy ○ Suctioning (in-line) ○ Oropharyngeal airways	• Level 1	• Lecture • Practical demonstration of management of airways and how to suction a patient. Simulation in a sim lab or at the patient bedside.	• Knowledge assessment • Comprehensive patient assessment
		• Explain the management of a patient with an artificial airway	• Level 2	• Lecture	• Comprehensive patient assessment
		• Explain the management of a mechanically ventilated patient	• Level 2	• Lecture • Practical demonstration in a CCU	• Knowledge assessment • Comprehensive patient assessment

		• Explain the management and complications of a patient with an underwater drain	• Level 2	• Lecture • Practical in a CCU or simulation Lab	• Knowledge assessment
		• Discuss relevant documentation	• Level 1	• Lecture • Practical discussion in a CCU when doing a patient presentation and discussion	• Comprehensive patient assessment
Management of the cardiovascular system within the scope of practice of an enrolled nurse	• Anatomy and physiology of the cardiovascular system • Common cardiac conditions • Normal parameters of observations • Obtaining of an electro-cardiogram	• Discuss the usage of invasive and non-invasive devices for haemodynamic monitoring	• Level 1	• Lecture	• Comprehensive patient assessment
		• Discuss haemodynamic monitoring	• Level 1	• Lecture • Practical contact in a CCU or sim lab	• Knowledge assessment

					• Comprehensive patient assessment
		• Discuss documentation of all haemodynamic monitoring	• Level 1	• Practical contact in a CCU	• Comprehensive patient assessment
		• Explain Central Venous Lines including ○ Assistance with insertion ○ Placement ○ Dangers ○ Care of ○ Removal	• Level 2	• Lecture • Practical contact in a CCU or sim lab	• Knowledge assessment • Comprehensive patient assessment
		• Discuss relevant documentation	• Level 1	• Practical contact in a CCU	• Comprehensive patient assessment
		• Explain and discuss interpretation of an elector-cardiogram and the following rhythms: ○ Normal sinus rhythm ○ Sinus tachycardia ○ Sinus bradycardia	• Level 2	• Lecture • Comprehensive patient assessment and contact in the CCU / sim lab	• Knowledge assessment • Comprehensive patient assessment

		○ Atrial fibrillation ○ Ventricular fibrillation ○ Asystole			
		• Discuss relevant documentation	• Level 1	• Practical contact in a CCU	• Comprehensive patient assessment
Management of the gastro intestinal system within the scope of practice of an enrolled nurse	• Anatomy and physiology of the gastro intestinal system • Common conditions of the gastro intestinal tract	• Explain the various feeding methods	• Level 2	• Lecture • Practical contact in a CCU or sim Lab	• Comprehensive patient assessment
		• Discuss relevant documentation	• Level 1	• Practical contact in a CCU	• Comprehensive patient assessment
Management of the renal system within the scope of practice of an enrolled nurse	• Anatomy and physiology of the renal system • Common conditions of the renal system	• Explain and discuss decreased urinary output	• Level 2	• Lecture	• Knowledge assessment • Comprehensive patient assessment
		• Discuss the causes of decreased urinary output	• Level 1	• Lecture	• Knowledge assessment • Comprehensive patient assessment

		• Explain correct utilisation of the intake and output chart	• Level 2	• Practical contact in a CCU/ Simulation lab	• Comprehensive patient assessment
		• Discuss relevant documentation	• Level 1	• Practical contact in an CCU	• Comprehensive patient assessment

Management of the neurological system within the scope of practice of an enrolled nurse	• Anatomy and physiology of the neurological system
	• Common conditions of the neurological system including
	  ○ Stroke
	  ○ Seizures
	  ○ Raised intra cranial pressure
		• Discuss the identification of the deterioration of the neurological status of a patient i.e. decrease level of consciousness.	• Level 1	• Lecture	• Knowledge assessment
					• Comprehensive patient assessment

		• Explain the assessment of the Glasgow Coma Score (GCS)	• Level 2	• Lecture • Practical contact in a CCU	• Knowledge assessment • Comprehensive patient assessment
		• Explain the management of raised intracranial pressure	• Level 2	• Lecture	• Knowledge assessment • Comprehensive patient assessment

Interpret diagnostic procedures		• Systematically analyse tests and results
		  ○ HGT
		  ○ Potassium serum
		  ○ Chest X-rays
		  ○ Arterial blood gases
		  ○ ECG
			• Level 4	• Practical contact in a CCU/ simulation lab	• Knowledge assessment
					• Comprehensive patient assessment

		• Discuss tests and results with the professional nurse	• Level 1	• Practical contact in a CCU	• Comprehensive patient assessment

ANNEXURE O: ENROLLED NURSE QUESTIONNAIRE

Please complete the following questions on your experiences of the pilot adaptation program for enrolled nurses:

1. How did you experience the adaptation program?

_____

_____

_____

_____

2. What did you find positive about the adaptation program?

_____

_____

_____

_____

3. What did you find as negative about the adaptation program?

_____

_____

_____

4. What was the most significant difference between the original adaptation program and the new adaptation program?

_____

_____

Thank you for taking the time to answer these questions.

ANNEXURE P: PROFESSIONAL NURSE QUESTIONNAIRE

Please complete the following questions to evaluate the impact the adaptation program for enrolled nurses had on the professional nurses working in the critical care units:

5. Has the adaptation program lessened the burden on the professional nurses?

6. Are the enrolled nurses more competent to work in the critical care unit?

Thank you for taking the time to answer these questions.

ANNEXURE Q: CONSENT FORM FOR AUDIO RECORDING

PARTICIPATION IN THIS RESEARCH IS VOLUNTARY

Should you be willing to participate in the research study, you are requested to complete and sign below:

THE DEVELOPMENT OF A STANDARDISED ADAPTATION PROGRAM FOR ENROLLED NURSES IN CRITICAL CARE UNITS OF A PRIVATE HEALTHCARE GROUP IN SOUTH AFRICA

I _____ hereby voluntarily consent to participate in the above mentioned study.

I have received, read and understood the written information sheet regarding the study. I also understand that the nominal group will be audio recorded for the purpose of coding and to prevent researcher bias.

I am aware that the results of the study, including personal details and the answers I give will be anonymously processed into a study report and all information will remain confidential and there will be no penalty or loss of benefits resulting from my responses or participation.

I may, at any stage, without prejudice, withdraw consent and participation in the study and there will be no penalty or loss of benefits to my withdrawal.

I have had sufficient opportunity to ask questions and, of my own free will, declare myself prepared to participate in the study.

_____	_____
Signature of participant	Date and time
_____	_____
Signature of person obtaining consent	Date and time

ANNEXURE R: UPDATED CANADA COLLEGE CHECKLIST

As a result of students participating in _____

They will be able to _____

Example: As a result of students participating in the tutor training session, they will be able to write concisely, include factual details in their reports and use language that is non-judgemental

- *After creating learning outcomes, reference this checklist**:***

1.	Does the outcome support the program objectives?	Y	N
2.	Does the outcome describe what the program intends for students to know (cognitive), think (affective, attitudinal) or do (behavioural, performance)?	Y	N
3.	Is the outcome important/worthwhile?	Y	N
4.	Is the outcome: a. Detailed and specific b. Measurable / Identifiable? c. A result of learning?	 Y Y Y	 N N N
5.	Do you have or can you create an activity to enable students to learn the desired outcome?	Y	N
6.	Can the outcome be used to make decisions on how to improve the program?	Y	N

ANNEXURE S: CONSENT TO PRE-TEST POST-TEST COMPETENCY ASSESSMENT

PARTICIPATION IN THIS RESEARCH IS VOLUNTARY

Should you be willing to participate in the research study, you are requested to complete and sign below:

THE DEVELOPMENT OF A STANDARDISED ADAPTATION PROGRAM FOR ENROLLED NURSES IN CRITICAL CARE UNITS OF A PRIVATE HEALTHCARE GROUP IN SOUTH AFRICA

I _____ hereby voluntarily consent to participate in the above mentioned study.

I have received, read and understood the written information sheet regarding the study.

I am aware that the results of the study, including personal details and the answers I give will be anonymously processed into a study report and all information will remain confidential and there will be no penalty or loss of benefits resulting from my responses or participation.

I may, at any stage, without prejudice, withdraw consent and participation in the study and there will be no penalty or loss of benefits to my withdrawal.

I have had sufficient opportunity to ask questions and, of my own free will, declare myself prepared to participate in the study.

_____	_____
Signature of participant	Date and time
_____	_____
Signature of person obtaining consent	Date and time

ANNEXURE T: EXPERT GROUP QUESTIONS

FOCUS GROUP DISCUSSION

- Were the training topics that were presented during the pilot adaptation program relevant to your needs or the needs of an enrolled nurse working in the critical care unit?
- Have you seen any change in customer feedback / incidents since the pilot adaptation program?
- Has the new adaptation program equipped the enrolled nurses with the necessary knowledge and expertise to care for patients in the critical care unit?
- Is there anything about the adaptation program that you would change that could be utilised in the future for full implementation of the program?

ANNEXURE U: TRANSCRIPT OF EXPERT GROUP DISCUSSION

TRANSCRIPT

DURATION :- 60 MINUTES

KEY

R = RESEARCHER

EN 1 – Enrolled Nurse

EN 2 – Enrolled Nurse

EN 3 – Enrolled Nurse

EN 4 – Enrolled Nurse

EN 5 – Enrolled Nurse

6 – Critical Care Manager

7 – Critical Care Clinical Training Specialist (CTS)

8 – Unit Manager critical care unit

9 – Professional Nurse Critical Care Specialist

10 – Education specialist / Unit Manager

11 – Supervisor

KEY TO KIRKPATRICK ANALYSIS

LEVEL 1	:	Reaction
LEVEL 3	;	Behaviour
LEVEL 4	;	Results

SPEAKER	DIALOGUE
R	I want to welcome you all here today and I want to thank you for joining me. I want to welcome Dr xxxxx from the University of the Witwatersrand she is my supervisor um she has been keeping my study in check um and she is voiceless this morning yes so (researcher and supervisor chuckle) she is just her to make sure that the group runs smoothly and that everything is done according to the way it should be done. (Supervisor made an inaudible comment) (Researcher laughs) she will tell me later. The group um xxxxx is made up of some of them are enrolled nurses who took part in the study, which is really nice. That is 5 of them so that is half of the group that was actually involved. Um the study, my study involved 9 of them so half of them are here um. Dr xxxxxxx, she was um part of my nominal groups so she was involved. xxxxxx is the Unit Manager from the surgical CCU. xxxxxxx, is it still xxxxx um is a professional nurse working in the critical care unit and xxxxx, yes? She one of the CTS's and then xxxxx, she is the critical care manager. So she is the overall manager of all the critical care units.
	The reason we are here this morning is because essentially I have finished collecting all the data for my study so we have run the program, we have done the tests, and I have collected in all the information and I have gone through all the information. Now I needed to get this group together which is a mixture of everybody basically who had anything to do with the program, so that we can discuss the program and say was it effective? What can we learn from it? And evaluate the program in a nutshell (researcher clears her throat).
	So there are 4 questions that I am going to be asking you and we are going to discuss the 4 questions. Once that is concluded Once that is concluded we will then go through the questions and we will then pick up similarities and that will be used in my conclusion and in my recommendations in the final chapter of my study.
	So what I have done is I have got an information document for all of you which goes through the consent to participate in the expert group. Can you please all have one of these? (Noise of passing out papers)
	You can start going through it take one and pass on
	Make sure that you have all got one
	xxxxx can you just share with xxxxx in the meantime so that I have got one
6	MMM
R	Have you all got one, I did print 10

	All right so basically. This information document um tells you about, sorry Sue, I forgot one for you, is that ok? Um the purpose of the study, the purpose of the study was to develop an adaptation program for enrolled nurses practicing in the critical care units. The procedure was information was gathered by means of nominal group discussions. Nominal groups were held separately for enrolled nurses, preceptors and unit managers from selected hospital. Nominal groups are described as structured face to face meetings groups, to bring about group consensus. Nominal groups provide an orderly procedure for obtaining relevant information from a group of experts. The group responds to pre-determined structured questions and the information was interpreted and analyzed. The adaptation program will be piloted in 2 critical care units which we did and selected enrolled nurses from these units involved and feedback of the pilot adaptation program. (Sound of papers shuffling turning pages) Pre-tests were utilized at the beginning of the pilot (someone sniffs) and at the conclusion of the program was utilized as well as a questionnaire where feedback of the pilot program was received. Results of these tests will in no way be utilized in your course. The expert group will include 2 people who are experts in education and critical care nursing one critical care nurse representative of the hospital sample. A medical doctor who is a specialist physician with vast (researcher clears her throat) critical care experience and an enrolled nurse. So that was the framework but obviously we have got more people than what we said we were going to have. The expert group is responsible for reviewing the draft adaptation program for relevance inclusiveness and validity and to provide opinion of whether the intervention is within the scope of practice of the enrolled nurse and whether it is feasible and practical. There there was an original expert group which sat before we drew up the program that you ladies went on and went through the whole content of the program and decided what was relevant to be part of the program and what we needed to take out. Alright.
R	The risks and discomfort during the study it is the researcher's responsibilities to ensure that the research is conducted in an ethical and confidential manner and resources will be managed in a manner a confidential manner. During the fact that the data collected in a face to face manner by discussion groups some of the privacy might be lost during the study. Data will be handled in a confidential manner. Members of the nominal groups were known to each other an anonymity cannot be guaranteed the group leader will ensure that information be shared without prejudice or reprisal. Every effort will be made to keep personal information confidential. Absolute confidentiality cannot cannot be guaranteed. Participation in the study is voluntary you may (someone coughing) with draw from the study at any time and your decision whether (someone coughing) or not to participate in this study will in no way affect you in the future.
R	(Someone coughing) Do you want some water?
R	To participate in this study you will be contributing to a high standard of safe quality patient care of the critical care patient that is rendered by competent enrolled nurses. However,

	there is no individual benefit in participating in this study. During this study it is the researcher's responsibility for ensuring that the research is conducted in an ethical and confidential manner manner and resources and resources will be managed in a confidential manner. Anonymity will be ensured and identifies will not be revealed during the course of the study and post study during presentation and publication of findings. All input will be coded including questionnaires. All verbatim comments will be referred by a code. For the duration of the study the participants will be treated fairly and with respect, time frames adhered to and participants protected from harm and discomfort. Participation will be regarded as on duty time and will take place as and when the activity of the unit allows. You will not receive any additional payment for participation. (someone coughs) Questions, should you have any questions (someone coughs), you are welcome to contact me and there is my number and further um people you may contact should you have any questions. (Paper shuffling). Feedback on the findings and information from this research study (shuffling sound) will be shared in the form of a presentation and published article.
R	Are there any questions (shuffling sounds)
R	If not I have a consent form which I would like you please to consent to. This is consent to being part of the study as well as to the fact that I am audio recording this discussion group. Meaning I am taping it and why I am doing that is because it needs to be typed and into my study so that the thread of the discussion is not lost because if we just type it out and I document loosely what is said in the discussion the actual um thread of what we discussed and the importance is lost and also it proves that I am not bringing any bias into the re results that are obtained. Is that ok with everybody.
R	Shuffling of papers
R	Can you just pass those along
R	Can we just open the door a little bit it is very hot (shuffling and moving sounds)
	Lots of sound of movement
R	Thank you
R	Thank you and researcher clears her throat
	Lots of sound of movement
7	I wrote the wrong date
R	Do you want to change it
	Sound of movement of paper
R	Thank you

	Sound of movement
	Back ground whispering not picked up on audio
	Someone coughing
R	Right thank you. Are there any questions? Can we proceed?
R	Alright. Now previously we we had the group that was held in 2 sessions so so we had the separate groups for the enrolled nurses and then we had a separate group for the CTS's and the unit managers. So that was when we gained our original information. But now we are going to have a discussion with all of you together. So the questions we are going to ask pertain to the enrolled nurses as well. We really need your input as well. So please don't feel that this that you are not part of this discussion. You are very much part of the discussion and you are very important in this discussion because you ladies actually walked through this program right from the beginning so you were involved from the beginning, the development of the program the um unit managers and the CTS's were involved but you ladies were very much involved in going through in the evaluation so you have really got a lot of input to give us in terms of how you felt the program so we really need you your input this morning. So don't feel that you need to that you mustn't say what you need to say ok? So please feel free to talk. Alright? (1020)
R	So the first question I want to ask you is Um The training topics that were discussed and that you went through in the development day and I think all of you know what the training topics were um, were the training topics presented during the pilot pilot program relevant to your needs or the needs of the enrolled nurses working in the critical care dep units. So were the topics relevant and ex let's talk about that
R	Do you want to start?
EN 1	Eh yes it was eh lot of shuffling sound (recording device moved) taught more about CCU and also so gained a lot eh we didn't know a lot eh to find out
R	You can say your name when you first start talking so that I can include it in the topic. Your name is again
EN 1	xxxxx
R	xxxxx yes
R	So you found it very relevant
EN1	Yes
R	And you learnt a lot from this topic

En1	Yes I learnt a lot
R	Did you find that there was anything in there that you felt was too um too advanced for you
EN1	Like I would say yes
R	Give us an example
En1	Mm (long silence)
En2	Blood gas interpretation not all of us are familiar with it but then in the pilot course we got exposed to a whole lot of different things with me it helped mostly with the writing with the documentation We could identify the (someone coughing) patient we could fully point out this is the problem this is the solution this is how it will work out whereas before we used to just you know write all the different parts of the body the GTI the GIT system the cardio we used to write everything whereas we didn't point out exact ok this patient has a laparotomy so the very first thing I need to deal with is to make sure I check the wound we check the skin we check the patient you know identifying the critical things you needed to do for the day. So with the pilot course it it it sort of like helped us in a very good way.
R	So it has helped you to identify the critical indicators
EN 2	You can easily identify them we can easily understand them than patient's condition diagnosis the patient cares we can deal with them the paper works is upto date we we sort of like comfortable (someone coughing) because we know what to do what is expected (someone coughing)of us to do (someone coughing)
R	Your Name for the record
EN2	…xxxxx
R	En 2 thank you ok
EN 3	My Name is xxxxx with me it taught me a lot because now I feel I am a unit manager whatever what I learnt a lot
R	Ok so do you feel that the topic were relevant to you
EN 3	Very
R	Why were they relevant to you
EN 3	Like I said it taught me a lot of things there are those things we didn't know much we used to just write but you just write and you not sure sometimes but you go back to the sister. Sister then. But now like like there was like blood gasses like she said we were just writing but we doing that the blood gas you go show the sr and the sr say ok there there just do do this or replace what now we we can do some of the things but together with the sister so we are very much comfortable now. It was very educative to me because I had to go back and

	taught some of my colleagues because it they didn't know how to deal with other things but now really I feel very good and I very thankful
R	Ok so you felt you can go and give your knowledge to the others
EN3	Yes I did some of them
R	Ok
En3	Yes
R	So you are more confident
En3	Yes very
R	Very good ok
EN 4 Amanda	Amanda Um the program program was very helpful because um with the documentation (someone coughs) it now more up to date and everything you can identify the um critical critical indicators to the patient you can see if the patient is not ok you can quickly see if you can take any action. So it did help. Very much and some of colleagues we are able to teach them and correct where they are not eh doing ok. Long pause
R	You want to comment
EN 5	My name is xxxxx, I find the program was irr irrelevant relevant because it taught me a lot to actually um with ah documentation and and um interpretation interpretation of the blood gas as well as um teamwork because I mean we can't do anything without the teamwork because we need to help one one another um as well (door closing) as the I remember once when you came in the war in the unit I just did the alarms and somewhere somewhere I did incorrectly and then you correct me then. So in um I'm trying to say it does help us some of the things because we are just doing the things just have the matter that we must do it considering that what is the cause of what is the meaning of it. So ja I learn a lot
R	So are you saying it is giving you insight (EN 5 yes) into what you are actually doing now (En 5 yes) so it is actually giving you that knowledge whereas before you just did something (En 5 yes) now you almost know why you are doing that
EN 5	Yes
R	Ok. Any of the others
6	My name is xxxxx I wasn't really um um that much involved because it is more on the floor (background noise) um but from the feedback that we have had it is positive (sound of door closing). Um the training was good and um I think your educator was also very good. Um um the sharing of the information that she did. So um in principle I think it's a good initiative (clearing of throat) especially in orientation. Um what I also want to mention is in our PDA's

	(someone coughing) critical indicators um are one of our downfalls so and most of them actually mentioned the critical indicators so that will support us ini fixing that gap
R	Improving that shortfall
6	That insite also which during the year we discovered that sometimes the insite and integration of the theory and the practical is not always where we want it to be what I'm hearing that was happening and that is good
R	Mm I can pick up that the ladies are feeling that now they can actually put knowledge to what they are actually doing and that is actually important
6	And understand
R	And understand
R	xxxxx from a CTS point of view
7	Um I wanted to add exactly as she said that they know the reason now um why they do something because sometimes I think um (clears her throat) the Ens they are falling at the back and we just accept them that they need to do the things and we are not always realizing that they need to know what why they are doing it. So I think it was good this specific topics to teach them why they are doing certain things.
R	Do you think that you so you feel that the topics were relevant
7	Yes
R	To what they had to
7	Yes ja
R	What they had to learn
7	Yes
R	Xxxxx anything you want to add
8	Um, From a unit manager's perspective I think the same thing that the um other guys basically said. I think there has definitely been a um improvement in the Ens um (someone coughing) ability to assess their patients better to look at the critical factors to look at the care that is more focused on what is wrong with my patient rather than as they said a general (coughing) you know you look at all the same and um (someone coughing) we just jot down the basic same thing. Um these 3 young of mine have been with me for some time so so I've definitely seen a growth in them I must be honest with you um and it has been actually quite awesome for me. No 9 do you agree that um that that their um growth in their critical

	or their theoretical as well as their there is a lot more confidence as well so they are going to step up um an look at doing things
R	That's nice to hear
7	I just want to add I think some of the ENs competencies are not things like the blood gas relevant topics
R	Yes yes
7	Are not in our competency so it is good to cover them with these things
R	Yes and as somebody said um as part of the previous expert group um and I think as I have had feedback before that yes it is not part of their competencies however, as you rightly said (someone coughs) because they are exposed to it and they work with it in the unit they got to be taught it anyway
7	Ja so it is definitely
8	I think it is also empowers them you know they um it gives them um a stronger sense of knowing I am able to do something I have got some insight. I mean even Rns refer to one another so for them that are an integral part (someone coughs) of the system um (clearing of throat) I think it is ja definitely should be part of perhaps not to the same scope as an RN definitely but it should be looked at as a tool for them to be looked at.
9	xxxxx. Ja no. I think it has changed the mind-sets of coming to me and saying sr there is something wrong with my patient they come and tell you this is wrong with my patient do you think we should do this. More making suggestions or you know actually identifying the problem before they come and call you and um I think it it's made a difference to the in the unit where you where you as an Rn you don't have to constantly be checking up on them because you know that they are going to come to you if they identify a problem earlier
R	So you are also saying the program was relevant to what
9	It has made a difference in their practice
R	Xxxxx have you got anything you want to add
10	Um I think what is evident one said that there was one topic some it was maybe too advanced (R yes) but she immediately clarified to say but it helped and everything from the floor from the RNs and unit managers then actually speaks to that that it is not only knowledge that they gained. They it's as if they gained a new role or they step up to the role
R	Gained confidence
10	There is much more than just the knowledge

R	I think it is important
10	Mm
R	Good do you does anybody else want to say anything more to that point
EN 3	I also want to say thank you because last week I had to save one patient that was transferred to CCU because coming in in the morning I could see there was something not right so we did the blood gas and I saw that there was something wrong so contact the sr and the patient was transferred to CCU and was intubated
R	Do you feel before the course you wouldn't have been able to have done that
En 3	I will but I wasn't that more advanced like I am now
R	Ok so you feel more confident now
En 3	Yes
R	Ok good
8	I think it is I think it is a big thing they are more comfortable in actually going to an RN and saying listen I really think there is something wrong um you've got insite now to say I think this this this is the issue so um I think it does make a big difference
R	So do you feel you've got that little bit of knowledge which has empowered you that you feel you can go with concrete information to the professional nurses is that what you is that what I can hear is happening
En 3	Yes
En1	I think you must understand exactly what is wrong with your patient start with the diagnosis and then you can be able to to to write your critical indicators. But if you start on top you know exactly and then you can flow for to know what is wrong with the patient (clearing of throat) for to nurse and not knowing what is history is not going to work. But now we understand. If you understand from the beginning then you can continue. So now we have that confident to know from head to toe about your patient
R	Ok good. Is there anybody else who wants to say anything about that topic? I just want to check the recorder I am neurotic. Sound of recorder being move around
EN 5	I also think it is very important when you come into the unit you need to assess your patient you will find the critical indicators and you are not going to copy from the previous page, but you have to assess the patient. And see what is wrong with the patient. Is when you gonna get the critical indicators and um yesterday I was looking after a patient and um the patient was kind of restless and was not doing well and I was keep on aah reporting to my senior that the patient was not well. Well I wasn't I wasn't ok actually with the patient because I can

	see the patient wasn't doing well. Then I just think I must do a blood gas and I did the blood gas and the lactate was 24 and the patient is on CVVHD as we speak now so so I made a very (cant decipher)
R	So that gave you insight because you could then see from the knowledge you gained that you had to do a blood gas you identified there was a problem with your patient. So do you feel that before the course you wouldn't have been able to have done that thinking
EN 5	No socializing a lot (group laughs out loud)
R	Laughing anything else
EN 2	Basically the cause I think would be a good thing because now you you it's like your eyes are being opened to a different thing because when you come to CCU you sort of like know but you not sure but then you tend you keep on doing the wrong things you keep on doing the wrong things gets into your system that you get used to doing this and this and this whereas with this course you get to know exactly what it is you need to do what you need to look at and how you need to react so it will help them in a in a very good way if you put it like that and even in the long run when you teach then they can teach the others and so on and so on. So I think this course must must continue because it's it's it's a good thing it it it opens your eyes to different things you can think differently you react differently and then the results are good.
R	Ok thank you
R	Alright then the next question I want to ask you is Have you seen any change in the customer feedback or incidents since the pilot program was initiated (2621)
	Coughing heard
R	No 6 you might be able to answer
6	Yes um I must say um um yes um if I think about um surgical CCU specific we have seen a great improvement increase in our patient satisfaction we've got happy um there. We we went through a bad patch where we had some issues especially with um some attitudes from the staff then um the Ens were mentioned in some of those complaints which I'm not seeing anymore. Its lots of complaints ag lots of complements um and it's a happy team so I think it did yes. If I just look at PXM it improved the scores are good. Um The last time I received any complaint about attitude was about 5 6 months ago so um no I think so.
R	Oh Ok that's very good so obviously having given the knowledge have made them empowered them made people made them more happier ja and that has impacted on the patient

6	Yes what it tell me is that maybe there was some sense of insecurities maybe um and that was the way to manage it um so yes I think
R	Xxxxx have you got anything, you are the unit manager thank you
8	Um I I think it is Um I I I think if you look at um it's like anybody if you not if somebody questions you and you don't know the answer you can sometimes become quite defensive or whatever in think in this um it is definitely um (stammer) the girls have definitely um kinda stepped up um they are a lot more um comfortable if somebody does ask them something and to be able to explain to be able to explain or say I can tell you this much or to go and find out um (stammer) I've seen their willingness also to learn so this is kind of almost initiated the fact eve learnt something but it allows me a platform for me to grow further so I think um their confidence which obviously I think does affect their attitude I think does change how you come across how you come across to people how you address people. Um it it it just I don't know builds (R builds) a person so if you have a way of chatting to people and responding to people
R	Do you think your patients are perceiving that they are more confident so then
8	We are
R	So then I suppose there is nothing worse than lying there as a patient and seeing someone coming to look after you who is not confident (someone coughing) then you also perceive it as being negative. So that's good xxxxx
9	I've had patients asking for specific nurses back asking if they are going to look after me again tomorrow. Can you send me back? I suppose that shows. Our Ens are even willing to do doctors rounds now. Before they would run away as soon as a doctor would come in to do a round they would try to find you. Now they stand there and answer questions (unable to decipher what was said)
8	I think it um build up almost an ownership (someone coughing and clearing their throat) um I think if you look if you look back and you can see also in the wards um it's not me or chat to the Rn or shift leader knows um I think the difference now is is as 9 says um again (someone clearing their throat) it boils down to confidence you have brought in um I can stand up and answer or if the doctor talks to me I um actually talk to him because I think that that is one thing that I think the wards particularly um battle that so they never give a doctor aaaaa suggestion on a round like you said um before you wouldn't have said there is something wrong with my patient you would have said the patient is restless and left it at that. Where you've now got this knowledge which I think is a bit more than just my patient being restless. Can we look at something? You know ja
R	So it has impacted patient satisfaction

8	Yes
R	Which is good ok nice
R	Has the new adaptation program equipped enrolled nurses with the necessary knowledge and expertise to care for patients in the critical care unit. (pause)
9	From the comments so far you can see that they are doing better becoming a more essential part of the team xxxxx they were needed before ……..……
8	Not to be disrespectful they are better than some of my RNs
R	Shew
8	No no seriously it is
R	…… have you got anything more you would like to say about that question
7	Um no (laughing)
R	Do you think that it has equipped them with the necessary knowledge
8	Ah yes no no I wanted to say about the CPD I think they easier than the previous year they I had to sit down and really I think this year left them all by themselves so (giggles) my my you from you unit yes. She did very well She is doing her thing her things are completed I think she is doing her things with more insite and the CPDS are actually Its more than last year they had a lot of work work to do. So she has been up and going every time I ask her if she is going. So she is doing much better this year. Much more effective on that much more easier
R	So are you saying its given them knowledge its empowered them complete
8	Ja
R	The the competencies
8	Rather than sit with me and we doing each question together. Last year I think I've done more than this year. (Someone coughs0
R	Interaction with the ENs in completing those CPDs Are you finding their knowledge is of a high higher level then what is was previously then when you did CPDS
8	I think so I still need to go through the En now the the last. I am getting their CPDs back. I need to go through the things again because but definitely I did ja. And then also spending time with her in the high care course doing helping her she did extremely well in the high care course. I think that also interacted and helped
R	Helped as well

8	Ja
R	Ok
R	No 6 do you want to answer anything about that
6	Um if I just think feedback from the training department was also um it was much easier. It wasn't um as challenging as before um but I also think it's also attitude um from um our nursing team um so I am sure that also impacted on their willingness like 8 says and accountability because there is some insite they understand what they doing they an important part of the team and the RNs value them more so yes
R	…….. is there anything you want to say about that
10	I think If you listen to the question everybody talks about knowledge. But with that came the skill and that enhanced the attitude (R umm). So that brings us back to the three important points
R	Ja I think that is important
9	I think a lot of the girls I work with has started it's made them want to go further so it's a starting point for them. They have applied they want to do the bridging course. It's just opened up doors avenues actively seeking further
R	Good and you ladies how do you feel
EN 1	As an EN sometimes we do know something but we are scared you know but when you get training and develop to have that confident to say to say something and then to have more skills. So I think it taught us well. Even about the CCU chart. Sometime you will write and not just tick tick not to understand but (someone coughs) but after Sr …….. the time you were with her
R	Yes
EN 1	She taught us and now we understood and understand what is happening. So sometimes you know something but you are scared to say but after the course you give that confident
R	So you feel you are more assertive
EN 1	Yes
R	Ok nice
R	Anybody else? (Long pause) You look like you want to say something.
	Group laughs
EN2	The chart now (someone clears their throat) it is weird because everything is there on the chart but we didn't know. The chart actually tells you everything from the IC drain, the

	swinging motion everything is there. But we didn't know. So those little things that xxxxx told us they are all there so now we write accordingly because we understand the front and the back completely. So it's easier.
R	Very good all right
En 2	And I think I remember she said why do you always write so big
	Someone agreed exactly
EN 2	Because the assessment is there so you must write what you know is not there. So we used to write the whole history because if you write little you say yoh yoh you will say you didn't do the job. But you did you do your assessment so now that thing also helped us.
8	Focusing on why you looking after a patient CCU is like that you are supposed to be looking at the critical reason why your patient is here otherwise they could have been in the ward.
EN 2	Yeah
8	So I mean just a quick thing EN 1 applied for the bridging program and she has been accepted. Um so I think that we talked about it we there is a time and purpose for things and I think with this being given the opportunity to get more knowledge gave her a better foundation to move forward and I think as 9 said I think this is open for these girls and I think it boils down to one basic thing here if we look at it it empowered them to be able to be ok to to to have the knowledge to be ok to make an assessment to make a judgement call or to give adv. give suggestion also to realize that the can actually there is a way forward for them there is an opening to something beyond just being an EN
R	Ok. So it has had a huge knock on effect
8	Yes, I I believe so. I do
R	Thank you good
R	En 3 do you want to say any thing
EN3	No No I'm ok
R	Ok then is there anything about the adaptation program that you would like to change that could be utilized in future programs after we roll it out. Is there anything you think we could change? You've been through the program so what do you think we could change about the program?
EN 2	Um There is nothing much I think that you can change but what I can suggest is maybe make it often maybe every 4 months for the ENS just to keep them on their toes and make sure that they continue doing everything right the way they supposed to be done. Other than that Um (someone coughing) It's complete. I think its ok.

R	Ok
8	And time wise
En 2	Time Wise
8	Enough time to do it was there
R	Remember we had remember we had to cut it short because people were sick etc. so It was supposed to be run over 2 days so then because people couldn't attend we had to then run it over the 1 day um so what do you feel about that. Do you think we should leave it at 1 day or do you think we should make it 2 days
EN 2	No 2 days would be ok because now we couldn't go deeper into other things with xxxxx Because the timeframe was very short. So but if it goes through like in 2 days then I think everything will be covered by then.
R	Ok
EN 2	Mm
R	Though you did cover everything
EN 2	We did
R	Ok
EN 2	But at least with 2 days more time you can ask a lot of questions
R	More time
EN 2	Get a lot more answers
R	Yes
EN 2	Get more clarification about everything that you have questions about
R	Ok. No 4
EN 4	Um There is no need to change anything because we did get every information that we needed. And now we are more um we are more in the light than before. So only the time that you have to have those 2 days that you can get every information that we need and we can be able to ask the questions where we don't understand and get the knowledge that we need.
R	Ok. Anybody else
En 5	I think (someone clears their throat) not to forget eh things OSCE as well. Eh will help eh ENS

R	Ok
En 5	To that will keep reminding yes it can help
R	Do you think as part of the program?
En 5	Yes
R	At the end of the program?
En 5	Yes at the end of the program
R	You will do an OSCE
En 5	Yes
R	Ok
R	EN 3?
En 3	Also I am saying there is nothing to be changed. Ah like she was saying Maybe in four months or so it will be better because some other thing tend to change. Then we can get more more em information on some if it can change during the that time
R	An update?
En 3	Yes the updates yes. Then others it is fine.
R	Ok
En 3	Yes others I am happy
En 1	I think its fine. Its ok only the time I think it is short
R	Short so you also think it would be better
En 5	Over 2 days and also maybe if you can actually ah do it more often so that others can get a chance to get the information
R	Ok remember this was just a pilot. So the idea of a pilot is you run a program to see how it is going to work and what changes you need to make before. So it is almost an experiment so that you can see how its run and what changes you can make before it gets rolled out to on a bigger scale. Ok? So that would be a suggestion in the recommendations I would make that it would could be more beneficial to be run more frequently
8	Almost like a refresher every six months or so or once a year
R	Mm

R	Anybody else. Have you got suggestions because you were also involved with the (chuckle) the content? Anything any suggestions you would like to make
7	I wasn't here I didn't participate
R	But having looked again at the content is there anything you think we should change (long pause0
7	No..Where there any. I just want to ask were there any assignments or something they need
R	No there wasn't an assignment because it was just a short program
7	Ja
R	Ja it it it wasn't um identified to be like an FET or a short course
7	Ja
R	It's just a
7	Giving information
R	Ja
R	But if that's a suggestion it's something I can look at if you think that an assignment could be beneficial then it is something we could look at
8	I think the suggestion of the OSCE perhaps something in the same line
7	Ja
R	Ok
7	Well I like patient presentation
R	Yes
7	The whole holistic patient presentation because then you can take all the systems and bring them together and say this um nurse can look after a patient
R	That was done for their um their evaluation. I used that as their comprehensive assessment which was done 10 weeks after they concluded
7	Alright
R	Their their day. I did a where I brought everything in so that was done. But yes that could also be part of the program

7	Because the Rns have a aa Competency for patient assessment
R	Yes
7	An oral and ENs do not have
R	It was done on that basis
7	Oh good I like that
R	9 Anything you think should be changed
9	Difficult to decipher what is being said
R	8 Do you think anything can be added to the content
8	No I think what they've said is the fact perhaps that it was over the 2 days as planned I think it would have given them a bit more play to ask a bit more depth which may have given them (someone coughing) more of an ideal if there was something more that might have been needed to have been added. But um ja um that would be my only thing. I think I think they did really well to have taken as much in the condensed set up but I do think it might have been a bit more beneficial if they had been given a bit more over the two day where they xxxxx would have given us a better feel if there had been anything they might have needed to know
9	Can I ask from a unit perspective um and a logistic perspective is four days too long cause remember that was one of the original discussions we had initially was the time frame and we got to look at the constraints of the units. So we are we saying 2 days, is that the ideal or do we need to look, is longer an option a longer a problem in terms of staffing
8	2 days
R	2 days
EN 1	1 day we can do the theory as you gave us a chance to write the test
R	Yes
En 1	Then the following day is the test
R	Ok
R	And the practical time on the second day? Like Maybe that patient
8	Yes

R	Assessment like we did as the your evaluation
En 1	Yes
R	Maybe do that type of a thing on the second day where you tie in in all the knowledge
En 1	And I think we eh the fact that you came to do the assessment in the unit
R	Yes
En 1	And the first day we we answered we wrote the test again
R	Yes
En 1	We answered the questions but so
R	Yes
En 1	No it was more knowledge
R	Yes
En 1	Because we wrote not discussing anything
jR	Yes
En 1	So we could have like got confident because to answer the questions without going back
R	Ok
En 1	Also yes
R	6 Anything from you
6	Um no I agree with the time but not for 4 days (chuckle), not for my labour costs it's going to kill us. But um I also think 2 days like you planned to do in the beginning (someone cleared their throat)
R	Ok
8	I think These young ladies um did it a lot of it in their own time and they were quite happy to do that um that says to me something um they wanted to. So I think if we do look at the way forward um those that are really interested would be prepared like these committed to give that time where they are to do it. My understanding is
R	Ok
8	You know if there was a concept of you know ja

7	I can't remember, I can't see here the initial steps what to do what to teach them how to recognize the initial steps to do if the patient go into shock or deteriorating. So my patient was fine now and 9 o'clock something is wrong. What to do and specific initial step ja and to recognize that this patient is deteriorating. Actually in the ward it is more necessary but in CCU I think as well
R	We can add that in
7	The shift leader is not always especially in surgical CCU is having a lot of beds not always everywhere and then they can recognize. But you you did and you also you said ja you also recognized that you did a blood gas and that is very good.
R	Ok we will look at that
8	I um Just a last thing I I think the Ward Ens would also benefit because if you look at your wards you predominantly have ENS on the floor so to speak and I think perhaps not quite to the same level as them but the same or similar concept that they also got the confidence to be able to know they could be able to stand up and say my patient is actually going into shock um, you now or something is changing its not ok. Um you know I can give an example one of the wards a patient had a decreased level of consciousness and they still kept giving medication despite despite the fact the patient, they could see a change. Nobody thought anything different and obviously in the morning they had to intubate him
R	Mm
8	Tube the patient
R	Are you saying that this program has taught them a critical analytical thinking
8	It has I think we underestimate yes they don't have and we underestimating the need for that. I think we could too many degrees help the wards um perhaps prevent so many patients landing up in CCU because they have already noticed the concerns a little earlier. The deterioration the process as as a. (Someone clears their throat). I'm just picking from what these young ladies have said and and um just seeing the difference in them. I am also seeing I know it sounds silly almost an aliveness. I can (clicks her fingers) (group laughs) Does it make sense and I think perhaps that will also help your wards motivate be more motivated to be more proactive
R	Mm
8	Just to a difference sense of its its just as the girls were saying said they have got confidence

R	Confidence
8	And that just brings a whole different attitude out
R	Perspective
8	To everything
R	Mm
8	Patients maybe talk to each other the whole thing ja
R	10, what do you think from a ward perspective
10	It will definitely make a difference because it is also about communicating with the doctor with confidence and that whole attitude that lies in the knowledge and the skill
6	And the the load on the Ens in the ward (someone coughs) is high because often there is only one Rn (someone coughing) in the wards some. During the day maybe 2 but they are the ones that needs to face the doctors and they are not confident in doing that and asking the questions which we have heard is happening. So yes I agree.
R	Ok good
7	I just wanna add I see someone I see in your heading its critical care units but some of the ward ENs are doing overtime in the units. (someone clears their throat) (Speaking unclear). I saw yesterday Ward Ens coming, so they are coming in the ward critical care as well
8	But again listening to what they said how they see something (someone coughing) what they gained by doing the course
7	Yes
8	Puts a whole different perspective on it. So that where it
R	The wards even if she is looking at critical care now also going to critical care
8	Yes absolutely
R	The wards
8	It would close that
R	Gap
8	Gap
7	Ja
R	So you ladies what do you think from what's been said about that

En 2	The wards (everyone laughs) (someone coughs)
En 2	They are in the darkness. Matron they are just closed up somewhere in a dark room. They bring a patient to CCU ok the patient is desaturating. Oxygen, did you maybe think about giving oxygen. No we called the doctor. Ok. Just oxygen would have done something to the patient when you immediately give to the patient nasal cannula, the sats are above 90. Really what tells you about that person? (Someone chuckles). They don't know anything and it's it's really not nice now because the standards in the wards are down there. When we come to CCU, if I should go to the ward. I think I can run a unit. (Someone giggles). As an EN with what I know.
8	I like that, I like that (everyone laughs) that's it
R	Because of the confidence
En 2	They don't you go to the ward to help them out (someone coughing) with a blood gas (someone echo's what is being said). They ask you come and take a blood gas. You get there, ok give me the stuff. You take it ok oh I wasn't sure I know how to do it. Like its fine but that the ja an EN won't attempt to take a blood gas because they don't know how to do that. So you see a lot of things if if I could sit with some of the ENs there I am sure that I could teach them something just, not that I know everything but from where I stand and what I see and then I can do something at, they really need to be helped though those girls they don't know anything. They just know how to write intake and output the normal things
R	Are you saying this group could almost be replicated for the wards
En 2	Yes mm yes. It must also be done then. CCU yes just to give them that bit of that bright spark as well to polish them more because already when we in CCU we know so much
R	Mm
En 2	It's just to clarify there and there and there. With them you need to start from scratch they need to know what they are doing. They really really need to be given time and to ya I am sure there will be a big difference because now the only other problem is there is a lot of agencies so they go to different hospitals and they come back with different knowledges. There they do this and that way in this hospital they do it in that way. So when they come here things are done differently so that (someone clearing throat) they tend to clashes with what they no.
8	Lack of standard
R	Ok
8	This is what we have been doing with what it is at xxxxx
R	Standardise

R	Ok. 10 It look like you want to say something
10	Yes I think on that point. It is a gross generalisation. And I think we don't have to say that people don't know anything because I will not agree with that. But, in the wards there will definitely be certain other aspects that's needed. If you really want to take it to the wards. But that is a totally different discussion I think, Um But that it would definitely benefit the Ens in the ward I would agree with that.
R	Slightly obviously slightly modified
10	Yes because there are
R	Their needs
10	Yes
8	Yes But I think it is in the wards the guys don't have that um foundation to be able to stand up and say something either. So what is happening is I think we've it's it's it's just been perpetuated xxxxx In the sense of nobody listens to them so you've then got to the level of um I'm an En and I do this and this is what I need to do. Instead of where these girls have said it themselves you have empowered them to think out of the box to be able to stand up and say something
R	Do what they feel they need to do
8	Yes and I (someone clearing their throat)j and I do believe that it would make a difference um in a sense of the doctors are also reluctant to send their patients back to the ward due to (pause) some of the facts are of not having the same insight perhaps into what's in front of them
R	It's nice to see that one has taken that the the program can be looked at from different angles and it can actually be developed and used in different areas. And I think that was part of my aim to say at the end how can this be duplicated and used almost as a footprint and say right we can take it and implement it in different areas. We can use it in maternity, we can use it in different areas to say let's duplicate it with different content to take it almost as a as a toolkit as a footprint and say this is how we can standardise this stuff.
R	Anybody with anything else?
R	Yes
R	About the program that we need to change?
R	Is there anything we need to um change?

R	That's what we discussing
En 1	Not necessary to change but to look at and to help others that they don't know. Because sometimes as I said sometimes you don't like it is not like you don't know something but you scared. And then you don't have that em that guts to say no because you are scared to do something. And then about this thing of the wards. Something I work in the ward so many years in xxxxx Sometimes you do something you think that you know but as when you go out and then you realise no I thought that I knew 123, but when you go and see other units then you see no. Like when you go to CCU like in the wards in xxxxx. I didn't apply for CCU for instance. Sr xxxxx and Matron xxxxx took me out from the ward because they it's the way you do your your work or the way you understand
R	Mm
En 1	Sometimes you don't like you don't know but you to do something
R	Mm
En 1	Yes. The wards they can have some some help but it's not going to be the same like CCU but if you go you are in the ward and then you go to CCU you gain the knowledge. It's not like you don't know but scared to do something
R	So it's giving you confidence
En 1	Yes
R	And and that's what's important about this so so the other leg on this course is not only giving you the knowledge but its empowering you and giving you confidence and I think that that has made a whole lot of difference
EN 1	It is empowering yes
R	That's the knock on effect that I don't think anyone thought about in the beginning was the other effects it was going to have and I don't think any of us thought of that
R	Anything else anybody want to add anything else
	I will at least say it will be good for the nurses from the ward because some of them when you talk about CCU it's like you talking about something that they won't even go there. But if you introduce the problem to them they will be interested to come and help and do some other things in CCUs. It will also help them to to to gain that that strength or confidence to come and work in the CCU because some of them are really scared
R	But also if you think about it where the CCUs do get their staff from? We get them from the ward staff

	Mm
R	So in actual fact that is part of the aim of this is to run this program for the people that is newly coming into the CCU
	Yes
R	So that when they start in the CCU they go through this program and then they start working in the CCU so that they have got a little bit of the knowledge
	Yes
R	In the transition from the ward to the CCU so that they they know what to do. So they don't walk into the CCU and know absolutely nothing
	Yes
8	I think it would also be it would also be. We need to look at another concept that there wouldn't be such a division
R	M
8	And perhaps we would change the concept of the wards and CCU where people have this concept because I think that's another concern for me. We not any better than anyone else we have just been empowered to think differently
6	We all started at the same
8	Yes
8	And I think that's what we all forgetting. CCU is the same thing. I mean I say it on a daily basis. CCU is a brilliant place to be but you still need basic nursing and the basic principles. So I think perhaps we should also look at the concept that we would maybe close the gap or the feelings between wards and CCU and there wouldn't be that big xxxxx
R	And you know Not all patients in the CCU land up coming to the CCU
8	NO
R	But they still need almost a form of advanced care but in the wards
8	Yes
R	So that would empower the ladies in the wards to have that little bit of extra knowledge to confidently look after those patients
En 1	I remember I was very very scared to work in CCU from the ward. But if you go there and you get people to teach you then you can have confident

R	Thank you
R	Anybody else
R	Sue is there anything you want to add
Sue Armstrong	No thank you
R	Ok
R	Good thank you is there anybody who wants to add anything or can we close off. 7
7	So for the pilot then there was one specific educator teaching?
R	Yes there was one educator
7	So maybe the last question maybe you (someone coughing) you could have different people having an impact from different units maybe teaching um (someone sneezing) on the cardiac part or from neuro or medical having impact on that. Because different people teaching different skills and knowledge and things,
R	Great thank you that is very good input. Ok we can look at that. So then almost the expert in the field
7	Yes
R	Will talk on. So the cardiac specialist person will do the cardiac
7	Maybe have something else neuro nurse (someone coughs0
R	Neuro nurse can do. So the neuro section the neuro nurse can do etc.
7	Ja
R	That's very good
8	The change sometimes I think also helps with the um that kind of thing gives a bit of a different perspective and a different person because because each one has a different way of doing it just change
R	Add value ja
10	And it accommodate the learning style
8	Yes that's it ja
7	People with a lot of experience can teach ……

R	Great if there is nothing else I think we will close. Thank you very much um for your I really do value your input and your support. Thank you
	Everyone says thank you and packing up is heard