THE COMPETENCE OF REGISTERED NURSES IN MANAGING EMERGENCIES AT A TEACHING HOSPITAL IN ZAMBIA

BY

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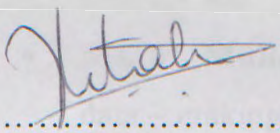
DECLARATION

I declare that the "**THE COMPETENCE OF REGISTERED NURSES IN MANAGING EMERGENCIES AT A TEACHING HOSPITAL IN ZAMBIA"** is my own work and that all the sources I have used or quoted have been indicated and acknowledged by means of a complete reference.



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ABSTRACT

Emergencies can occur at anytime and as such requires prompt and efficient interventions in order to ensure stability, prevention of complications and early recovery. The success of the intervention will depend on competence of health workers especially registered nurses who are in the forefront in providing the service to clients.

A literature review was conducted to identify what emergencies are, as well as competencies that are expected of attending nurses if life is to be saved. Different definitions or concepts of emergencies were analysed. The underlying factor is that "an emergency is any condition requiring medical attention". Thus emergencies call for care aimed at stabilizing, prevention of complications, and early recovery.

The professional nurses' competence is mainly the performance of skills and techniques that also requires integration of knowledge, skills, judgement and an array of characteristics that contribute to safe and ethical practice.

Since the study was looking at 'job specific' competencies, the focus was on resuscitation skills expected of nurses, namely a primary and secondary survey. The nurses are also expected to participate in the triage of patients being seen in the emergency department.

The conceptual framework used was competence-based assessment that involved the observation and measurement of skills, for which the professional nurse was accountable.

The research methodology covered the research design and a quantitative descriptive approach was applied in the study. The target population was registered nurses practicing in the casualty department. Data was collected by means of a checklist. Raw data was analyzed and presented as descriptive statistics of frequency distributions and cross tabulations. Correlations were also utilized where possible.

The study sought to determine the competence of registered nurses in managing emergencies at a teaching hospital's Accident & Emergency unit. The competence of nurses has been unsatisfactory according to the grading of scores.

KEY WORDS

Competence

Registered nurse/Professional nurse

Accident and Emergency department

Emergencies

Managing

Teaching hospital

LIST OF ABBREVIATIONS

ABG	Arterial Blood Gases
A & E	Accident and Emergency
ACLS	Advanced Cardiac Life Support
ATLS	Advanced Trauma life Support
ENA	Emergency Nurses Association (USA)
ENP	Emergency Nurse Practitioner
GCS	Glasgow Coma Scale
ICN	International Council of Nurses
ILO	International Labour Organisation
IV	Intravenous
SPSS	Scientific Package for Social Sciences
TNCC	Trauma Nurse Core Course (USA)
UTH	University Teaching Hospital

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CHAPTER 1

INTRODUCTION AND BACKGROUND TO THE PROBLEM

1.1 INTRODUCTION

Emergencies can occur anywhere, such as in the community, emergency department and even nursing units. According to Black & Matassarin-Jacobs (1993: 87-92), an emergency is any sudden illness or injury that is perceived by the client or significant other as requiring immediate attention. The emergency continues until the condition is stable or no longer threatens the clients' integrity or well-being.

This calls for emergency nursing intervention that requires a broad knowledge base to provide safe and competent care to clients with a variety of conditions. Emergency nursing requires rapid and sound assessment skills, physiologic responses, psychosocial behavior crisis intervention, communication techniques, triage, trauma care and the ability to provide care in uncontrolled or unpredictable environment. This implies that all nurses working in Accident and Emergency units must have the basic knowledge and skills needed for rapid assessment, intervention and safe management of emergencies. In other words quick and competent emergency care is the key to rapid stability, prevention of complications, and early recovery.

The competencies in terms of skills in nurses are very crucial to any case that comes through Accident and Emergency (A&E) departments. The subject has drawn a lot of interest among society in general and nurse practitioners to the extent that different authors emphasize different aspects of core competencies that a professional nurse should possess, and can broadly be categorised as: -

i. Professional (skill) competence – accepts accountability and responsibility for own professional judgments. The nurse displays behaviour based on own beliefs, attitudes, and knowledge matched to and in the context of a set of expected outcomes as defined by nursing scope of practice and benchmarks that assure safe performance of professional activities.

ii. Cognitive competence – demonstrates critical thinking, problem- solving skills across a range of professional and care delivery contexts.

iii. Inter-personal skills – ability to get on well with others in the work environment e.g. peers, doctors and others.

iv. Emergency care patterns of interaction – involves relationships that are focused on teamwork during routine and emergency work as well as coordination with others within and outside the department in the delivery of care (Seribante et al, 1996:217-26)

The University Teaching Hospital (UTH), Lusaka, Zambia is no exception to current client and nurse practitioners' expectations and key competencies expected of professional nurses working in Accident and Emergency departments.

The University Teaching Hospital is the national referral hospital in Zambia. It also provides care to its local population now estimated at 1.2 million (Central Statistical Office Report, 2000). With this increasing population comes a

corresponding increase in numbers of emergency cases attending the hospital as was seen from statistics for 2000 about casualty department (see Table 1.1 for a summary of patient attendance): -

TABLE 1.1: SUMMARY OF PATIENT ATTENDANCE PROFILE FOR THE YEAR 2000

INJURIES/CASES	MALE	FEMALE	TOTAL
Road Traffic Accidents (RTA)	3,096	1,302	4,398
Burns	447	313	760
Accidental falls	1,263	832	2,095
Dog bites	238	125	363
Rape	-	264	264
Food poisoning	518	344	862
Assault	3,246	1,238	4,484
Other injuries	4,348	1,864	6,212
All other diseases	21,655	21,200	42,855
TOTAL	**34,811**	**27,482**	**62,293**

SOURCE: UTH MEDICAL STASTISTICS FOR CASUALTY, 2000.

1.2 STATEMENT OF THE PROBLEM

Since nurses are the first to receive patients, the provision of timely intervention in emergency victims is critical if nurses in Accident and Emergency are to influence outcome of each patient. If nurses are competent in handling emergency cases, the life can be restored and if they are not, then, lives can be lost. This fact has been confirmed by evidence-based practice reports (Williams et al., 1997: 1-54; Esposito et al., 1995(10): 24-29) stating that a good mix of competent nurses and doctors is essential, and that they

should have had Advanced Trauma Life Support (ATLS) courses as part of the requirement in order to increase the possibility of better patient outcomes.

It is not clear whether all the nurses practicing in the Accident and Emergency units are competent to handle emergencies. It is behind this scenario that the researcher would like to conduct a study on:

"The Competence of Registered Nurses in managing emergencies at a teaching hospital in Zambia".

There is currently no record of any study done on the above topic in Zambia, however similar studies have been done outside the country.

1.3 PURPOSE OF THE STUDY

The purpose of the study was to explore and describe the professional nurses' competence in handling emergency cases that are brought to the Casualty Department at University Teaching Hospital, Lusaka, Zambia.

1.4 OBJECTIVES

The objectives of this study are to: -

→ Carry out a literature review on Accident and Emergency nursing

→ Describe the personal profile of nurses working in the accident and emergency department

→ Identify and adapt protocols used in the Accident and Emergency department as part of the instrument development

→ Measure professional nurses' competence in managing emergencies in relation to Protocols of Trauma care.

1.5 SIGNIFICANCE OF THE STUDY

The study will be beneficial on the following aspects: -

- All professional nurses registered with the Nursing Council of Zambia working in Accident and Emergency Units may benefit from the study, since findings could highlight strengths and weaknesses of the competencies of professional practices.

- The general public and community at large have explicit and very high expectations regarding the quality of patient care in the health system; therefore it is important that nurses' competencies be checked at regular intervals.

These expectations hold the professional nurse responsible for providing the expected competent emergency care. The public stands to benefit from the outcome of the study, as it will contribute to patient care in Emergency departments.

1.6 DEFINITION OF CONCEPTS

1.6.1 COMPETENCE

Fairchild (1996:38) describes competence as the "ability to practice a skill with safety and efficiency and usually is a result of continual application of knowledge and skill." The International Council of Nurses (ICN) defines

competence as "a level of performance demonstrating the effective application of knowledge, skill and judgement (ICN 1997:44) According to Troskie (1993), "the nurse acquires the official mandate to practice as a registered nurse after successful completion of her training; this mandate recognizes the nurse's abilities, skills, knowledge, understanding and experience". This definition entails that the nurse should be able to perform nursing activities safely, according to determined standards, within the scope of her/his practice, in coordination with other members of the health care team.

For the purpose of this study, competence will be assessed against Emergency department resuscitation protocol using primary and secondary surveys.

Primary survey is an organised approach for the evaluation of airway, breathing, circulation and neurological function. It also focuses on the identification of injuries that pose immediate threat to patients' life (Emergency Nurses Association, 1998: 230).

Secondary survey is a more complete evaluation of the patient and includes vital signs, obtaining history, head-to-toe examination and inspection of the back. Potential life threatening conditions that can be identified include hypothermia, pelvic fractures and spinal cord injuries. Laboratory investigations may be requested for to help in the care of the patient (Emergency Nurses Association, 1998: 230 - 234).

1.6.2 REGISTERED NURSE/PROFESSIONAL NURSE

This is a person registered as a nurse by the General Nursing Council of Zambia under section 13 of the Nurses and Midwives Act (No. 31:1997:295-

318). The professional nurse is one, who "by virtue of intellectual capacity, education and moral outlook, is capable of the exercise of intellectual and moral judgement, at a high level of responsibility. Judgment is based on broad knowledge, penetrating wisdom about particular circumstances and great certitude about ones' actions which engenders societal trust" (Searle & Pera, 1995:119). The ICN also defines a Professional nurse as " a person who has completed a programme of basic nursing education and is qualified in his/her country to practice nursing."

For the purpose of this research the term professional nurse will be used and refers to a Registered nurse at functional level and in a specialized unit.

1.6.3 ACCIDENT AND EMERGENCY DEPARTMENT

Is a part of the health institution designated to attend to accident and emergency patients/clients being brought in from the surrounding community.

1.6.4 EMERGENCIES

According to Black et al (1993: 87-92), an emergency is any sudden illness or injury that is perceived by the client or significant other as requiring immediate attention. The emergency continues until the condition is stable or no longer threatens the clients' integrity or wellbeing.

1.6.5 MANAGING

This involves the actual attendance and provision of nursing and medical care to the patients coming to casualty unit seeking treatment for emergency conditions.

1.6.6 TEACHING HOSPITAL

A teaching hospital is one that has an adequate mix of specialist services with sufficient manpower and facilities that can sustain both the service and teaching function of the hospital. University teaching hospital serves as a national referral hospital and provides training for doctors, nurses, clinical officers and paramedical staff like pharmacists, physiotherapists, laboratory technicians and radiographers.

The arrangement of the research report is as follows:

Chapter 1:	Introduction and background to the problem
Chapter 2:	Literature review and conceptual framework
Chapter 3:	Research methodology
Chapter 4:	Analysis and interpretation of data
Chapter 5:	Discussion of findings, limitations, conclusions and recommendations

SUMMARY

Emergencies can occur at anytime and as such requires prompt and efficient interventions in order to ensure stability, prevention of complications and early recovery. The success of the intervention will depend on competence of health workers, especially Registered nurses who are in the forefront in providing the service to clients.

The objectives of the study, purpose and terms were stated.

The study was aimed at assessing the professional nurses' competencies in managing emergencies. The study is significant in that it will benefit the professional nurses working in accident and emergency units by highlighting the strengths and weaknesses.

The next chapter will look at the Literature review and conceptual framework.

CHAPTER 2

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1 INTRODUCTION

Advances in pre-hospital care, in emergency medical systems, and in transport to regional trauma stations together with advances in medical and nursing management of clients in emergency situations have led to increased survival among patients. Much of this is attributed to the role of the registered nurse. It is therefore necessary to describe and analyze the current role and responsibilities of the registered nurse.

During the review of the literature, the following outline was followed:

- A discussion and analysis of what is meant by nursing competencies
- The meaning of emergency care competencies
- Emergency department resuscitation skills as a component of emergency care competencies
- The trimodal distribution of death and it's role in determining the skills required by emergency care nurses
- The philosophy of care and it's effect on the care delivered in emergency care
- Nurse triage as a priority directive in delivering emergency care
- Clientele and client satisfaction
- The role of continuing education
- The conceptual framework of the study

Provision of emergency facilities in Zambia is a responsibility of the government through the Ministry of Health who run hospitals and health centers scattered all around the country as is the case with some other countries around the world, both developed and underdeveloped.

According to Black et al (1993: 87-92), an emergency is any sudden illness or injury that is perceived by the client or significant other as requiring immediate attention. The emergency continues until the condition is stable or no longer threatens the clients' integrity or wellbeing.

Emergencies can occur anywhere such as community, emergency department and even nursing units. When emergencies arise, they call for competent emergency intervention or care.

The Emergency Nurses Association of America defines emergency care as involving the: -

"Assessment, diagnosis and treatment of perceived, actual or potential, sudden or urgent physical or psychological problems that are primarily episodic or acute. These may require minimal care or life support measures, client and significant other education, appropriate referral and knowledge of legal limitations." (Dains, 1991:98-100)

From the above definition of 'emergency care', it implies that Emergency nursing requires a broad knowledge and skills base to provide safe and competent care to clients with a variety of conditions. These include rapid and sound assessment skills, physiologic responses, psychosocial behaviours crisis intervention, communication techniques, triage, trauma care and the ability to

offer care in uncontrolled or unpredictable environment. It is therefore important that all nurses have basic knowledge and skills needed for rapid assessment, intervention and safe management of emergencies. Quick and competent emergency care is the key to rapid stability, prevention of complications, and early recovery.

2.2 NURSING COMPETENCIES

The definition of a professional nurse that underpins the competencies is derived from the ICN 'Report on the regulation of Nursing' (ICN 1986: 14). The report cites ICN (1983: 17) as "a person who has completed a programme of nursing education and is qualified in her/his country to practice nursing... the educational programme prepares the nurse, through study of behavioural, life and nursing sciences and clinical experience, for effective practice and direction of nursing care, and for leadership role".

In order to provide the quality of care that can efficiently restore or stabilize the patient's condition, we have to identify the competencies possessed by the professional nurse. The International Labour Organisation (ILO, 2000) describes competencies in relation to work roles at three different levels of specificity. '*Core competencies*' describes broad, generic competencies expected of all employees, whatever their grade or role in an organization; '*level competencies*' are those required of staff at specific grades or levels of seniority; and '*job specific competencies*' are the most detailed and narrowly focused.

In line with the above, the ICN has provided fundamental competencies expected of a Professional nurse in its Code of Ethics (2000a) in cognisance of ILO competencies, namely: -

a. **Accountability:**

Being answerable or accepting accountability and responsibility or one's own professional judgements and actions. Ability to recognise one's limitations in role and competence as well as being willing to consult fellow nurses and health care professionals when nursing care requires expertise beyond our own current competence or scope of practice and when individual or group needs fall outside the scope of nursing practice respectively.

b. **Ethical practice:**

The nurse practices in accordance with the ICN Code of Ethics (2000) and ensures that all aspects of ethical conduct are upheld in his/her area of practice. Ethical practice is one that will acknowledge patient's rights to choice in nursing and health care. It also encompasses the patients right to privacy and access to information. The nurse has to provide culturally sensitive care and acts in an advocacy role to protect human rights. This therefore calls for the nurse to recognise his or her own beliefs and values and respect the values, customs, spiritual beliefs and practices of individual groups.

c. **Legal practice:**

Demonstrates knowledge of relevant nursing and health care legislation and regulation and practice in accordance with all relevant legislation.

The nurse should recognise and act upon breaches of law relating to nursing practice and/or professional code of conduct.

From the above expectation of the professional nurse, competence is more than the ability to perform skills and techniques but requires the integration of knowledge, skills judgement and personal characteristics in order to practice safely and ethically. Competence is more than the ability to perform skills and techniques. Competence involves the ability to assess the situation, understand the underlying factors contributing to the situation, to intervene appropriately, to be able to predict the outcome of an intervention, and be able to respond with alternative interventions in the event of a lack of response or an untoward response to the intervention (Gurvis & Grey, 1995).

Seribante et al, (1996:217-26) identified four main categories of competencies as follows: -

- Professional competence – accepts accountability and responsibility for own professional judgments and actions.

- Cognitive competence – demonstrates critical thinking, and problem-solving skills across a range of professional and care delivery contexts.

- Inter-personal skills – ability to get on well with others in the work environment e.g. peers, doctors and others.

- Emergency care patterns of interactions – involves relations that are focused on team work during routine and emergency work as well as coordination with others within and outside the departments.

In another study, Zhang et al. (2001: 467-474) looked at personal characteristics that could influence the core person characteristics. In their study, they pointed out the importance of competencies as enabling the individual to adapt to new environment. The following are some of the attributes: -

- interpersonal understanding and commitment
- information gathering
- skills and traits
- motives and
- attitudes

Despite the differences in emphasis on the core competencies, the nurse educators and practitioners must agree on competencies and attributes to ensure a more focused view of competencies (Porte – Gendron et al, 1997:147-58). This calls for close collaboration between nurse educators and practitioners if competencies are to be understood using the same language by both parties. The competencies are well summarized by Troskie R (1993) as "the official mandate to practice as a registered nurse after successful completion of her training; this mandate recognizes the nurse's abilities, skills, knowledge, understanding and experience". This definition entails that the nurse should be able to perform nursing activities safely, according to determined standards, within the scope of her/his practice, in coordination with other members of the health care team.

In line with the above, the General Nursing Council of Zambia has stated 4 key competencies required of a professional nurse, namely: -

Social ability - involves self-awareness and working along with colleagues. It also involves ability to interact with others at a professional level.

Communication skills - involves the ability to listen, talk, read and write.

Practical skills - involves ability to use equipment, maintaining aseptic technique and proper administration of drugs, and

Decision making in nursing care - using the nursing process i.e. assessment, planning, implementation, evaluation and recording.

The above competencies are accomplished through the General Nursing Council Registered nursing curriculum that provides the scope of practice for the professional nurse are in line with ICN (2000:13-16) and have been identified as core competencies for the professional nurse who has to meet the set standards. Variations in emphasis and expectation can be seen from among countries depending on their level of nursing development.

While the key words or constructs within the definitions of competence do vary, they are based on the synthesis of various components and ***"that the whole is greater than the sum of its parts"***. In view of the above as well as nursing definitions, there is wide-ranging agreement that, in the performance of nursing roles to the standards required in employment, competence should reflect the following: -

- Knowledge, understanding and judgement;
- A range of skills – cognitive, technical or psychomotor and interpersonal; and
- A range of personal attributes.

Emergency care competencies should therefore also reflect the above mentioned aspects.

2.3 EMERGENCY CARE COMPETENCIES

The definition of competence underpinning this framework of competencies for the professional nurse is that of the ICN (1997 and 2000c). The Emergency Nurses Association has formulated competencies that are expected of nurses working in emergency units. Emergency nursing requires a broad knowledge and skills base to provide safe and competent care to clients with a variety of conditions. These include rapid and sound assessment skills, physiologic responses, psychosocial behaviours crisis intervention, communication techniques, triage, trauma care and the ability to offer care in uncontrolled or unpredictable environment.

In relation to ILO classification, these competencies are 'job-specific' and in this study will reflect the competencies expected of a professional nurse working in the Emergency unit using the Primary and Secondary survey protocol guidelines.

These competencies are described/outlined in the research instrument (See Annexure 1).

2.4 EMERGENCY DEPARTMENT RESUSCITATION SKILLS

The Emergency Nurses Association has developed a nursing model (Trauma Nurse Core Course - TNCC) similar to the one developed by the American College of Surgeons. Both emphasize the need for a systematic approach to care of trauma patients in the emergency department: Primary survey, Secondary survey to be conducted simultaneously with resuscitation, and Definitive management (Keenan, 1995:483).

The Emergency Nurses Association (ENA) of the United States of America emphasizes that, "the optimal care of the trauma patient is best accomplished within a framework in which all members of the trauma team use a systematic, standardized approach to care of the injured patient (ENA, 1998).

The Zambian nursing curriculum equips professional nurses with basic knowledge and attending skills on Accident and Emergency nursing and some related aspects of Primary and Secondary surveys. The University Teaching Hospital has set similar guidelines on patient care in Casualty department responsible for attending to trauma patients.

As part of the Primary survey, trauma rules (Hodgetts et al. 1997: 6) should be appreciated and that all trauma patients be considered a high risk for blood transmissible diseases particularly HIV, Hepatitis B, and Hepatitis C viruses. In view of this, are admonished to remember: "think of your safety to begin, when

infected you are no use" to the patient. This calls for provision and use of protective apparel in the resuscitation room like: -

- Eye protection (goggles/safety glasses/face shield)
- Impervious gown or apron
- Latex gloves
- Lead apron fluids (Liverpool Hospital: Trauma unit – Education Handbook, 2002).

Nurses should ensure safety of the patient, environment and self (by wearing protective eyewear, apron and mask if splatter with blood or body fluids is possible) always (Liverpool Hospital: Trauma unit – Education Handbook, 2002).

Hand washing cleanses the hands of the member of staff and helps minimize chances of transmitting microbes on to the next patient (Liverpool Hospital: Trauma unit – Education Handbook, 2002). This approach calls for thorough hand washing with disinfectants or soap by all health workers in between patients and before attending to a new patient.

2.4.1. *Primary survey*

Primary survey is an organised approach for the evaluation of airway, breathing, circulation and neurological function. It also focuses on the identification of injuries that pose immediate threat to patients' life (Emergency Nurses Association, 1998: 230).

History taking is vital to the understanding and subsequent management of the condition in which the victim, now a patient, is placed by events. Time should be allocated for getting a report on-time of accident or event, what has been done for the patient so that you don't waste time (at least 45 seconds) to avoid going through what has been done already. The paramedic should describe **MIST** (**M**echanism of injury; **I**njuries found and suspected; **S**igns – respiratory rate, oxygen saturation, pulse rate, blood pressure; **T**reatment given) (Hodgetts et al., 1997: 10).

On arrival of trauma patient in the emergency department, the primary survey is initiated. During this assessment, life-threatening injuries are discovered and treated. The five steps in the primary survey comprise the ABCs, plus D and E – A, airway; B, breathing; C, circulation; D, disability (mini- neurological examination) and E, exposure (undress with temperature control). The objectives of this phase are to hunt out and treat any life threatening conditions. Each patient should be assessed in the same way, with tasks performed simultaneously by the team. It is vital that problems are anticipated and prepared for by A&E nurses, rather than reacted to. If the patient deteriorates at any stage, the nurse or team leader must reassess the patient beginning again with the airway.

Airway with cervical spine: Airway is assessed for ineffective airway clearance and airway obstruction. The aim is to clear and secure airway and provide adequate oxygenation through proper positioning of the patient, clearing the oropharynx (Thelan et al., 1998: 1054). The cervical spine should be immobilized as you check for the airway. All victims of significant trauma will have a degree of hypoxia due to airway compromise, chest injury,

hypoventilation from head injury or hypovolaemia. To improve oxygen delivery to hypoxic tissues, all victims of trauma should be given high concentrations of oxygen. It should be remembered that carbon dioxide kills slowly, but lack of oxygen kills quickly (Hodgetts et al.1997: 13).

When you ask the patient and he is able to give a meaningful answer, you know: -

1. The brain is reasonably functional,
2. There is an intact airway
3. Ventilation is occurring, and
4. Circulation is present (Hodgetts and Mackaway Jones, 1995).

Breathing: The patient is also assessed for ineffective breathing patterns and impaired gas exchange. It is crucial to remember that an open, clear airway does not ensure adequate ventilation and gas exchange. Assessment includes chest wall integrity and respiratory rate, depth, and symmetry. Supplemental oxygen is used in all trauma patients. Lung auscultation is a process of listening to the chest with the aid of a stethoscope to sounds produced by movement of air or fluid in the lungs (Oxford concise medical dictionary, 1998: 56). A clear voice, quiet respirations and a normal mental state rules out significant obstruction. Life threatening conditions like airway obstruction, tension pneumothorax and cardiac tamponade can be identified through auscultation and requires urgent treatment (Hodgetts et al., 1997: 27). Decreased breath sounds or alterations in chest wall integrity necessitate chest tube placement through the intercostal spaces. As a nurse, you have to Look, Listen, and Feel for the flow of air at the mouth to ensure that the breathing is adequate.

Early intubations protects the airway, provides a reliable route of supplying high concentration oxygen to limit brain damage, and to hyperventilate the patient to lower the partial pressure of carbon dioxide where appropriate (Hodgetts et al., 1997: 17; Argyle, 1996). The patient may later be connected to Mechanical ventilation in order to stabilise or treat ineffective breathing patterns, or both.

Circulation: After effective airway clearance, breathing patterns, and gas exchange have been ensured, the nurse assesses for alterations in cardiac output, alterations in tissue perfusion, and fluid volume deficit.

The aim is to stop bleeding, recognize shock and treat shock. External exsanguinations are identified and controlled. Rapid assessment of the circulatory status includes the assessment of level of consciousness, skin colour, and pulse. Level of consciousness provides data on cerebral perfusion. Assessment of general "gestault", pulse rate, skin colour can provide information about the patient's circulatory volume. Ominous signs of hypovolaemia include ashen, gray, or white skin. Systemic blood pressure can rapidly be assessed by use of the 60-70-80 methods. If a carotid pulse is palpable, the minimal systolic pressure is estimated to be 60 mm Hg. A palpable femoral pulse can represent a systolic pressure of 70 mm Hg, and a palpable radial pulse can represent a systolic pressure of 80 mm Hg. If a pulse is not present, advanced cardiac life support (ACLS) protocols are instituted. Cardiac monitoring is initiated to assess for rhythm disturbances. Life threatening dysrrythmias are also treated according to ACLS protocols (Thelan et al, 1998: 1054 – 56). Check all peripheral pulses and mark them with a marker.

Disability: In this step, the nurse assesses the potential for injury by completing a brief neurological assessment to establish the patient's level of consciousness and pupillary size and reaction. The AVPU method describes the patient's level of consciousness: A, alert; V, responds to verbal stimuli; P, responds to painful stimuli; and U, unresponsive. 'Alertness' is used to determine patients ' level of consciousness. Response to 'verbal stimuli' and 'painful stimuli' helps to determine the patients' ability to act on what he has heard or feels at a given time. It also helps to determine the status of brain functions. Testing of eye reaction to light and assessing the character of the pupils is a vital component of the neurological examination by testing 3rd cranial nerve (motor nerve that controls the papillary response). Unequal pupils and lateralising signs are likely to be caused by head injury with increased intracranial pressure (Van Carrapiett D. 2002 – on line; Walsh M. 2000).

The Glasgow Coma Scale (GCS) is a numerical system used to estimate patient's level of consciousness after head injury. Each of the following are numerically graded: Eye opening (4), Motor response (6) and Verbal response (5). The higher the score, the greater the level of consciousness: a score or 8 or less indicates severe head injury or deep coma (Oxford Concise Medical dictionary 1998: 273; Hinds and Watson, 1996). The score provides accurate data which gives a much more accurate clinical picture about the patient.

The Revised Trauma Scale involves the use of simple and redefined numerical values, which make it easier to use as a triage tool, particularly with reevaluation and recalculation of the score as necessary component (Dolan & Holt, 2000).

Exposure: the final step in the primary survey is E, exposure. All clothing is removed to facilitate a thorough examination of body surfaces for the presence of injury. After all clothing is removed, it is imperative to cover and protect the patient from becoming hypothermic. The exposed body of the trauma patient should be examined critically from head to toe in order not to miss any injuries. Where possible, two sets of critical eyes are better than one and by doing this the nurses will become experienced in what to look for (Yates, 1999: 800). Inspect and palpate all extremities for deformity, swelling, and skin injuries. Log – roll the patient so that the back can be examined.

Injury places the patient at risk of developing hypothermia. Even though this may minimize brain injury, hypothermia is detrimental to the coagulation system and can exacerbate blood loss. Furthermore, oxygen consumption is increased in the awake patient. Therefore, every effort must be made to conserve heat and prevent hypothermia.

Judgement to immobilize cervical spine is often based on the mechanism of injury rather than the presence of symptoms and signs indicating spinal injury. Cervical immobilization is done because of the ***potential*** injury, not absolute injury (Hodgetts et al., 1997: 15).

2.4.2. ***Resuscitation Phase***

After the primary survey the resuscitation phase begins. Hypovolaemic shock is the most common type of shock that occurs in trauma patients. Haemorrhage must be identified and treated rapidly in order to sustain effective replacement of blood volume. Vigorous intravenous (IV) fluid replacement is initiated using a peripheral catheter (14 to 18 gauge) and not a central venous catheter. The

reason for this is that a short and thick catheter will do the job since the flow in a tube is inversely proportional to its length and directly proportional to its radius (Hodgetts et al., 1997:31). Effective fluid replacement helps reverse haemorrhagic shock and restores perfusion to vital organs (Yates, 1999: 821). Restoration of volume is accomplished through administration of crystalloid (lactated Ringer's solution), colloid (plasma or albumin), and/or blood products. During the initiation of IV lines, blood samples are drawn for tests to provide baseline data on the blood picture on which further management of the patient will be based. Over infusion of more than 2 litres of intravenous fluids before collecting blood samples may distort results and coagulation profile (Yates, 1999: 829). High – flow fluid warmers may be used to deliver warmed IV solutions at rates greater than 1,000 ml/minute and they help keep the core temperature within normal range (Yates, 1999: 838). Further treatment is determined by the patient's response to bolus intravenous therapy, type-specified blood or O-negative blood may be administered. Transfusion of autologous salvaged blood (auto transfusion) may also be used to replace intravascular volume and to provide oxygen-carrying capacity.

It is recommended that gastric and urinary catheters should be inserted into the patient, unless contraindicated. Nasogastric tube is inserted to empty the stomach as well as a safety measure to protect the airway from being endangered especially if there is poly trauma and he is to undergo surgical procedures (Wilson & Sinclair, 1995: 12). The urinary catheter helps to assess urine output (Hodgetts et al, 1997: 61).

Adequacy of resuscitation is assessed by monitoring patients vital signs and temperature (which should be normal or near normal) especially when you

look at the trends over a period of time (Yates, 1999: 797). Trauma patients are prone to hypothermia and should be protected by regularly checking and recording temperature as well as keeping the patient warm.

When fluid resuscitation is adequate, urine output will also be adequate; the average being about 50mls per hour in an adult (Hodgetts et al., 1997: 61)

Routine ABG was not commonly done due to operational problems with the machine that started at the beginning of the year. Otherwise, it is recommended that ABG be repeated regularly as acidosis is a sensitive indicator of the effectiveness of resuscitation (Yates, 1999: 795)

2.4.3 *Secondary survey*

Secondary survey is a more complete evaluation of the patient and includes vital signs, obtaining history, head-to-toe examination and inspection of the back. Potential life threatening conditions that can be identified include hypothermia, pelvic fractures and spinal cord injuries. Laboratory investigations may be requested, to help in the care of the patient.

The secondary survey begins when primary survey is completed, resuscitation initiated, and the patient's ABCs reassessed. It is commonly emphasized that the attendant constantly reassesses the ABCs during resuscitation in a rapid, logical and reproductive order (Hodgetts et al., 1997: 3)

It also involves thorough examination of each body part and history taking from either the patient or people who have brought the patient in to the hospital.

History taking and recording should include events preceding the incident so that any symptoms so caused are related to the findings of the clinical examinations and the results of special investigations (Yates, 1999: 786-787). Complete history should be obtained from either patient or relatives so that chronic illnesses are ruled out since they may have some effect on patient's response to treatment (Thelan et al., 1998: 1054-60).

The patient's pertinent past history can be assessed by use of the mnemonic AMPLE: Allergies, Medications, Past medical illness, Last meal, and Events immediately preceding the incident/environment related to the injury. An '***allergy***' is a disorder in which the body becomes hypersensitive to particular antigens (called allergens) that provokes characteristic symptoms whenever they are inhaled, ingested, injected or otherwise contacted. This will result in histamine release from tissues and causes local or widespread symptoms. Allergic attack is an example of local anaphylaxis but much more serious, is anaphylactic shock resulting in respiratory and heart failure and sometimes death (Oxford Concise Medical Dictionary, 1998: 28).

History on '***medication***' is important as medication may cause drug interactions that may further body processes (PharmFacts for Nurses, 1995: 250).

'***Past medical history***' of the patient will help determine their impact on the current problem e.g. asthma, diabetes, cardiac disease (PharmFacts for Nurses, 1995: 147 – 224). During history taking, time for '***last meal***' must be elicited, otherwise, all trauma patients should be assumed to have a full stomach and therefore need to be protected from regurgitation that may cause airway

obstruction (Wilson & Sinclair, 1995: 13). History about '***events***' is meant to determine the extent to which the events preceding the incident had an impact on the incident and the management of the patient. Most trauma patients had the smell of alcohol on them (from observation during data collection). The nurse may also ensure completion of special procedures, such as an electrocardiogram (ECG); radiographic studies (chest, cervical spine, thorax, and pelvis); and peritoneal lavage. Throughout this survey the nurse must continuously monitor the patient's vital signs and response to medical therapies because the body normally responds to trauma by releasing epinephrine, cortisol, and glucagon and the insufficient level of insulin stimulates catabolism. The effects of the above can affect the vital signs reading and success of therapy (Hodgetts et al., 1997: 62). Emotional support is a situation in which subject is made to believe that he is cared for and loved. This caring relationship is the one created between two or more people in which mutual trust and attachment are expressed by helping one another meet their needs (Smeltzer, C.S. & Bare, B.C., 2000: 118). This is in line with the philosophy of care according to Watsons theory of human caring.

Trauma patients are prone to shock, therefore, there is a need to continually monitor patients vital signs to assess efficiency of fluid resuscitation and control of haemorrhage and to ensure tissue perfusion is restored to vital organs (Yates, 1999: 821-843). While both intravascular volume and oxygen carrying capacity must be addressed, the former takes priority, because acute anaemia is better tolerated than hypovolaemia (Nolan & Parr, 1997).

Urine output is monitored frequently for quantity. An average adult should be able to pass at least 50mls per hour (at least 0.5ml per kilogram body weight). It is an indirect indicator of efficiency of fluid resuscitation (Yates, 1999: 821).

Using the visual analogue, the patient was able to grade the degree of pain being experienced or perceived. Pain normally results in release of catecholamines that cause peripheral and splanchnic vasoconstriction. Since hypovolaemia produces the same catecholamine response, pain will exacerbate the physiological response to hypovolaemic shock (Hodgetts et al., 1997: 62).

The last part of the secondary survey is the provision of specific care to the patient. Provision of specific care was related to specific injuries that had been identified. Since trauma is a 'surgical disease' the patient may undergo surgery and later may be sent to High Dependency Unit (HDU) or Critical Care Unit (CCU) depending on the status (Thelan et al., 1998: 1056). It should also be realised that despite intensive medical attention some lives may be lost due to complications or inadequate resuscitation. The next part will discuss the common causes of death.

2.5 TRIMODAL DISTRIBUTION OF DEATHS

Deaths from trauma show three peaks: immediate death, later death due to haemorrhage or direct organ compromise, and delayed death due to complications and organ failure.

Death may occur within seconds of the injury, usually due to massive head injury, heart injury, or aortic injury. These deaths cannot be prevented.

A second peak in deaths begins an hour or two after the injury. Deaths occurring in this second peak are usually due to subdural and epidural haematomas, haemo- or pneumothorax, organ rupture, or blood loss. These deaths are often preventable. This period is called the "golden hour" during which prompt intervention can save a life.

The third peak in deaths occurs many days after the injury, and is usually due to sepsis or multi-organ failure. Prompt treatment of shock and hypoxaemia during the "golden hour" can reduce these deaths (Argyle, 1996).

2.6 PHILOSOPHY OF CARE

In general practice, caring is considered to be an essential aspect nursing and the subject has attracted a lot of nurse practitioners' attention. According to Leininger (1996), care is the essence of nursing and the dominant, distinctive and unifying feature of nursing. She also goes on to acknowledge that caring is universal, varies among cultures in its expressions, processes and patterns. Miller (1995: 32) defines caring as "intentional action that conveys physical and emotional security and genuine connectedness with another person or group of people. Caring validates humanness of both the caregiver and the cared for.

The above two definitions are in line with what Watson (1985) says about caring. She describes caring as grounded in a set of universal human values (kindness, concern and love of self and others). She goes on to state that caring

is the moral ideal of nursing; involving the will to care, the intent to care and the caring actions which form the "core of nursing.

Watson developed the Theory of Human Caring between 1975-1979, while engaged in teaching at the University of Colorado. According to Watson, caring as science encompasses a humanitarian, human science orientation to human caring processes, phenomena, and experiences. Caring science includes arts and humanities as well as science. A caring science perspective is grounded in a relational ontology of being-in-relation, and a worldview of unity and connectedness of all. Transpersonal Caring acknowledges unity of life and connections that move in concentric circles of caring - from individual, to other/s, to community, to world, to Planet Earth, to the universe. Caring science investigations embrace inquiries that are reflective, subjective and interpretative as well as objective-empirical; caring science inquiry includes ontological, philosophical, ethical, historical inquiry and studies. Watson's theory of human caring has received worldwide recognition by the nursing fraternity and other caring professions and has been a major force in redefining nursing as a 'caring – healing health model (Watson, 1997).

The above perspectives of caring and more importantly that of Watson (1997) emphasise the need to be humane in caring for others. In emergency care settings, all patients are assumed to have a life threatening illness or condition irrespective of their initial chief complaint or reason for seeking care. Watson's perspective of caring is unique to emergency care and dictates how care is provided. Professional nurses in emergency care practice from this perspective, asking themselves what conditions the patient may have that will be life-threatening based on the data gathered. Differential diagnoses reflect the this

philosophy of care and are organized from the most life threatening to least life threatening and are eliminated as potential diagnoses in this same order.

2.7 NURSE TRIAGE IN THEORY AND IN PRACTICE

The term "Nurse triage refers to the formal process of early assessment of patients attending an A&E unit by a trained nurse, to ensure that patients receive appropriate attention, in a suitable location, with the requisite degree of urgency (George et al, 1993:220-8). The process of triage has been attested and capable of improving the service offered by Accident & Emergency units (Rock and Pledge, 1991:463-5).

TABLE 2.1: TRIAGE CATEGORIES

CATEGORY	DEFINITION	EMERGENCY EXAMPLES
EMERGENT	Life threatening emergency – involves the ABC's. The client may die without interventions	Airway obstruction, Cardiac arrest, chest pain with dyspnoea or cyanosis, shock, coma, open chest wounds, sudden vision loss and psychologically devastating conditions
URGENT	Emergencies that require intervention within a few hours	Intraperitoneal haemorrhage, CVA, severe pain, sudden paralysis, persistent nausea, vomiting or diarrhoea
NON URGENT	Not life threatening. Interventions may be delayed beyond a few hours	Soft tissue injuries, surface trauma, extremity fractures without circulatory compromise

Adapted from Blythin P (1988) Triage Documentation. Nursing. 3:30, pp.32–34.

The above Triage system has also been used as a method of selectively deploying ambulance resources in United Kingdom with the aim of directing efforts to life threatening emergency cases using either the Advanced Medical Priority Dispatch system or the Criteria Based Dispatch system. Trained call takers to triage calls into Category A, B or C. According to recent experience in the United Kingdom, Category A patients normally receive a response within 8 minutes while Category B patients get a response within 14 to 19 minutes. It was also appreciated that the paramedic at the scene should be optimally trained and be able to practice in accordance with laid down guidelines reflecting the current best medical practice, the potential for gaining the best outcomes will be maximised (Carney C. J., 1997).

2.8 CLIENTELE AND CLIENT SATISFACTION

Under normal circumstances, the Accident & Emergency unit should only attend to emergencies, but several times people who do not need to be seen in A&E find themselves in the Units. The nurse should realize that the Accident & Emergency unit may be the only source of Health care, and that Emergency nurses may be the only contact the client has with the health care system. Nurses must be aware of such patients who frequently return to the emergency department. These clients may have special health needs, have exacerbations of chronic conditions, be victims of abuse, have no primary care provider, or have little or no health insurance.

Other research has shown that client's use emergency units because they perceive their symptoms as serious and that Emergency units are faster and more convenient than clinics. This point helps explain why more patients end up being seen in Accident & Emergency units (Fadale, 1990:132-133).

Research brings out the differences between care provided by Emergency Nurse Practitioners (ENP) with that provided by Doctors and nurses working together in a traditional Accident & Emergency. ENP's are experienced nurses who assume entire responsibility for patients with minor injuries in emergency settings. Patients reported satisfaction with the care from ENP's because of the following: -

- More likely to have health education and first aid advice
- Being given written instructions to take home as well as whom to contact when in need

- Advice following discharge
- Patients felt significantly less worried about their health than did patients seen in a traditional Accident & Emergency unit (Byrne, 2000: 83-92)

The above study was only looking at patients response/assessment of care given but in another study which dealt with personnel estimations of patient satisfaction and actual patient satisfaction, it was discovered that personnel's estimation of patient satisfaction was underrated, significantly lower than what the patients actually reported (Boudreaux et al, 2000:107-112).

These two studies leave room for us to rely more on the patients' perspective when it comes to estimation of patient satisfaction of Accident & Emergency care since health personnel tend to underestimate patient satisfaction.

2.9 THE ROLE OF CONTINUING EDUCATION

It is an integrated system for extending the education of health workers beyond basic programme, across his or her whole career. The training focuses on common field problems and training methods that are anchored in practical experience.

Provision of continuing education should be comprehensive in its coverage, based on survey needs i.e. relevant to the tasks of the health worker, throughout the workers career, coordinated, regular part of routine activities and include consumers (health workers) in planning and evaluation.

Continuing education can be given through meetings with professional colleagues, onsite supervision and coaching, review of patient records, analysis of monthly reports etc and self study, using books, journals, correspondence courses, or self-assessment examinations as well as radio programmes and other mass media methods. Exchange visits among health workers from different facilities should also be encouraged. A process should be in place to ensure continuing competence since competence is attained through education and practice. It should also be remembered that competence will only be maintained through commitment to life long learning and practice coupled with sufficient opportunities over time.

Since nurses are accountable for acquiring and maintaining the level of competence required for the provision of safe and quality care, competence to provide the service must precede assigning/accepting the responsibility to provide the service. O'Neil (1999: 13) stated his conviction the "certification and licensing of health professionals of the future must be tied to demonstration of continuing competence" and called for re-integration of nursing education and practice so that they keep themselves in line with changes in health care delivery and societal changes.

The American Nurses Association through an Expert Panel appointed in 1999 formulated the following assumptions regarding continuing competence: -

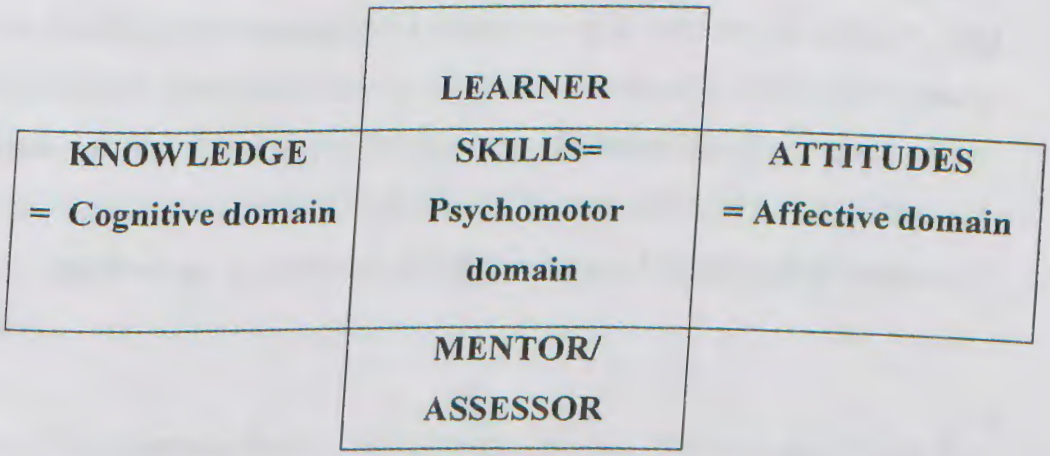
- The purpose of ensuring continuing competence is the protection of the public and advancement of the profession through the professional development of nurses.
- The public has the right to expect competence throughout the nurses' careers.
- Any process of competency assurance must be shaped and guided by the profession of nursing.
- Assurance of continuing competence is the shared responsibility of the profession, regulatory bodies, organizations, workplaces and individual nurses.
- Nurses are individually responsible for maintaining continuing competence.
- The employer's responsibility is to provide an environment conducive to competent practice.
- Competence is considered in the context of level of expertise, responsibility, and domains of practice.
- Continuing competence is definable, measurable and can be evaluated.

In Zambia and the University Teaching Hospital in particular, continuing education is being offered in a fragmented manner e.g. since 1990 to date, Chainama Hills Hospital College Of Health Sciences has trained about 223 nurses and clinical officers in Accident and Emergency management of patients while UTH surgery department has been running short courses on trauma management for both doctors and nurses. A few nurses have had the

opportunity to obtain qualifications in Accident and Emergency from outside the country, though actual figures of such trained nurses are difficult to get as well as knowing how many of them are still practicing.

The diagram below summarises learner/assessor relationship in the light of knowledge, skills and attitudes from the perspective of continuing education for emergency nurses.

TABLE 2.2: MODEL OF LEARNER/ASSESSOR RELATIONSHIP IN THE LIGHT OF KNOWLEDGE, SKILLS AND ATTITUDES



2.10 CONCEPTUAL FRAMEWORK

Conceptual frameworks represent a less formal attempt at organizing phenomena and deals with abstractions that are assembled together by virtue of their relevance to a common problem. In fact many existing frameworks are used as the preliminary steps in the construction of more formal theories (Polit

and Hungler, 1995:97). For this study, the competence-based assessment was used.

2.10.1 **Competence-based assessment** framework was used for the study and involved "the observation and measurement of a set of skills, for which the practitioner was accountable". The framework has been used in several studies as a means of determining the competence levels among professionals who are free to make professional judgement in the clinical context according to his or her understanding or reading of that situation. Assessment was thus based upon performance of pre-specified and agreed competencies, seen in the 'field' setting. In this study, the researcher decided to use the framework because it allowed the professional nurses to be observed in a variety of contexts, and then generalizations about them was to be 'the outcome of a comparative study of performance-in-context and not of process of abstraction from the context (Bridges, Elliot and Klass, 1986:230; Fish and Twinn, 1997:142 - 163) The tool in this case, was seen as a yardstick for measuring what the nurse valued as good practice.

Furthermore, Competence-based assessment is an holistic approach to assessing professional nurses because it encompasses a repertoire of skills, abilities, capacities, and professional knowledge, personal attributes, personality and ability to work with other professionals. The creation of lists of competencies appears to offer measures of efficiency (Garland, 1994:1-22).

Competency assessment is always outcome oriented; the goal is to evaluate the performance for the effective application of knowledge and skills in the practice setting by addressing the psychomotor, cognitive and affective

domains. Competencies can be generic to clinical practice in any setting, specific to a clinical specialty, basic or advanced (Gurvis & Grey, 1995).

Competence based assessments can also be defined as criterion-referenced, summative evaluation process that assesses the participant's actual ability to meet a predetermined set of performance standards under controlled conditions and protocols. Thus, the performance standards in competence-based system are those actions or responsibilities deemed to be critical for practice and quality care, rather than the steps in doing them (Lenburg, 1998 and 1999).

In this study, competence skills were measured using the standardized protocols of primary and secondary surveys.

The limitation to this method of assessing competence is related to issues of nurses being observed and their understanding of what is seen as necessary competencies in their work place. There should be mutual understanding and respect between the nurses being observed and the observer for the success of this observation method.

SUMMARY

Literature review looked at what emergencies are as well as competencies that are expected of attending nurses if life is to be saved. Different definitions or concepts of emergencies were analysed. The underlying factor is that "an emergency is any condition requiring medical attention". Thus emergencies call for care aimed at stabilizing, prevention of complications, and early recovery.

The professional nurses' competence is mainly the performance of skills and techniques that also requires integration of knowledge, skills judgement and an array of characteristics that contribute to safe and ethical practice.

Since the study was looking at 'job specific' competencies, the focus was on resuscitation skills expected of nurses, namely primary and secondary survey. The nurses are also expected to participate in triage of patients being seen in the emergency department.

Continuing education plays a major role in improving the knowledge of health workers beyond basic programme and across his or her whole career.

The conceptual framework that was used is Competence-based assessment framework that involved the observation and measurement of skills, for which the professional nurse was accountable. The strengths and weaknesses of the framework were also highlighted.

The next chapter will look at Research Methodology

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

In this chapter, the research method, population, instruments and research procedure used in this research project will be discussed.

For the purpose of clarity, the research objectives are stated below: -

The objectives of this study were to: -

i. Carryout a literature review on Accident and Emergency nursing
ii. Describe the personal profile of nurses working in the accident and emergency department
iii. Identify and adapt protocols used in the Accident and Emergency department) as part of the instrument construction;
iv. Measure professional nurses' competence in managing emergencies in relation to Protocols of Trauma care.

3.2 RESEARCH DESIGN

The study employed a quantitative descriptive design approach to explore and accurately identify "characteristics of individuals, situations or groups and frequency with which a particular phenomena occurs" (Polit and Hungler, 1995:640) using a checklist through participant observation method.

A descriptive design is aimed at exploring the dimensions of the phenomenon (in this study, the competence of registered nurses), the manner in which it is manifested, and other factors with which it is related (Bless and Higgson-Smith, 2000:156).

3.3 POPULATION

Population refers to the entire set of individuals (or objects) having some common characteristics e.g. all Registered nurses (Polit and Hungler, 1995:649). The 53 professional nurses/registered nurses working in the Casualty department, University Teaching Hospital, during 2002 and participating in the provision of care and treatment to patients were the study population.

3.4 SAMPLING AND SAMPLE

The whole population, 53 in total, was earmarked for inclusion.

As it would not be possible to have access to all within the time frame of data collection, on adopted form of probability sampling was used. The principle was to provide the opportunity for everyone of the 53 registered nurses to be included in the study.

This "adopted form" of probability sampling was implemented still adhering to the definition as set by De Vos (1998: 195-196). Probability sampling is "one in which each person in the population has the same known probability of being selected" for inclusion in the study using simple random sampling.

The method of implementation was as follows:
All nurses working at the casualty department at the time of data collection were listed. As emergencies came in, they were ticked off from the list after being observed when they provided care for patients with poly trauma (injuries involving at least two body systems). Forty (40) respondents were observed at

the end of the 12-week period. The rest of the respondents were not included because they were either on leave or night duty or on duty but with no patient to be observed during the period of data collection.

The researcher used to spend time in emergency unit from morning till evening considering the fact that accidents tend to occur at peak hours like 06 – 08.00 hours, 12 – 14.00 hours and 16 – 18.00 hours.

Below is a tabular presentation of the sample for this study.

TABLE 3.1 SUMMARY OF SAMPLE AND SAMPLING METHOD

HOSPITAL	STUDY POPULATION – PROFESSIONAL NURSES	STUDY SAMPLE – PROFESSIONAL NURSES
University Teaching Hospital, Lusaka, Zambia	53 nurses attending to patients in the Accident and & Emergency unit.	53 Nurses attending to poly trauma patients in A&E unit over a period of 12 weeks (40 nurses observed at the end of 12 weeks)

3.5 DEVELOPMENT OF RESEARCH INSTRUMENT

The researcher used a checklist as a research instrument. A checklist is 'a type of questionnaire consisting of a series of statements in which participants to answer or rated according to their response or observed action' (de Vos, 1998: 89).

The instrument was developed in stages, namely: -

1. Development of a draft checklist
2. Meeting with the experts
3. Pre-testing of the checklist
4. Implementing the final checklist

3.5.1 Phase 1: Development of a draft checklist

Literature review was used to determine contents of the checklist. The checklist format was based on aspects of primary and secondary survey protocols. This is in line with recommendations found in Trauma Nurse Core Course (TNCC) and Advanced Trauma Life Support (ATLS). Items incorporated in constructing the checklist as they are accepted in the United Kingdom, United States of America as well as South Africa (see chapter 2 for literature review) (Resuscitation council, United Kingdom, 2000; American Heart Association, 2000).

3.5.2 Phase 2: Meeting with the experts

A meeting was arranged for a group discussion with 6 nurses (3 ward managers and 3 registered nurses) and the consultant incharge of the emergency unit after the draft was completed. The first meeting was meant to present the draft before the group and handouts covering aspects of Advanced Trauma Life Support involving primary and secondary survey were given. The second meeting held a week later was used to scrutinise the draft at length and allow for suggestions or amendments to make it applicable to our situation. The changes suggested were mainly in wording and flow of sequence. The group

discussion helped in enhancing content and face validity of the checklist, which will be discussed later.

The group adopted the final draft and it had two parts, namely: -

- Part A - Population profile – This part had variables about the participants (like experience and having attended a trauma course) that might influence the quality of care rendered and
- Part B - 10 major categories of the competencies were stated as indicated on the checklist.

3.5.3 Phase 3: Pre-testing of the checklist

After going through the above two stages, the checklist was ready to be tested in a pilot study. A pilot study is a small-scale version or trial run of the major study in order to assess the feasibility of the study (Brink, 2000: 60).

3.5.3.1 Pre-testing of the checklist

Pre-testing of the checklist was done in the casualty department at University Teaching Hospital, Lusaka, Zambia to test the feasibility of the checklist as well as to obtain information for improving the project as explained in Phase 3 (Polit & Hungler, 1995: 44). A pilot study is defined as the "process whereby the research design for a prospective survey is tested" (New dictionary of social work; 1995: 45: Huysamen, 1993: 205) A research instrument should be tested in order to ensure that reliability and validity are upheld.

3.5.3.2 Testing for validity and reliability

3.5.3.2.1 Validity

A valid measuring instrument should be able to measure what it is supposed to measure and yield scores whose differences reflect the true differences of the variable being measured (de Vos, 1998: 83). The term further refers to the degree by which the instrument measures what it is supposed to measure or the extent to which the instrument reflects the abstract construct being examined. Presently, validity is considered as a single broad method of measurement evaluation known as construct validity (Berk, 1990; Rew, Stuppy, & Becker, 1988). Many equate the instrument with the rigorousness of the researcher. The assumption requires that as the researcher develops the instrument, the researcher also needs to develop the validity parameters. This calls on the researcher to uphold validity by assessing the data collection instrument in line with the research objectives for the study (Burns & Grove, 1997: 330-337). Face validity is concerned with "appearance and presentability" of an instrument (de Vos, 1998: 84).

Content validity is concerned with the "representativeness or sampling adequacy of the content of an instrument" (de Vos, 1999: 84). The items of the checklist were constructed to cover the known content represented in the literature as well as the input from nursing experts and colleagues.

Opinions from colleagues who are experts in accident and emergency were used to ensure face and content validity of the checklist as a data – collecting instrument as explained in phase 2 of development of instrument.

3.5.3.2.2 Reliability

Reliability refers to "the degree of consistency or accuracy with which an instrument measures the attributes it is designed to measure" (Uys and Basson, 1994: 75). Hence, reliability is synonymous with "stability or consistency over time" (Mouton J, 1996: 11). The understanding of reliability is shared by Burns & Grove (1997: 327-330) by referring to it as "the consistency, stability, accuracy, and dependability with which the scale or instrument measures". This can also mean that an instrument that is consistently reliable and dependable may not be valid unless it is also accurate. Reliability was developed in the context of various tests of ability at a time when extraneous variables received little attention (Cormack, D. F. S. 1996: 18-19, 283-284). Since then the understanding has been narrowed to key characteristics, namely: -

- Stability - measures the extent to which repeated administration of an instrument or measure gives the same results. A stable instrument of measurement remains consistent with repeated applications.
- Equivalence - focuses on comparing of two versions of the same paper-and-pencil instrument or two observers measuring the same event to come up with inter-rater reliability, and
- Homogeneity - addresses the correlation of various items within the instrument to ensure uniformity.

For this study reliability was ensured by, having two nurses and one consultant surgeon test the checklist on two patients. The findings were consistent from the three independent researchers under comparable conditions showing that there was stability in the checklist as a data-collecting tool (de Vos, 1998: 84).

3.5.4 Phase 4: Implementation of the final checklist

During this phase, the researcher actually carried out the direct observations on participants using the checklist. The researcher conducted a structured informed observation in the Casualty department with professional nurses who were involved in the study. A follow up debriefing discussion was done with the professional nurses working in the unit.

3.6 ETHICAL CONSIDERATIONS

Written permission was sought from the Ministry of Health Research and ethics committee and University Teaching Hospital, Lusaka, Zambia (see appendix).

The nurses who where part of the study population were informed about the purpose and nature of the study as well as how the results would be used. Prior to being observed, participants were verbally asked as to whether they would accept to be observed or not, and all of them agreed. Confidentiality and anonymity was maintained by using serial numbers on checklists. Participants were also informed on the potential dissemination of results.

Although the study was meant to assess the registered nurses' competencies, the rights of the patients were also indirectly upheld by observing human rights. To help clarify the above points, the issue of human rights have been expanded to include the following: -

1. Right to self determination
2. Right to privacy
3. Right to anonymity and confidentiality
4. Right to fair treatment, and

5. Right to protection from discomfort and harm (Burns & Grove, 1997: 200-223).

3.7 DATA COLLECTION

The researcher conducted a structured observation in the Casualty department with professional nurses who were involved in the study. Data were collected by informed conscious observation through participant observation by the researcher. This method of data collection allowed the researcher to observe directly the performance of the professional nurse (Polit and Hungler, 1995:269) "and discover the extent of the problem as well as serving as a feed back" (de Vos, 1998:393).

The performance of the professional nurses' where to be compared with the checklist with items portraying standards predetermined by the Accident and Emergency personnel (Primary and secondary surveys) when attending to trauma patients in casualty for treatment.

The researcher had to put the first four months of the year in a basket from which one month was chosen. The piece that was picked, indicated the month that marked beginning of the period for data collection. The chosen month was February and indicated the first month that was to mark the beginning of data collection, covering a period of 12 weeks. The researcher used this method because it fell in the time schedule for data collection.

The researcher used to spend time in emergency unit from morning till evening considering the fact accidents occur in peak hour like 06 – 08.00 hours, 12 –

14.00 hours and 16 – 18.00 hours. A follow up debriefing discussion took place with the professional nurses working in the unit after data collection.

3.8 DATA MANAGEMENT AND PROCESSING

Data analyses included quantitative analysis (which involves descriptive analysis). Analysis is a method of organizing data in such a way that research questions can be answered. Data processing was followed by synthesis, which involved "interpretation or explanation of the data" (de Vos, 1998:67). This was done using Scientific Package for Social Sciences (SPSS).

3.9 SUMMARY

Research methodology was discussed in the chapter and covered research design and a quantitative descriptive design was applied in the study. Other terms discussed were population, sampling and sample selection, aspects related to development of research instrument as well as strategies employed to ensure reliability and validity. Data collection and management including ethical considerations were discussed.

The next chapter presents the analysis of data

CHAPTER 4

DATA ANALYSIS AND FINDINGS

4.1 INTRODUCTION

The study was aimed at determining the competence of registered nurses' in managing emergencies at a teaching hospital in Zambia. The researcher used a checklist to obtain data from respondents through direct observation. The checklist had two parts, namely: -

1. Part A for Profile of the population
2. Part B for the components of competencies that

4.2 PART A: POPULATION PROFILE

This part of the instrument consisted of the following items:

- Rank;
- Years of experience;
- Trauma course attended, and
- Starting and finishing time

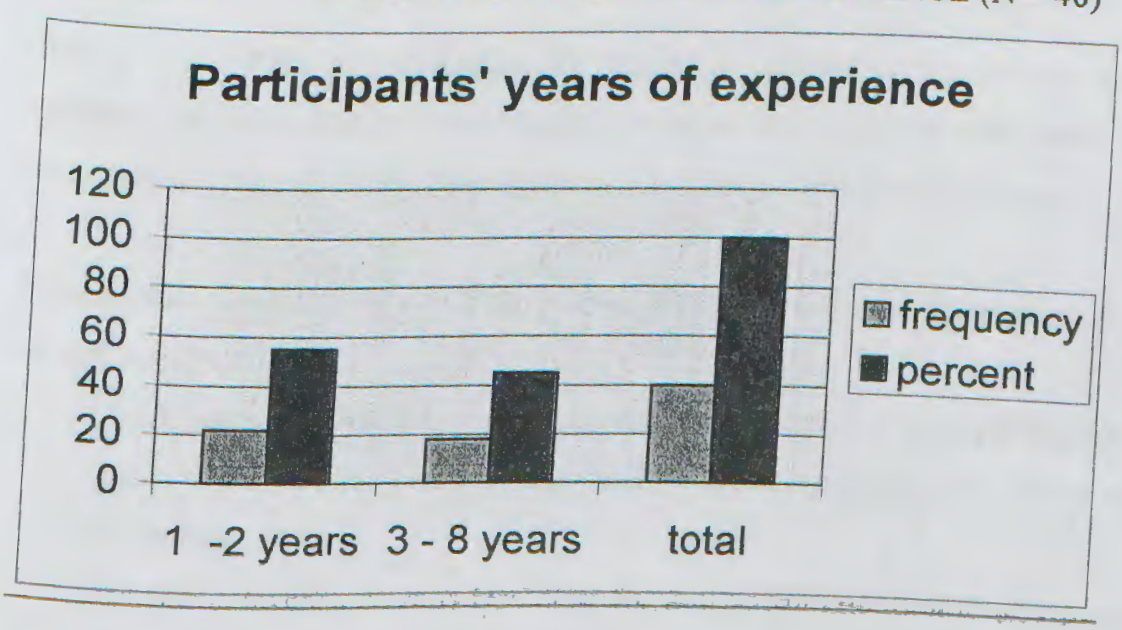
Item 1. RANK – The rank was included to identify any possible correlation with the competency of care. The category of nurses observed included Registered nurses and this implies that only one category was used. The total number of participants that were observed during the data-collection period was 40 (100%).

Item 2. YEARS OF EXPERIENCE – Registered nurses years of experience were included to identify any possible correlation with the competency of care. Participants' years of experience were recorded in order to

ascertain the duration of years that the participants had spent working in the emergency unit. The years of experience ranged from 1 to 7 years, but for this study, it has been divided into two categories of 1-2 years and 3 – 8 years. The categories have been made so because literature considers any one who has less than 3 years experience in any speciality a novice (see Figure 4.1) and the one who has worked for 3 years and more as an expert (Lyon & Boland, 2002; Heath 1998: 1054 - 59).

4.2.2.1 Item 4.2.1 Participants' years of experience

FIGURE 4.1: PARTICIPANTS' YEARS OF EXPERIENCE (N = 40)



It was found that 22 (55%) of the participants had 1-2 years of experience while the other 18 (45%) had 3-8 years.

Continued competence and other attending behaviours of the nurse tend to improve with time. A nurse who has served less than 3 years is considered as a novice. Expert nursing skills and competencies are commonly seen from 3rd year of practice onwards. When continuing education are fully employed, coupled with worthwhile experience, one gets better with time as routine practice makes perfect (Lyon and Boland, 2002: 155, 156). In this study a correlation between years of experience and competence in certain categories had been found. The correlations will be indicated when analyzing the category in question.

Item 3. TRAUMA COURSE ATTENDED – participants were also asked whether they had attended any trauma course to help improve their skills and knowledge. None of the 40 respondents had attended any trauma course.

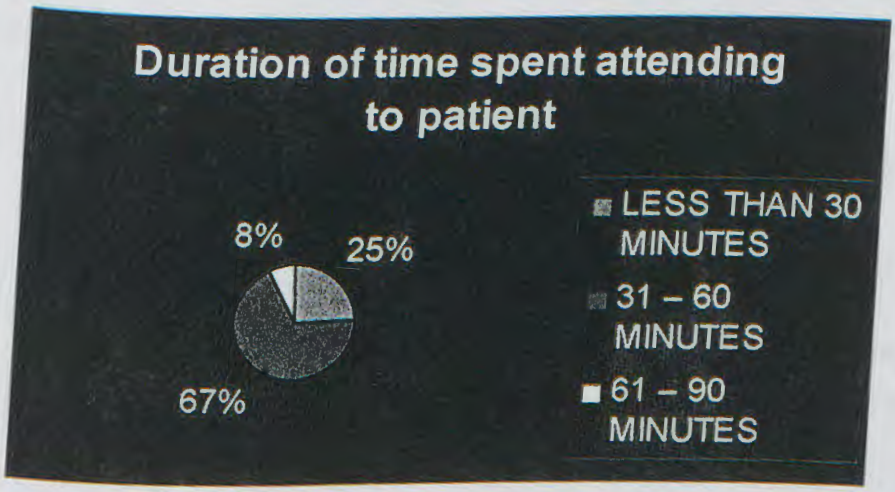
Even without undergoing any trauma course, the nurse may develop their skills in two ways: -

1. With time, confident knowing can replace alertness to own performance and unconscious competence will follow (unconscious technical competence), or
2. As skills develop there is less need for thoughtful attention to all aspects of the situation; a foreground for deliberation and innovation can open up (conscious proficient practice) (Heath, 1998).

Item 4. STARTING AND FINISHING TIME

Participants were timed from the time they prepared to attend to the patient up to the time they completed providing emergency care or handed over the patient to the next area of care. The details have been analysed with the help of figure 4.2.

FIGURE 4:2 **DURATION OF TIME SPENT ON ATTENDING TO PATIENTS IN ACCIDENT AND EMERGENCY UNITS**



In practice, the patient should be attended to within the *golden hour* as the "ideal" time from injury to definitive treatment in the operating theatre. This must include the time to mobilize the emergency services, to treat the patient on the scene, to transport the patient to hospital and to resuscitate within the emergency department (Hodgetts et al., 1997:66, 67).

Most participants 27(67%) spent 31 – 60 minutes on each patient, followed by 10(25%) for less than 30 minutes. This is in line with the golden hour principle. The golden hour principle states that the golden hour belongs to the patient as it takes into consideration the time it would take the trauma victim at the injury scene to be transported to the hospital for management and definitive care. The other 3(8%) managed to attend to patients in less than 30 minutes.

PART B: MEASURING OF COMPETENCIES

This part comprised the major part of the checklist and it had 10 categories and the analysis was done according to sequence of categories, inclusive of their subparts, namely: -

1. Management of patient in casualty/trauma unit
2. Maintaining a clear and patent airway with protection of the spinal column
3. Maintaining normal and effective breathing
4. Circulation - maintaining a good cardiac output and well perfused tissues through control of haemorrhage
5. Continuously monitoring the patient's neurological status
6. Exposure of patient to examine all body parts
7. Resuscitation phase
8. Secondary survey
9. Re-evaluation of patient
10. Definitive care

All calculations were based on the "compiled" and "did not comply" responses. With the approval of the statistician, not applicable data (NA) was omitted, as it would have confounded the results.

1. Management of patient in casualty/trauma unit

Despite advances in medicine, trauma continues to be a principle cause of morbidity, and mortality. This created challenges responsibilities for nurses in emergency/casualty units. The nurse must be capable of managing different situations in casualty as this is in many circumstances the first contact that the patient has for medical care. Table 4.1 presents the detailed information from item 1.1-1.4.

TABLE 4. 1 MANAGEMENT OF PATIENT IN CASUALTY/TRAUMA UNIT

WERE THE FOLLOWING DONE?	FREQUENCY					TOTAL	
	COMPLIED		DID NOT COMPLY		N/A		
	F	%	F	%		F	%
Obtain history from the relatives or paramedics	18	(45%)	22	(55%)	-	40	(100%)
Prepare to perform a quick primary survey	10	(30.3%)	23	(69.7%)	7	40	(100%)
→Washing of the hands	34	(85%)	6	(15%)	-	40	(100%)
→ Donning gloves	13	(34.2%)	25	(65.8%)	2	40	(100%)
→ Greet the patient to determine responsiveness	3	(11.5%)	23	(88.5%)	14	40	(100%)
→ If patient unresponsive, check for any medic medallions	24	(64.9%)	13	(35.11%)	3	40	(100%)
Ensure safety of the patient, nurse and environment							

1.1 **Obtaining history** from relatives or paramedics is necessary part of treatment as it forms the database on which subsequent interventions and assessments of the patient will be based. It also reduces chances of duplication of efforts on what has been done (Hodgetts et al., 1997: 10). In spite of the fact that history taking is important, only 18 (45%) of the participants complied with it.

1.2 **Prepare to perform a quick primary survey**

- **Hand washing** is emphasized in practice as it helps to cleanse the hands of staff and helps minimize chances of transmitting microbes on to the next patient. Most participants (69.7%) did not comply with hand washing.
- **Donning gloves** is part of universal precautions and helps protect the nurses from blood borne infections. Most participants' 34(85%) did put on gloves. When you compare the item with hand washing, it could be interpreted that the respondents might have had the view that if they put on gloves, then they do not have to wash their hands.
- **Greeting the patient to determine responsiveness**. It was found that 23(88.5%) of the participants did not greet the patient. Greeting patient to determine responsiveness is a simple way of directly determining the status of the nervous system and indirectly the airway, ventilation and circulatory systems (Argyle, 1996).
- **Medallions** help in confirming any chronic illness the patient may have as they may have an impact on the treatment that may be given to the patient. According to Table 4.1, most participants 23(88.5%) did not check for medallions.

1.3 Safety

Nurses should **ensure safety of the self, patient and environment** by wearing protective eyewear, apron and mask if splatter with blood or body fluids is possible (Liverpool trauma hospital - Education hand book, 2002). The results showed that most participants 24(64.9%) did comply with this item.

A positive correlation was found between years of experience and management of patient in casualty/trauma unit. This implies that nurses with more years of experience are able to deliver a higher level of care with regard to this aspect ($p = 0.041 < 0.05$).

2. Maintaining a clear and patent airway with protection of the spinal column

The first aspect that needs attention in an emergency is to secure a clear and patent airway for the patient. Airway and breathing are constantly evaluated for current as well as potential problems. Table 4.2 revealed the findings from item 2.1 – 2.10 on maintaining a clear and patent airway with protection of the spinal column.

TABLE 4.2 MAINTAINING A CLEAR AND PATENT AIRWAY WITH PROTECTION OF THE SPINAL COLUMN

WERE THE FOLLOWING DONE?	FREQUENCY					TOTAL	
	COMPLIED		DID NOT COMPLY		N/A		
	F	%	F	%		F	%
Positioning of the patient i.e. head tilt, chin lift manouvre and jaw thrust	26	(76.5%)	8	(23.5%)	6	40	(100%)
Clear the oropharynx of blood, mucous and foreign bodies	18	(51.4%)	17	(48.6%)	5	40	(100%)
Don't move or extend the neck if the patient may be having a spinal injury	7	(22.5%)	33	(77.5%)		40	(100%)
Open the mouth and remove any liquid or foreign material with a rigid suction catheter	18	(51.4%)	17	(48.6%)	5	40	(100%)
Assist in the intubation of the patient by getting the right ETT i.e. the size of the patient's small finger irrespective of age	8	(47.1%)	9	(52.9%)	23	40	(100%)
Apply cricoid pressure during intubation to prevent aspiration	5	(35.7%)	9	(64.3%)	26	40	(100%)
Keep a rigid cervical collar on the patient even if you are examining the neck, this is meant to stabilize the cervical spine	10	(43.5%)	13	(56.5%)	17	40	(100%)
Keep the patient in supine position after intubation	9	(64.3%)	5	(35.7%)	26	40	(100%)
Administer 100% oxygen according to priority	19	(48.7%)	20	(51.3%)	1	40	(100%)
Monitor patient continuously once s/he is put on oxygen or intubated	15	(38.5%)	24	(61.5%)	1	40	(100%)

* Not applicable was indicated when the item was not applicable to the specific case that was observed.

2.1 Positioning of the patient

- **Positioning of the patient** was done by majority of participants (76.5%) because it is important to be kept clear and patent (Thelan et al., 1998: 1054) as it prevents obstruction of the airway.

2.2 Clearing of oropharynx

- **Clearing the oropharynx** reduces on the chances of airway obstruction as foreign bodies; blood clots or broken teeth are removed (Thelan et al., 1998: 1056). Most 18 (51.4%) of participants complied with clearing the oropharynx.

2.3 The neck should not be moved or extended

- In relation to this, the cervical spine is usually protected or immobilized because of the potential injury, not absolute injury. Most participants 33(77.5%) did not comply with this item putting the lives of patients in danger of further damage to the spinal column. According to Hodgettts et al (1997: 15) airway obstruction is an absolute problem: if untreated the patient will die. A rigid collar or neck stabiliser may be used until cervical injury has been ruled out.

2.4 Opening of the mouth

- The findings revealed that 18 (51.4%) participants did comply with this item while 17 (48.6%) did not comply. Upper or lower airway obstruction may be caused by an increase in the amount or volume of secretions. If a patient has a mouth full of foreign material it must be removed prior to ventilation (Crosby & Lewallen 1997: 164).

2.5 Intubation

- Most participants 9(52.9%) did not comply in **assisting with intubations**, resulting in prolonged resuscitation time. Assisting with intubations involves being actively involved in the procedure by having all necessary items available including tracheostomy tubes and laryngoscopes. After intubation the patient is kept in supine position (Grabber, 2002 - online).

2.6 Apply cricoid pressure (Sellick's Manouvre)

- Applying cricoid pressure helps protect the airway, prevent regurgitation of gastric contents and help in visualization of the vocal cords. In spite of the importance of this procedure 9 (64.3%) of the participants did not comply.

2.7 Rigid cervical collar

- Rigid cervical collars, provide preliminary, partial support and should be applied to every patient who has a possible spinal injury only 10 (43.5%) of the participants complied with this aspect, the other 13 (56.5%) did not comply.

2.8 Supine position

- A supine position is when the body is lying face up. It was found that 9 (64.3%) complied while 35 (33.7%) did not comply. It is important that the patient should be kept in the supine position after intubation.

2.9 Administer 100% oxygen

- According to the findings 20 (50%) did not comply with this aspect. The trauma patient is very vulnerable to develop hypoxemia, especially due to possible hypovalemia and anemia. When oxygen is withheld it compromises this patient even further.

2.10 Monitor the patient continuously

- It was found that 24 (61.5%) of the participants did not monitor the patient continuously. The patient with life threatening emergencies is unpredictable. Many stress reactions are initiated and the early identification of the systemic inflammatory response syndrome (SIRS) might be missed. With administering oxygen, putting the patient at risk of remaining hypoxic. This calls for monitoring of patient continuously while on oxygen or intubated in order to determine patient response to therapy (Hodgetts et al., 1997: 13).

A positive correlation was found between years of experience and maintenance of a clear airway management of patient in casualty/trauma unit. This implies that nurses with more years of experience are able to deliver a higher level of care with regard to this aspect ($p = 0.025 < 0.05$).

3. Maintaining normal and effective breathing

According to (Crosby & Lewallen 1997: 240) the nurse must always watch the patient's airway for signs of trouble, in responsive as well as unresponsive patients. The competency of registered nurses in this regard is indicated in table 4.3.

TABLE 4.3 MAINTAINING NORMAL AND EFFECTIVE BREATHING

WERE THE FOLLOWING DONE?	FREQUENCY					TOTAL	
	COMPLIED		DID NOT COMPLY		N/A		
	F	%	F	%		F	%
Ensure that both sides of the chest are ventilated by inspecting for adequate movement of the chest	9	(36%)	16	(64%)	15	40	(100%)
Auscultate for breath sounds and listen particularly in the axilla for ventilation of the periphery of the lungs and also over the epigastrium to ensure that the stomach is not ventilated	4	(17.4%)	19	(82.6%)	17	40	(100%)
Count respiratory rate, rhythm and depth	28	(75.7%)	12	(24.3%)	3	40	(100%)
If patient is not breathing, perform CPR	3	(50%)	3	(50%)	34	40	(100%)

3.1 Ventilation of the chest

- It was indicated that 9 (36%) of the participants complied with this item, while 16 (64%) did not comply.

3.2 Ausculate – breath sounds

- Majority of participant's 19 (82.6%) did not ausculate patients' lungs to assess breath sounds. Assessing for adequacy of lung movements as not carried out by most participants 16 (64%) despite the fact that a trauma patient is prone to ineffective airway clearance and airway obstruction that can affect the adequacy of chest movements (Hodgetts et al 1997: 27). The calls for lung ausculation, which is the process of "listening to the breath sounds using a stethoscope. Life threatening conditions like

airway obstruction, tension pneumothorax or cardiac tamponade can be identified through ausculation" (Hodgetts et al 1997: 27).

3.3 Respiratory rate, rhythm & depth

- Most of the participants 28 (75.7%) complied with this item while 12 (24.3%) did not comply.

3.4 Cardiopulmonary resuscitation (CPR)

- When the patient did not breathe 3 (50%) did perform a CPR, while the other 3 (50%) did comply by doing a CPR. According to Sbaih 1994: 140 & Toulson 2000: 232 cardiopulmonary resuscitation is needed for any of the following, no pulse, absence of respirations and detoriation in the level of consciousness. This is meant to provide blood and nutrients to vital centers, where possible, within 4 minutes after arrest followed by intubations and positive pressure ventilation.

4. Circulation – maintaining a good cardiac output and well perfused tissues through control of haemorrhage

Bleeding can be external and obvious or internal and hidden. Either way is dangerous, and if left uncontrolled cause death (Crosby & Lewallen 1997: 464). The findings for section is indicated in table 4.4.

TABLE 4.4 CIRCULATIONS – MAINTAINING A GOOD CARDIAC OUTPUT AND WELL PERFUSED TISSUES THROUGH CONTROL OF HAEMORRHAGE

WERE THE FOLLOWING DONE?	FREQUENCY					TOTAL	
	COMPLIED		DID NOT COMPLY		N/A		
	F	%	F	%		F	%
4.1 Check and record the patients' –						40	(100%)
1. Pulse (femoral or carotid)	31	(79.5%)	8	(20.5%)	1	40	(100%)
2. Blood pressure	36	(90%)	4	(10%)	-	40	(100%)
3. Temperature	28	(70%)	12	(30%)	-	40	(100%)
4.2 Perform CPR, if pulse is absent	1	(100%)	-	-	39	40	(100%)
4.3 Control any external haemorrhage by applying direct pressure over the wounds	35	(87.5%)	5	(12.5%)	-	40	(100%)
4.4 Prevent further haemorrhage from fracture sites by adequate splinting/packing and gentle handling (minimize handling of fractured side)	24	(61.5%)	15	(38.5%)	1	40	(100%)
4.5 Insert a peripheral line for intravenous infusion using a large bore needle (FG 14 to 18)	12	(35.3%)	22	(64.7%)	6	40	(100%)
4.6 Collect blood for grouping and cross match, full blood count, and urea and electrolytes	5	(14.7%)	29	(85.3%)	6	40	(100%)
4.7 Replace blood (warmed) volume by peripheral intravenous line	10	(38.5%)	16	(61.5%)	14	40	(100%)
4.8 Do not over infuse clear fluids (maximum 2L crystalloid or 1L colloid e.g. ringers lactate and plasma, dextran or haemacel	12	(50%)	12	(50%)	16	40	(100%)
4.9 Insert an indwelling urinary catheter	12	(36.4%)	21	(63.6%)	7	40	(100%)
4.10 Monitor urinary output: 0.5-1.0ml/kg body weight per hour	3	(8.3%)	33	(91.7%)	4	40	(100%)

4.1 Check and record the patients pulse, blood pressure and temperature

- It was found that 31 (79.5%) participants did take the pulse and 8 (20.5%) did not. Most of the participants 36 (90%) did take and record the blood pressure and 4 (10%) did not. The temperature was checked and recorded by 28 (70%) but 12 (30%) did not.

4.2 Perform a CPR when pulse was absent

- This item was relevant to only one care which did perform a CPR when the pulse was absent.

4.3 Control external haemorrhage

- Most of the respondents 35 (87.5%) did control external haemorrhage, while 5 (12.5%) did not. After ensuring an adequate airway, oxygenation and ventilation, the focus for resuscitation of the severely injured patient switches to stopping haemorrhage and restoring the circulation (Nolan 1999: 821).

4.4 Prevent further haemorrhage from fracture site

- The findings revealed that 24 (61.5%) of the participants did comply with this skill, while 15 (38.5%) did not comply.

4.5 Insertion of a peripheral line

- A prerequisite for resuscitation is the insertion of a peripheral line. The findings indicated that most of the participants 22 (64.7%) did not do it. When a peripheral line is in place it can be used for several purposes during emergencies. A possible reason for this finding could be the fact that most nurses did not master the skills of vein punctures and fear the unnecessary puncturing of veins that may be needed in subsequent cannulations.

4.6 Collect blood

- Blood samples are needed for different diagnostic tests during emergencies. Unfortunately, most participants 29 (85.3%) did not collect the necessary blood samples. The implications of delayed diagnosis to the absence of laboratory results can be substantial (Argyle 1996: 123).

4.7 Replace harmed blood

- Trauma patients are prone to hypothermia. Therefore, warm fluids or blood should be administered to counteract the hypothermia and raise the body temperature. It was found that only 10 (38.5%) used warm fluids to replace the blood volume of injured patients.

4.8 Over infusion

- Fifty percent 12 (50%) of the participants did comply and the other 12 (50%) did not comply with this item by implication it meant that traumatized patients, were not monitored by all registered nurses for over infusion.

- During trauma, chemical mediators are released as part of the immune response. This could lead to increased capillary permeability and pulmonary oedema, which is commonly known as ARDS. Over infusion should be prevented for this reason.

4.9 Insert an indwelling urinary catheter, and monitoring of urinary output

According to the findings in table 4.4 most participants 21 (63.6%) did not comply with insertion of urinary catheter. Majority of the participants' 33 (91.7%) did not monitor urinary output. Trauma patients' urine out put should be monitored carefully after insertion of a urinary catheter, because the average output should be more than 50 mls per hour, which is a good indicator on the effectiveness of the resuscitation (Hodgetts et al., 1997: 61).

5. Monitoring of neurological status of patient

The neurological status of the patient determines the "quality of life" for the patient after any successful resuscitation. Prevention and early recognition of secondary insults are therefore paramount.

TABLE 4.5 CONTINUOUSLY MONITORING NEUROLOGICAL STATUS OF THE PATIENT

WERE THE FOLLOWING DONE?	FREQUENCY					TOTAL	
	COMPLIED		DID NOT COMPLY		N/A		
	F	%	F	%		F	%
5.1 Carry out a brief neurological assessment in order to establish the patients' level of consciousness using the AVPU method: -							
A – Alert	28	(75.6%)	9	(24.4%)	3	40	100%
V – Responds to verbal stimuli	20	(55.3%)	17	(44.7%)	3	40	100%
P – Responds to painful stimuli	15	(39.5%)	23	(60.5%)	2	40	100%
U – Unresponsive to stimuli	11	(34.2%)	21	(65.8%)	8	40	100%
5.2 Assess dilatation of the pupils to elicit compression of 3rd cranial nerve	13	(35.1%)	24	(64.9%)	3	40	100%
5.3 Perform a neurological assessment using the: - Glasgow coma scale	32	(82.1%)	7	(17.9%)	1	40	100%
Revised trauma score			40	(100%)		40	100%

5.1 Neurological assessment

- Neurological assessment of injured patients is very important, because it indicates the level of consciousness. Most participants' respondents did not comply in checking for **response to painful stimuli** 23(60.5%) and **unresponsiveness to painful stimuli** 21(65.8%). Response to painful stimuli – determines persons' ability to react on what has felt as well as determining status of brain function. If the patient remains unresponsive, he or she is considered to be in coma.

5.2 **Assess dilatation of the pupils**

- Most participants 24(64.9%) did not comply with **testing of eye for 3rd cranial nerve**. Routine testing of eyes for 3rd cranial nerve functioning provides a good indicator used to assess for signs of increasing intracranial pressure.

5.3 **Neurological assessment**

- Most of the participants 32 (82.1%) used the Glasgow coma scale, but none of the participants used the revised trauma score to perform the neurological assessment. The revised trauma score is an instrument that is used for triage purposes. With the revised trauma score a "quantification rating" is obtained, which makes statistical analysis and comparisons possible.

A positive correlation was found between years of experience and monitoring of the neurological condition of the patient in casualty/trauma unit. This implies that nurses with more years of experience are able to deliver a higher level of care with regard to this aspect ($p = 0.025<0.05$).

6. **Exposure of patients in order to examine all body parts**

This activity is necessary to prevent undetected injuries and also for easy access for intravenous infusions and the secondary survey that will follow the primary survey.

TABLE 4.6 EXPOSURE OF PATIENT IN ORDER TO EXAMINE ALL BODY PARTS

WERE THE FOLLOWING DONE?	FREQUENCY					TOTAL	
	COMPLIED		DID NOT COMPLY		N/A		
	F	%	F	%		F	%
6.1 Immobilise the spinal column during the entire resuscitation	16	(48.5%)	17	(51.5%)	7	40	(100%)
6.2 Perform CPR if the patient has lost consciousness	1	(16.7%)	5	(83.3%)	34	40	(100%)
6.3 All clothing removed to facilitate a thorough examination of body surfaces for the presence of injury	33	(84.6%)	6	(15.4%)	1	40	(100%)
6.4 Protect patient from hypothermia	25	(62.5%)	15	(37.5%)	-	40	(100%)

6.1 Protecting the spinal column

- Although patient's spinal column should be protected during resuscitation, only 16(48,5%) participants complied in **protecting the spinal column** during resuscitation. A cervical collar with rolled towels on each side of the head, and a tape across the forehead can be used to protect the spine.

6.2 Perform CPR

- Five (83.3%) participants' did not comply with performance of CPR. CPR is recommended to reverse effects of cardiopulmonary.

7. Resuscitation phase

The primary survey should be completed within 2 minutes. After that it is necessary to correct any identified problems that might interfere with the maintenance of a open airway, adequate breathing and optimum circulation.

TABLE 4.7 RESUSCITATION PHASE

WERE THE FOLLOWING DONE?	FREQUENCY					TOTAL	
	COMPLIED		DID NOT COMPLY		N/A		
	F	%	F	%		F	%
7.1 Reassessing and arresting haemorrhage where possible	32	(82.1%)	7	(17.9%)	1	40	(100%)
7.2 Continue with restoration of volume by administering crystalloids, colloids or blood products	25	(67.6%)	12	(32.4%)	3	40	(100%)
7.3 Obtaining bloods samples for investigations	5	(13.5%)	32	(86.5%)	3	40	(100%)
7.4 Insertion of gastric catheter (unless contraindicated)	6	(24%)	19	(76%)	15	40	(100%)
7.5 Monitor patients' response to resuscitation: -							
1. Vital signs (including temperature)	38	(95%)	2	(5%)	-	40	(100%)
2. Urinary output	19	(47.5%)	21	(52.5%)	-	40	(100%)
3. Arterial blood gases	2	(4%)	38	(96%)		40	(100%)

7.1 Reassessing and arresting haemorrhage where possible

- The findings revealed that 32 (82.1%) of the participants complied with this item, while 7 (17.9%) did not. This activity is to prevent any secondary bleeding that might compromise the patient. It is possible that a bleeding cascarde might be initiated at this stage, called disseminated intravascular coagulation (DIC), and reassessing is a continuous activity.

7.2 **Continue with restoration of volume by administering crystalloids, colloids or blood products**

- Most of the participants 25 (67.6%) complied with this item .

7.3 **Blood samples for investigation**

- Few participants 5 (13.5%) complied in **obtaining blood samples for investigations** which are necessary for baseline data as well as serving as a means of evaluating success of resuscitation efforts.

7.4 **Insertion nasogastric tube**

- Few participants 6 (24%) complied with **the insertion of Nasogastric tube.** The gastric catheter helps to deflate the bowel and acts as a safety measure in protecting the airway from being endangered if the patient has polytrauma (Wilson & Sinclair 1995: 12). From the table it can either be understood that participants' are not competent in the insertion of gastric catheter or that they leave it to the medical doctor to perform especially in the presence of facial injuries.

7.5 **Blood for arterial blood gases**

- Only 2 (5%) participants **obtained blood for arterial blood gases** partly due to a nonfunctioning machine during the period of data-collection. Serial blood gases should be taken routinely as they act as sign posts on the road to resuscitation and should be performed on every severely injured patient in the hospital and be repeated at regular intervals during the resuscitation (Advanced Life Support Group, 1993)

8. Secondary Survey

The finding of the secondary survey is indicated in table 4.8.

TABLE 4.8 SECONDARY SURVEY

WERE THE FOLLOWING DONE?	FREQUENCY					TOTAL	
	COMPLIED		DID NOT COMPLY		N/A		
	F	%	F	%		F	%
8.1 Reassess patients' ABC	33	(82.5%)	7	(17.5%)	-	40	(100%)
8.2 Examine each body part	25	(64.1%)	14	(35.9%)	1	40	(100%)
8.3 Complete history taking from patient or relatives	4	(10.8%)	33	(89.2%)	3	40	(100%)
8.4 Patients' medical history (AMPLE): -	10	(27%)	27	(73%)	3	40	(100%)
1. A ~ allergies	8	(21.6%)	29	(78.4%)	3	40	(100%)
2. M ~medications	7	(18.9%)	30	(81.1%)	3	40	(100%)
3. P ~ past medical history	8	(18.9%)	31	(81.1%)	1	40	(100%)
4. L ~ last meal	31	(79.5%)	8	(20.5%)	1	40	(100%)
5. E ~ events preceding the incident	15	(36.8%)	24	(63.2%)	1	40	(100%)
8.5 Completion of special procedures like radiography studies (chest, cervical spine, thorax, limbs and pelvis) and electrocardiogram (ECG)	17	(43.6%)	22	(56.4%)	1	40	(100%)
8.6 Continually monitor patients' vital signs and response to medical therapies	4	(7.9%)	35	(92.1%)	1	40	(100%)
8.7 Provide emotional support to the patient and family							

8.1 **Reassess patients ABC**

- Reassessment of the patients airways, breathing and circulation is vital and not all participants 7 (17.5%) complied with this. It is possible that secondary insults may result based on a decreased level of consciousness (↓LOC) that inhibits airway protection and breathing. There is also the possibility that bleeding and hypovolemic shock might set in.

8.2 **Examine each body part**

- Most of the participants 25 (64.1%) complied with this item. This activity, called the secondary survey, is a head to toe examination to identify any problem. By means of inspection, palpation, auscultation and percussion the nurse assess all main body regions.

8.3 **History from patient or relatives**

- Most participants 33(89.2%) did not comply in **obtaining the history.** This is contrary to TNCC/ATLS protocols, which emphasise that complete history must be obtained so that any symptoms so caused can be related with the findings of clinical examination and results from special investigations (American College of Surgeons, 1993;Yates, 1999: 786 – 787). This will help rule out any chronic illnesses that may impact on the patient's response to treatment (Thelan et al., 1998: 1054 – 1060).

8.4 **Patients medical history**

- The details pertaining to the **mnemonic AMPLE** should be obtained so that the caregivers know about allergies, medications being used by patient, past illnesses and time of last meal. Most participants' did not comply in getting past medical history on **allergies** 27(73%),

medications 29(78.4%), **past medical history** 30(81.1) and time of **last meal** 8(81.1%). Otherwise, all trauma patients should be assumed to have a full stomach and therefore, need to be protected from regurgitation that may cause airway obstruction (Pharmafacts for nurses, 1995: 147 – 224 and 250; Wilson & Sinclair, 1995: 13).

8.5 **Special procedures**

- The findings revealed that most participants 24(63.2%) did not comply with **completion of investigations and special procedures** by the time the patient was sent to the ward, and the receiving ward was expected to complete the investigations (observation from data collection).

8.6. **Monitor patients vital signs**

- Most participants 22(56.4%) did not comply with **monitoring patients' vital signs and response to medical therapies**. It is recommended that vital signs should be monitored so as to evaluate the effectiveness of resuscitation.

8.7 **Provide emotional support**

- Most participants 35(92.1%) did not comply in **providing support to the patients or relatives**. Patients or relatives need to be supported emotionally for them to feel they are cared for (Smeltzer et al., 2000).

9. **Re-evaluation of the patient**

Continuous reevaluation of the patient goes without saying. The findings in Table 4.9 revealed that 36 (90%) of the participants did monitor vital signs, 32

(80%) did not monitor urine output and 36 (97.4%) did not monitor adequacy of pain relief.

TABLE 4.9 REEVALUATION OF THE PATIENT

WERE THE FOLLOWING DONE?	FREQUENCY					TOTAL	
	COMPLIED		DID NOT COMPLY		N/A		
	F	%	F	%		F	%
9.1 Continuously monitor vital signs	36	(90%)	4	(10%)	-	40	(100%)
9.2 Monitor urine output	8	(20%)	32	(80%)	-	40	(100%)
9.3 Monitor adequacy of pain relief	1	(2.6%)	36	(97.4%)	2	40	(100%)

Most participants 36(80%) did not comply with **monitoring urine output**. Urine output should be monitored for quantity (not less than 0.5 mls per kilogramme body weight) and it is an indirect indicator of the efficiency of fluid resuscitation (Yates, 1999: 821).

As indicated, most participants 36(97.4%) did not **comply in monitoring adequacy of pain relief.** Using visual analogues and questions, patients were able to grade the degree of pain. When there is trauma, pain will also be experienced, and there is no excuse for leaving the patient in pain. Pain results in release of catecholamines that cause peripheral and splanchnic vasoconstriction. Since hypovolaemia produces the same catecholamines response, pain will exacerbate the physiological response to hypovolaemic shock (Hodgetts et al., 1997: 62; Hodgetts & Mackaway-Jones, 1995). The

administration of potent analgesia is controversial and is best left to the attending consultant. (Comment from a consultant surgeon).

10. Definitive care

In a physiological sense, trauma is not a single insult, it is a combination of haemorrhage, tissue, injury, pain and fear. Therefore, it is important that the traumatized patient get definitive care.

TABLE 4.10 DEFINITIVE CARE

Provision of specific care	FREQUENCY					TOTAL	
	COMPLIED		DID NOT COMPLY		N/A		
	F	%	F	%		F	%
10.1 Provision of specific care to the patient after identification of the full extent of trauma supported by diagnostic results	6	(15%)	34	(85%)	40		(100%)

Most participants 34(85%) did not comply with provision of definitive care to patients. This could be attributed to delayed results and investigations. Trauma is considered as a "surgical disease" as the patient may have to undergo surgery or be kept in surgical admission wards which are adjacent to the trauma unit (Thelan et al., 1998: 1056) before being sent to high dependency unit or critical care unit depending on the condition.

4.4 SUMMARY

This chapter presented the analysis of the data. Raw data was analyzed and presented as descriptive statistics of frequency distributions and cross tabulations on the 10 categories of part B of the checklist as a whole or singular.

The next chapter will address the conclusions, limitations and recommendations.

CHAPTER 5
CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

According to Burns & Grove (1997), research findings should lead to enhancement of knowledge of a discipline. In this study, the competence of the registered nurses in managing emergencies was investigated. The study was undertaken at the University Teaching Hospital, in Zambia from May 2001 to September 2002.

The chapter, will focus on the conclusions drawn from the study, limitations encountered and suggested recommendations.

5.2 PURPOSE OF THE STUDY

As mentioned in chapter 1, the purpose of the study was to assess the competence of registered nurses in managing emergency cases that are brought to the casualty department at the University Teaching Hospital, Lusaka, Zambia.

5.3 OBJECTIVES OF THE STUDY

The objectives of this study were to: -

1. Carryout a literature review on Accident and Emergency nursing
2. Describe the personal profile of nurses working in the accident and emergency department
3. Identify and adapt protocols used in the Accident and Emergency department as part of the instrument development

4. Measure professional nurses' competence in managing emergencies in relation to Protocols of Trauma care.

Conclusions were drawn in relation to the above mentioned research objectives and following the sequence of the objectives, the discussion will be given.

5.3.1 Objective one: *Carry out literature review on accident and emergency nursing.*

An extensive literature review was done and assisted in shaping and directing the study. The literature review looked at what emergencies are as well as competencies that are expected of attending nurses if life is to be saved. Different definitions or concepts of emergencies were analysed. The underlying factor is that "an emergency is any condition requiring medical attention". Thus emergencies call for care aimed at stabilizing, prevention of complications, and early recovery.

The professional nurses' competence is mainly the performance of skills and techniques that also requires integration of knowledge, skills judgement and an array of characteristics that contribute to safe and ethical practice.

Since the study was looking at 'job specific' competencies, the focus was on resuscitation skills expected of nurses, namely Primary and Secondary survey. The nurses are also expected to participate in triage of patients being seen in the emergency department.

Continuing education plays a major role in improving the knowledge of health workers beyond basic programmes and across his or her whole career.

The conceptual framework that was used is Competence-based assessment framework that involved the observation and measurement of skills, for which the professional nurse was accountable. The strengths and weaknesses of the framework were also highlighted.

All other relevant aspects looked at, have been included in the literature review (see chapter 2) and its authors have been acknowledged in the reference section.

Conclusion

The contributions gained from the literature review were integrated in the instrument construction and utilized in analysis of the data. The principles of the instrument were based on aspects of the conceptual framework.

5.3.2 Objective two: Describe the personal profile of nurses working in accident and emergency department.

The sample consisted of 40 registered nurses who were observed using probability sampling method. Their years of experience ranged from 1 to 8years, with the majority being 1 – 2 years (55%) while the remainder had 3 – 8 years (45%) (Figure 4.1). Majority of the nurses may be considered as

novices in view of the few years they had worked (1 – 2 years) according to Lyon & Boland, 2002: 155, 156).

None of the respondents has had training in Accident and Emergency nursing; all of them had experience from working in the unit.

Most respondents attended to the patient within 31 – 60 minutes (67%), less than 30 minutes (25%) and the remainder for more than 60 minutes (8%) (Figure 4.2). This is in line with the 'golden hour' within which the patient should be able to receive definitive care within an hour from the time of injury.

Information on the profile of respondents' was used to determine correlation. Ten variables (in this study they were called categories) were tested but only three were significant and have been reported. According to de Vos (1998: 227), correlation is concerned with describing the degree of correlation between (two) variables (where prediction is concerned with estimating one variable from knowledge of another) often called measures of association. This aspect will be discussed under the relevant categories in objective No. 4.

Conclusion

Most nurses working in the trauma unit were novices, and the duration of time taken by nurses in attending to patient was satisfactory (68%) since it was within the golden hour (31 – 60 minutes). Under normal circumstances, the patient should be able to receive adequate care within 60 minutes from time of injury if the trauma insult is to be reversed through interventions from the medical personnel.

One component of the personal profile, namely years of experience, correlated with three of the ten categories, but as indicated, it will only be discussed under objective no. 4.

5.3.3 Objective three: Identify and adapt protocols used in accident and emergency units.

Through literature review, the primary and secondary survey protocol was identified. Primary survey is an organised approach for the evaluation of airway, breathing, circulation and neurological function. It also focuses on the identification of injuries that pose immediate threat to patients' life (Emergency Nurses Association, 1998: 230). Secondary survey is a more complete evaluation of the patient and includes vital signs, obtaining history, head-to-toe examination and inspection of the back. Potential life threatening conditions that can be identified include hypothermia, pelvic fractures and spinal cord injuries. Laboratory investigations may be requested for to help in the care of the patient. After discussion with others as mentioned in chapter 3 under phase 2 of development of data collecting instrument, the instrument (checklist) was adopted after changing the flow of questions and part of the frame (See checklist in the annexure.

Conclusion

The protocols of primary and secondary survey helped in narrowing down the competencies that the researcher intended to measure. The protocols were realistic as they reflected aspects that should be performed in order to stabilise or reverse the effects of trauma on a patient.

5.3.4 Objective four: *Measure professional nurses' competence in managing emergencies.*

After extensive literature review, various classifications of competencies were found. Core competencies and skills for accident and emergency nurses need to be maintained at higher levels, since nurses are expected to respond and act swiftly to reverse the effects of trauma. For this reason, the researcher intends to use the scoring scale for measuring competencies according to the following:

a. "Complied" and "did not comply" entries on the checklist which was later analysed using descriptive statistics. The not applicable category was left out during computation so as to reflect the true performance of respondents.

b. Grading of performance on sub sections of the each category and subsequently classified according to the following grades: -

a) Good = 70 to 100%

b) Satisfactory = 50 to 69.9%

c) Unsatisfactory = less than 50%

The researcher expected nurses working in casualty/trauma unit to have specialist knowledge in managing patients either through formal training or job on training (experience). After literature review, the researcher assumes 70% to be an indicator of adequate and acceptable emergency nursing competencies and skills. This is similar with the study by Ellis (2002) in which she also used 70% as the lower limit of acceptable of competence for critical care nurses caring for central venous and pulmonary catheters. The satisfactory group is borderline and may need sharpening so that they too can reach 70% and above. A knowledge and skill (competencies) deficit can be a potential threat for the successful management of accident and emergency victims at the hospital.

This objective was covered by part B of the checklist under the ten categories. Each category will be discussed separately and a conclusion drawn. A final conclusion will be drawn at the end of the last category. The numbers for the categories will be based on the instrument numbering. (See Annexure 1)

Recommendations will only be made after all the categories have been discussed and individual conclusions for each category have been derived.

Category 1: **Management of patient in casualty/trauma unit**

This category was presented and discussed with the help of Table 4.1. The nurses' performance in this category, which had 6 subsets, was only "GOOD" for donning gloves (85%) and "SATISFACTORY" for ensuring the safety of the patient, nurse and environment (64.9%). Nurses' performance on the rest of the aspects was unsatisfactory. The findings are partly similar to Chan et al., 2002: 157 –163) who reported a high compliance in glove usage, disposal of

sharps and hand washing as part of the universal precautions against blood borne infections.

According to Cole et al. (1999), the aspects of care on which performance was unsatisfactory could lead to: -

- Failure to obtain history could lead to omission or duplication of what has been done for the patient as well as missing the baseline information on which immediate and subsequent management of the condition in which the victim, now a patient, is placed by events.
- Lack of hand washing would promote transmission of microbes from either staff to patient or patient-to-patient with health personnel being the couriers. As part of universal precaution, hand washing is recommended for safe practice of nurses and patients, even when nurses put on gloves.
- Greeting the patient and paying attention to the response is the simplest way of assessing the level of consciousness and if responsive, keep him informed as to what is being done for him. If the patient gives any meaningful response, you are then assured that 1) the brain is reasonably functional, 2) there is an intact airway, 3) ventilation is occurring, and 4) circulation is available (Argyle et al., 1996).
- The wearing of medallions though not very common should be checked to avoid catastrophic results if ignored.

Conclusion

Aspects of care were unsatisfactorily done as the mean score for the category was 45% because most participants did not comply on most aspects as seen from table 4.1. There was a positive relationship between participants' years of experience and management of patient in the casualty/trauma unit ($p = 0.041 <$

0.05). This implied that nurses who had worked longer in the unit are more likely to render better care with regard to the management of patients in the casualty/trauma unit.

Category 2: **Maintaining a clear and patent airway with the protection of the spinal column**

This category was presented and discussed with the help of Table 4.2. Nurse's performance was "GOOD" on positioning of the patient (76.5%) and "SATISFACTORY" for clearing the oropharynx of secretions and foreign bodies (51.4%), sucking out the secretions with a rigid suction catheter (51.4%); and keeping the patient in supine position after intubation (64.3%). Performance on the rest of the aspects of care was "UNSATISFACTORY."

The aspects of care on which performance was unsatisfactory could lead to: -

- Ineffective airway clearance resulting in airway obstruction that will reduce on the uptake of oxygen for use by body tissues especially the brain.
- Failure to administer 100% oxygen according to priority and monitoring of the patient response will be detrimental to the patient as all trauma victims are in need of oxygen as a result of either airway compromise, chest injury, head injury or hypovolaemia (Hodgetts et al., 1997: 13, 27; Hodgetts & Mackaway-Jones, 1995).

A clear voice, quiet respiration's and a normal mental state rules out significant obstruction (Argyle, 1996).

There was a positive relationship between respondent's years of experience and maintaining a clear and patent airway with protection of the spinal column (p =

$0.025 < 0.05$) implying that nurses who had worked longer in the unit are more likely to protect the spinal column and ensure a clear and patent airway.

Conclusion

Performance of aspects of care under this category was unsatisfactory as most aspects of care were not carried out by most participants. The mean performance in category two was 48%.

Category 3: **Maintaining normal and effective breathing**

This category was presented and discussed with the help of Table 4. The nurses' performance was "GOOD" for counting respiratory rate, rhythm and depth (75.7%), and "SATISFACTORY" on ensuring that the lungs are ventilated and with adequate movement of the chest (64%) and performing CPR (50%). "UNSATISFACTORY" performance was seen on auscultation for breath sounds (17.4%).

The aspects of care on which performance was unsatisfactory could lead to: -

- Ineffective airway clearance and airway obstruction that can affect the adequacy of chest movements due to either pain or trauma, and
- Missing out of life threatening conditions like airway obstruction, tension pneumothorax and cardiac tamponade can be experienced if lung auscultation is not properly done on the patient (Argyle et al., 1996).

Conclusion

Performance of aspects of care was unsatisfactory under this category because participants did not ensure normal and effective breathing. The mean performance in category two was 45%.

Category 4: **Maintaining a good cardiac output and well perfused tissues through control of haemorahge**

This category was presented and discussed with the help of Table 4.4. Nurse's performance was "GOOD" on performing CPR for absence of pulse (100%), checking and recording blood pressure (90%), pulse (79.5%) and temperature (70%). Control of any external haemorrhage using direct pressure (87.5%) was also "GOOD." Performance on the rest of the aspects of care was unsatisfactory.

The aspects of care on which performance was unsatisfactory could lead to: -

- Worsening of the condition due to failure to reverse the effects of haemorrhage shock and trauma by inadequate administration of intravenous fluids or blood resulting in reduced tissue perfusion to organs.
- Monitoring of the urinary output, which gives a good indicator on effectiveness resuscitation (Hodgetts et al., 1997: 61) and if not done routinely, it will be difficult to evaluate tissue perfusion in the patient.

Conclusion

The aspects of care under this category were done in a satisfactory manner like - patient observations and prevention of haemorrhage and measures aimed at restoring blood volume. The mean performance of the nurses was 56%.

Category 5: **Continuously monitoring patient's neurological status**

This category was presented and discussed with the help of Table 4.5. Nurses' performance was "GOOD" for neurological assessment using the Glascow coma scale (82.1%) and alertness of the patient (75.6%). Neurological assessment involving the checking for response to verbal stimuli (55.3%) was satisfactory. Performance on the rest of the aspects of care was unsatisfactory. None or the respondents used the Revised trauma score as part of the neurological assessment.

The aspects of care on which performance was unsatisfactory could lead to: -

- Deterioration of patients' condition due to failure to obtain vital baseline data on brief neurological status, which will subsequently reduce the chances of identifying the cause of any subsequent change in conditions (Argyle et al., 1996).

There was a positive relationship between respondent's years of experience and continuously monitoring patients neurological status, ($p = 0.025<0.05$), implying that nurses who have worked longer in the unit are more likely to continuously monitor a patient's neurological status.

Conclusion

Performance of aspects of care included in the neurological monitoring was satisfactory except for revised trauma score, which was not utilised by participants. The mean performance of the nurses was 46%.

Category 6: **Exposure of patient to examine all body parts**

This category was presented and discussed with the help of Table 4.6. Nurses' performance was "GOOD" for exposure of patient to facilitate examination of body parts (84.6%) and "SATISFACTORY" for protecting patient from hypothermia (62.5%). Performance on the immobilising of spinal column during entire resuscitation (48.5%) and performing of CPR for loss of consciousness (16.7%) was "UNSATISFACTORY."

The aspects of care on which performance was unsatisfactory could lead to: -

- Lack of cervical spine protection can contribute to worsening of the injury. Cervical protection is normally done because of the potential injury and not the absolute injury (Hodgetts et al., 1997: 15).
- Failure to perform CPR within 3 minutes can result in loss of life. For any loss of consciousness in a trauma patient, it is recommended that CPR be started while you look for treatable causes (Argyle et al., 1996).

Conclusion

Performance of aspects of care in this category was satisfactory except for cardiopulmonary resuscitation. The mean performance of the nurses was 56%.

Category 7: **Resuscitation phase**

This category was presented and discussed with the help of Table 4.7. Nurses' performance was "GOOD" on monitoring of patients' vital signs (including temperature) in response to resuscitation (95%) and the aspect of reassessing and arresting haemorrhage (82.1%). Efforts towards restoration of blood volume by administering crystalloids, colloids or blood products (67.6%) were

"SATISFACTORY." Performance on the rest of the aspects of care was "UNSATISFACTORY," but very low especially on obtaining blood samples for investigations (13.5%) and arterial blood gases (4%).

The aspects of care on which performance was unsatisfactory could lead to: -

- Delayed evaluation of effectiveness of resuscitation

Conclusions

Performance on this category was satisfactory except for some procedures like collection of blood samples and insertion of gastric catheter that were part of the aspects of care. The mean performance of the nurses was 48%.

Category 8: **Secondary survey**

This category was presented and discussed with the help of Table 4.8. Nurses performance was "GOOD" for reassessing patient's Airway, Breathing and Circulation (82.5%), and "SATISFACTORY" for examining each body part (64.1%) and obtaining history about events preceding the incident (79.5%). Performance on the rest of the aspects of care was "UNSATISFACTORY" and the scores for obtaining complete history from patient or relatives (10.8%) and provision of emotional support (7.9%).

The aspects of care on which performance was unsatisfactory could lead to: -

- Failure to identify worsening of the patients' condition

Conclusions

Performance on aspects related to this category was unsatisfactory, as most participants did not comply on most aspects. The mean performance of the nurses was 38%.

Category 9: Reevaluation of the patient

This category was presented and discussed with the help of Table 4.9. Nurse's performance was "GOOD" for continuously monitoring the vital signs (90%), while "UNSATISFACTORY" performance was for monitoring urine output (20%) and monitoring adequacy of pain relief (2.6%).

The aspects of care on which performance was unsatisfactory could lead to: -

- Participants would fail to detect any signs of deterioration or stability of condition.
- Patients may develop acute renal failure if decreased urine output go undetected.
- Cardiac dysrhythmias and respiratory problems may ensure to pain.

Conclusions

Based on the findings from table 4.9, performance of aspects of care on this category was unsatisfactory on monitoring urine output and adequacy of pain relief. The mean performance of the nurses was 38%.

Category 10: Provision of definitive care

This category was presented and discussed with the help of Table 4.10. Nurses' performance was unsatisfactory for provision of definitive care (15%).

The aspects of care on which performance was unsatisfactory could lead to: -

- Failure to provide comprehensive care to patient after being with the patient for some time resulting in delayed treatment.

Conclusion

Most participants 34(85%) did not comply in the provision of definitive care. This could be related to the absence of nursing diagnosis being compiled. Without a diagnosis, it is difficult to set outcome criteria and provide definitive care.

Overall conclusion on all ten (10) categories

Using statistical analysis on respondent's performance (Table 5.1) using 70% as the lower limit for acceptable performance, the competence of nurses is unsatisfactory as all of the RN's scored less than 40% in respective categories.

To reach a final conclusion on the competence of care, only **good** gradings, thus 70% and above, were regarded as acceptable. Satisfactory gradings were regarded as unacceptable.

TABLE 5.1 SUMMARY OF SCORES FOR EACH CATEGORY OF CARE AT 70% AS ACCEPTABLE LOWER LIMIT

Aspect of care	Acceptable (70+%)	Unacceptable (<70%)	Total
1. Management in casualty/ trauma unit	15	85	100
2. Maintaining a clear airway with protection of the spinal column	22.5	67.5	100
3. Ensuring normal and effective breathing	32.5	67.5	100
4. Circulation – maintaining a good cardiac output and well perfused tissues through control of haemorrhage	22.5	77.5	100
5. Neurological status of patient continuously monitored	22.5	77.5	100
6. Expose patient to examine all body parts	37.5	62.5	100
7. Resuscitation phase	25	75	100
8. Secondary survey	7.5	92.5	100
9. Reevaluation of patient	0.0	100	100
10. Definitive care	15	85	100

5.4 LIMITATIONS OF THE STUDY

In view of specification of the type of patient on whom the registered nurse was to be observed, also contributed to the delay in completing the data collection on time.

The study covered a very small population of registered nurses making the issue of drawing generalizations difficult, although inferences may be made from the findings.

5.5 RECOMMENDATIONS

Recommendations for this study are based on the findings and conclusions. In principle the recommendations could be regarded as

- Managerial nature
- Educational nature

and

- Further research

Managerial nature

- One of the findings was that the nurses with most experience perform better in three of the categories of competence. The one recommendation therefore is to allow nurses to consolidate their expertise in the trauma department, and if possible, not to rotate them.

  Incentives could be to reward them for example after each five (5) years of practice in the emergency department.

- The issue of mentors should be investigated. The mentors could be senior registered nurses to accompany and motivate newly qualified or newly placed registered nurses in the trauma department.

- The institution should have a mechanism in place to ensure continuing competence of its nurses through periodic appraisals since competence is attained through education and practice. It should also be remembered that competence will only be maintained through commitment to life long learning and practice coupled with sufficient opportunities over time.

- The nursing council of Zambia should insist on proof of having attended some form of continuing education from nurses before being allowed to renew their practicing license. This will assure the public that the competence of nurses is acceptable.

- There is need for the institution to move towards re-integration of nursing education department with the nursing service provision so that there is interaction between the two areas in order to keep themselves abreast with health care delivery and societal expectations.

- The ministry of Health or individual institutions should encourage frequent exchange visits among health workers from different facilities.

Continuing education

- There is urgent need to improve on the skills of nurses working Accident & Emergency unit through a formal programme since the nurse is often the first person to assess the patient, usually without the benefit of a medical diagnosis. In order to help the nurse respond to problems concerning care, continuing education could be the answer. It should be comprehensive in its coverage, based on survey needs i.e. relevant to the

tasks of the health worker, throughout the workers career, coordinated, regular part of routine activities and include consumers (health workers) in planning and evaluation.

- Time and resources should be allocated by stake holders towards continuing education through meetings with professional colleagues, onsite supervision and coaching, review of patient records, analysis of monthly reports etc. nurses should be motivated to have interest in personal development through self study, using books, journals, correspondence courses, or self-assessment examinations as well as other mass media methods.

Further research

- There is need to carry out further research in other major towns with big hospitals in order to come up with a national perspective on the competence of Registered nurses in managing emergencies.

5.6 IMPLICATION TO THE HEALTH SYSTEM

Since emergencies can occur anywhere such as community, emergency department and even nursing units, they call for competent emergency intervention or care.

It also implies that Emergency nursing requires a broad knowledge and skill base if safe and competent care is to be provided to clients with a variety of conditions. These include rapid and sound assessment skills, physiologic responses, psychosocial behaviours crisis intervention, communication techniques, triage, trauma care and the ability to offer care in uncontrolled or

unpredictable environment. It is therefore important that all nurses have basic knowledge and skills needed for rapid assessment, intervention and safe management of emergencies. Quick and competent emergency nursing care is the key to rapid stability, prevention of complications, and early recovery of patients coming through our hands.

Lack of such knowledge and skills can spell doom to patients and their chances of survival will be slim.

5.7 CONCLUSION

The study sought to determine the competence of registered nurses in managing emergencies at a teaching hospital's Accident & Emergency unit. Although the nurses' performance was good on some sub units of the categories, the overall competence of nurses has been unsatisfactory as was found with table 4.2 to 4.10. The mean performance score were below 50% except for Circulation and Exposure of patient.

Using statistical analysis on participants' performance (Table 5.1), using 70% as the lower limit for acceptable performance, the competence of nurses is unsatisfactory as all of the scored less than 40% in respective categories.

REFERENCES

Advanced Life Support Group. Advanced Cardiac Life Support. London. Chapman Hall, 1993

American Heart Association in collaboration with International Committee on Resuscitation (ILCOR). Guidelines for Cardiopulmonary resuscitation and Emergency cardiovascular care. An International consensus on science. Resuscitation, 2000; 46: 1 – 448.

American College of Surgeons: Advanced trauma life support, 5th edition, Chicago, 1993, American College of Surgeons.

American Nurses Association. 2000. Continuing Competence: Nursing Agenda for the 21st Century. Washington, D.C. American Nurses Association.

Argyle, B. 1996 General approach to trauma. Software, Alpine, UT.

Berk, R. A. 1990. Importance of expert judgement in content-related validity evidence. Western Journal of Nursing Research, 12(5): 659-671.

Black, JM & Matassarin-Jacobs, E. 1993. Luckman and Sorensen's Medical Surgical nursing: A pathophysiologic approach. Philadelphia: WB Saunders Company.

Bless, C & Higson-Smith. 2000. Fundamental of Social Research Methods – An African perspective. Cape town: Juta Education (pty) Ltd.

Blythin, P. 1988. Triage documentation. Nursing, 3:30, 32- 34.

Boudreaux, ED & Ary, R., Mandry, C. Emergency department personnel accuracy at estimating patient satisfaction. Journal of Emergency Medicine 2000 Aug; 19(2): 107-12.

Bridges, D., Elliot, J. and Klass, C. 1986. Performance appraisal as a naturalistic enquiry: a report of the fourth Cambridge conference on education evaluation. Cambridge Journal of Education, 16:221-233.

Brink H.I. 2000. Fundamental of research methodology for health care professionals. Cape town. Juta and Company Limited; pp. 56 – 85).

Burns, N; Grove, S. K. 1997. The practice of nursing research: conduct, Critique, and utilisation. Philadelphia, W. B. Saunders Company; pp. 200-223.

Byrne, G Patient satisfaction with emergency nurse practitioners in A & E. Journal of Clinical Nursing 2000 Jan; 9(1): 83-92.

Carney, C. J. 1997. Pre-hospital care – a UK perspective. In Yates D. W. Trauma. London, British Medical Bulletin, 1999: 55(4): 757-766.
Central Statistics Office (2000). Preliminary census report.

Chan, R.; Alexander M; Chan V; Ho B; Lai C; Lam P; Shit F; Yui I. Nurses knowledge of and compliance with universal precautions in an acute care hospital. International Journal of Nursing studies. 2002; 39: 157 – 163.

Cole F.L; Ramirez E; Luna-Gonzales H. 1999. Scope of practice for the nurse practitioner in the emergency care setting. Des Plaines, IL: ENA.

Cormark D.F.S. 1996. The research process in nursing. Oxford, Blackwell science Limited.

Crosby, L.A. & Lewallen, G. 1997. Emergency Care and Transportation of the sick and injured. 6th edition. London: Jones and Bartlett Publishers.

Dains, J. 1991. Standards of Emergency Nursing Practice. Emergency Nurses Practice Yearbook. St Louis: Mosby.

Des Plaines, I. L (author). Emergency Nurses Association. 2000. Trauma Nursing core course (provider) manual 5th edition.

De Vos A.S. (editor). 1998. Research at the grassroots – a primer for the caring profession. Pretoria: Van Schaik Publishers.

Dolan B. & Holt L. 2000. Accident and emergency: theory into practice. Bailliere Tindall.

Ellis, M. 2002 February. Nurses' monitoring of central and pulmonary artery catheters after coronary artery bypass graft operation (unpublished thesis).

Emergency Nurses Association, 1998. Sheehy's Emergency nursing: principles Principles and Practice. St. Louis; Mosby – Yearbook, Inc.

Esposito, T. J.; Maier, R. V.; Rivara, F.P., et al. The impact of variation in trauma care times: urban versus rural. Prehospital disaster medicine, 1995; 10: 38-44.

Fadale, J. 1990. Overcrowding, Comfort, Consideration, Convenience. Journal Of Emergency Nursing, 16(3), 132 –133.

Fairchild, S.S. 1996. Perioperative nursing: Principles and Practice. London: Little, Brown and Company.

Fish, D. & Twinn, S. 1997. Quality clinical supervision in the health care professions – principled approaches to practice. Oxford. Butterworth – Heinemann (chapter 4 and 5)

Garland, P. 1994. Using competence-based assessment positively on certification of Educational Programmes. Journal of Further and Higher Education; 18:1-22.

General Nursing Council of Zambia. 1997. Nurses' Scope of practice.

George, S., Read, S., Westlake, L., William, B., Pritty, P., Fraser-Moodie, A. Nursing triage in theory and practice. Archives of Emergency Medicine 1993 Sept; 10(3): 220-8.

Grabber M. A. 2002. Virtual Hospital: University of Iowa family practice handbook.

Gubler KD; Gentilello LM; Hasantash SA; Maier RV. The impact of hypothermia on dilutional coagulopathy. Journal of Trauma. 1994; 36: 847 – 51.

Gunning K; Surgue M; Sloan D; Deane S. Hypothermia and severe trauma. Australian/New Zealand Journal of surgery. 1995; 65: 80 – 82.

Gurvis, J.P. & Grey, M.T. 1995. The anatomy of competency. Journal of Nursing staff development, 11(5); 247 - 252.

Heath H. 1998. Reflection and patterns of knowing in nursing. Journal of advanced nursing practice. 27: 1054 – 59.

Hinds, C. J. & Watson, D. 1996. Intensive care: A concise textbook. Saunders; London.

Hodgetts, T., Deane, S. & Gunning, K. 1997: 6. Trauma rules. London, British Medical Journal Publication.

Hodgetts T & Mackaway-Jones K. 1995. Major incident medical management and support: the practical approach. London; British Medical Journal publishing group.

Huysamen, G.K. 1993. Metologie vir die sosiale en gedragswetenskappe. Pretoria: Sigma.

International Council Nurses. Report on the regulation of nursing (1983: 17).

International Council Nurses. International competencies for the Generalist Nurse. Initial draft. March 2001.

International Council Nurses. Code of ethics, 2000a

Keenan, K. 1995. The role of nursing assessment of traumatic events in sudden injury, illness and death. Critical care nursing clinical North America 7:483,1995.

Leininger M. 1996, summer. Culture care theory, research, and practice. Nursing Science Quarterly; 9(2); 71 – 78.

Leininger M. 1996: January - June. Major directions for transcultural nursing: a journey into the 21st century. Journal of transcultural nursing; 7(2); 28 –31.

Lenburg, C.B. 1998. Competency-based outcomes and performance assessment. The COPA model. Unpublished workshop materials: the University of Memphis, and University of Colorado, Health Science Centre.

Lenburg, C.B. 1999. Contemporary issues in nursing education. In B. Cherry and S.R. Jacobs (eds), Contemporary nursing: Issues, Trends and Management. St. Louis: Mosby. 66-97.

Liverpool Hospital : Trauma unit – Education Handbook, 2002).

Lyon B.L. & Boland D.L. 2002. Developing clinical competencies framework (web online).

Lyon B.L. & Boland D.L. Demonstration of continued competence a complex challenge. Clinical nurses specialist. 16; 3: 155 – 157.

Mashaba, TG & Brink, HI. 1994. Nursing Education – an international perspective. Cape town: Juta and Co. Limited.

Miller, K. L. 1995: November. Keeping the care in nursing care: our biggest Challenge. Journal of Nursing Administration; 25(11); 29 – 32.

Mouton, Johann. 1996. Understanding Social research. Pretoria: Van Schaik.

New dictionary of social work. 1995. Revised and comprehensive edition. Terminology committee for social work. Pretoria: State printers

Nolan J.P. & Parr M.J.A. Aspects of resuscitation in trauma. British Medical Journal of anaesthesiology. 1997; 226 – 40.

Nolan P 1999. Competencies drive decision-making. Nursing management, 29; 3: 27 –29.

Nurses and midwives act. Number 31: 1997: 295 – 318.

O'Neil E. 1999. The opportunity that is nursing. Nursing and health care perspectives. 20; 1:10 – 17.

Oxford concise medical dictionary. 1998. Philadelphia: Lippincott.

PharmaFacts for Nurses. 1995. Philadelphia: Lippincott.

Polit, DF & Hungler, BP. 1995. Nursing Research – Principles and Methods. Philadelphia: Lippincott.

Porte-Gendron R. W; Simpson T; Carlson K. K; Van de Kamp M. E. Baccalaureate Nurse educators' and critical care nurse managers' perception of Competencies Necessary for new graduate baccalaureate critical care nurses. American Journal of Critical Care 1997 Mar; 6(2): 147-58.

Pups GM; Weyker JD; Rodgers BI. 1997 February. Nurses' reaction to participation in cardiopulmonary resuscitation on the nursing unit. Clinical nursing research. 6; 1: 59 –70.

Resuscitation Council (UK). Resuscitation guidelines, 2000.

Rew, L., Stuppy, D., & Becker, H. 1988. Construct validity in instrument Development: A vital link between nursing practice, research and theory. Advances in nursing science; 10(4): 10-22.

Rock, D. & Pledge, M. Priorities of care for the walking wounded. Triage in accident and emergency. Professional nurse, 1991 May: 6(8): 463-5.

Searle, C & Pera, SA. 1995. Professional Practice: A South African nursing perspective. Durban: Butterworths.

Sbaih L 1994. Issues in accident and emergency nursing. Chapman and Hall.

Seribante, J., Muller, ME, Lipman J. A guideline for competency of the critical care nurse. Rand Afrikaans University, Auckland Park, South Africa in American Journal of Critical Care 1996 May; 5(3): 217 -26.

Sinclair, R. & Wilson, I. 1995. Tutorials in Anaesthesia. Africa Medical Research Foundation. Nairobi.

Smeltzer SC & Bare BG. 2000. Brunner and Suddarth's textbook of medical surgical nursing. Lippincott Williams and Wilkins.

Thelan LA, Urden LD, Lough ME & Stacy KM. 1998. Critical care nursing, diagnosis and management. St. Loius, Mosby.

Toulson S 2000. Accident and emergency nursing. Whurr.

Troskie, R. Critical review the newly qualified nurse's competence to practice, in Curationis, 1993: 16(3): 50-55.

University Teaching Hospital: Medical records for Casualty (A&E) department Attendance for 2000.

Uys, HHM & Basson, AA. 1994. Research Methodology in Nursing. Pretoria: Haum.

Van Carrapiett, D. 2002. Neurological observation – Pupil reaction and size (Online web)

Walsh, M. 2000. Accident and emergency nursing: A new approach. Heinemann Nursing: London

Watson, J. 1985. Nursing: Human science and human care. A theory of Nursing. Norwalk, CT: Appleton – Century.

Watson, J. 1997, spring. The theory of human caring: retrospective and prospective. Nursing science quarterly; 10; 49 – 52.

Williams, B.T., Nicholl, J.P., Brazier, J. E. In Stevens, A., Raftery, J. (Eds) Health care needs assessments: 1. Accident and emergency departments. Abingdon: Radcliff Medical Press, 1997: 1 - 54.

Yates, W.D. (ed). Trauma: British Medical Bulletin. Royal Society of Medicine Press Limited: Glasgow. 1999: 55 (4).

Zhang, ZX, Luk, W, Arthur, D, Wong T. Nursing competences: personal Characteristics contributing to effective nursing performance. Journal of Advanced Nursing 2001 Feb; 33 (4): 467-474.

CHECKLIST OF COMPETENCES FOR NURSES WORKING IN CASUALTY UNIT AT A TEACHING HOSPITAL IN ZAMBIA

PART A DATE: .....

SERIAL NO.

1. RANK:
2. YEARS OF EXPRERIENCE:
3. TRAUMA EXPERIENCE:
4. STARTING TIME:
5. FINSHING TIME:

PART B

1. MANAGEMENT IN CASUALTY/TRAUMA UNIT	3	2	1
To what extent did the RN carry out the initial aspects of trauma care:-			
1.1 Obtain history from the relatives or paramedics			
1.2 Perform a quick primary survey			
1. Wash the hands			
2. Don gloves			
3. Greet the patient to determine responsiveness			
4. If patient unresponsive, check for any medic medallions			
1.3 Ensure safety of the patient, nurse and environment			
2. MAINTAINING A CLEAR AND PATENT AIRWAY WITH PROTECTION OF THE SPINAL COLUMN	**3**	**2**	**1**
To what extent did the RN carry out the following aspects of care: -			
2.1 Positioning of the patient i.e. head tilt, chin lift manouvre and jaw thrust			
2.2 Clear the oropharynx of blood, mucous and foreign bodies			
2.3 Don't move or extend the neck if the patient may be having a spinal injury			
2.4 Open the mouth and remove any liquid or foreign material with a rigid suction catheter			
2.5 Assist in the intubation of the patient by getting the right ETT i.e. the size of the patient's small finger irrespective of age			
2.6 Apply cricoid pressure during intubation to prevent aspiration			
2.7 Keep a rigid cervical collr on the patient even if you are examining the neck, this is meant to stabilize the cervical spine			
2.8 Keep the patient in supine position after intubation			
2.9 Administer 100% oxygen according to priority			
2.10 Monitor patient continuously once s/he is put on oxygen or intubated			

3. MAINTAINING NORMAL AND EFFECTIVE BREATHING	3	2	1
To what extent did the RN carry out aspects of care aimed at promoting effective breathing patterns: - 3.1 Ensure that both sides of the chest are ventilated by inspecting for adequate movement of the chest 3.2 Auscultate for breath sounds and listen particularly in the axilla for ventilation of the periphery of the lungs and also over the epigastrium to ensure that the stomach is not ventilated 3.3 Count respiratory rate, rhythm and depth 3.4 If patient is not breathing, perform CPR			
4. CIRCULATION – MAINTAIN A GOOD CARDIAC OUTPUT AND WELL PERFUSED TISSUES THROUGH CONTROL OF HAEMORRHAGE	3	2	1
To what extent did the nurse carry out activities aimed to restore haemodynamic status: - 4.1 Check and record the patients' – o pulse (femoral or carotid) o blood pressure o temperature 4.2 Perform CPR, if pulse is absent 4.3 Control any external haemorrhage by applying direct pressure over the wounds 4.4 Prevent further haemorrhage from fracture sites by adequate splinting/packing and gentle handling (minimize handling of fractured side) 4.5 Insert a peripheral line for intravenous infusion using a large bore needle (FG 14 to 18) 4.6 Collect blood for grouping and cross match, full blood count, and urea and electrolytes 4.7 Replace blood (warmed) volume by peripheral intravenous line 4.8 Do not over infuse clear fluids (maximum 2L crystalloid or 1L colloid e.g. ringers lactate and plasma, dextran or haemacel (Knottenbelt, 1994: 959) 4.9 Insert an indwelling urinary catheter 4.10 Monitor urinary output: 0.5-1.0ml/kg body weight per hour			

5. NEUROLOGICAL STATUS OF THE PATIENT CONTINUOUSLY MONITORED	3	2	1
To what extent did the RN carry out neurological check on the patient: - 5.1 Carry out a brief neurological assessment in order to establish the patients' level of consciousness using the AVPU method: - • A – alert • V - responds to verbal stimuli • P - responds to painful stimuli • U – unresponsive to stimuli 5.2 Assess dilatation of the pupils to elicit compression of 3rd cranial nerve 5.3 Perform a neurological assessment using the: - • Glascow coma scale • Revised trauma score			
6. EXPOSE PATIENT TO EXAMINE ALL BODY PARTS	3	2	1
To what extent did the RN carry out a full examination of all body parts: - 6.1 Immobilise the spinal column during the entire resuscitation 6.2 Perform CPR if the patient has lost consciousness 6.3 All clothing removed to facilitate a thorough examination of body surfaces for the presence of injury 6.4 Protect patient from hypothermia			
7. RESUSCITATION PHASE	3	2	1
To what extent did the RN assist during this phase of care: - 7.1 Reassessing and arresting haemorrhage where possible 7.2 Continue with restoration of volume by administering crystalloids, colloids or blood products 7.3 Obtaining bloods samples for investigations 7.4 Insertion of gastric catheter (unless contraindicated) 7.5 Monitor patients' response to resuscitation : - 1. vital signs (including temperature) 2. urinary output 3. arterial blood gases			

8. SECONDARY SURVEY	3	2	1
To what extent did the RN carry out aspects of secondary survey: - 8.1 Reassess patients' ABC 8.2 Examine each body part 8.3 Complete history taking from patient or relatives 8.4 Patients' medical history (AMPLE): - • A ~ allergies • M ~medications • P ~ past medical history • L ~ last meal • E ~ events preceding the incident 8.5 Completion of special procedures like radiography studies (chest, cervical spine, thorax, limbs and pelvis) and electrocardiogram (ECG) 8.6 Continually monitor patients' vital signs and response to medical therapies 8.7 Provide emotional support to the patient and family			
9. REEVALUATION OF PATIENT	**3**	**2**	**1**
To what extent did the RN continuously evaluate the patient: - 9.1 Continuously monitor vital signs 9.2 Monitor urine output 9.3 Monitor adequacy of pain relief			
10. DEFINITIVE CARE	**3**	**2**	**1**
10.1 Provision of specific care to the patient after identification of the full extent of trauma supported by diagnostic results			

KEY

1. Not applicable
2. Did not comply
3. Complied fully

J.K.Nkhata
Theatre/ICU department
UTH
LUSAKA

March 31, 2002

The Managing Director
UTH
P/Bag RW 1x
LUSAKA

Dear sir,

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT UTH'S CASUALTY DEPARTMENT

I am hereby requesting for permission to conduct research on nurses working in casualty department.

I am currently studying for my Masters in Nursing sciences (critical care nursing) under university of Namibia. The research is in partial fulfillment of the requirement for my studies. My topic of study is "The competence of Registered Nurses in managing emergencies at a teaching hospital (UTH) in Zambia". It will require obtaining primary data from nurses working in Casualty using participant observation method and checklist. My proposal has been handed to the Research and Ethics Committee after making some corrections and I am waiting for the clearance letter from them.

It's my sincere hope that the request will receive favourable consideration.

Sincerely yours,

JAMES K. NKHATA

THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE

RESEARCH ETHICS COMMITTEE

Telephone: 252641
Telegrams: UNZA, LUSAKA
Telex: UNZALU ZA 44370
Fax: + 260-1-250753

Dean's Office
P.O. Box 50110
Lusaka, Zambia

19th April 2002

Mr James Nkhata
University Teaching Hospital
LUSAKA

Dear Mr Nkhata

The following research proposal was presented to the Research Ethics Committee on 27th March 2002 where changes were recommended. We would like to acknowledge receipt of the corrected version. The proposal has been approved. Congratulations!

Title of proposal: **The competence of registered nurses in managing emergencies at the University Teaching Hospital in Zambia.**

Conditions:

- This approval is based strictly on your submitted proposal. Should there be need for you to modify or change the study design or methodology, you will need to seek clearance from the Research Ethics Committee.

- Informed Consent forms approved – 1 in English.
  If you have need for further clarification please consult the Research Ethics Committee. Please note that it is mandatory that you submit a detailed progress report of your study to this committee every six months and a final copy of your report at the end of the study.

Yours sincerely

E M Nkandu (Mrs.)
SECRETARY, RESEARCH ETHICS COMMITTEE

University Teaching Hospital
Theatre/MICU dept
P/Bag RW 1x
LUSAKA
28TH January 2002

The Chairman
Research and Ethics Committee
University of Zambia
School of Medicine
LUSAKA

Dear sir,

RE: REQUEST TO CONDUCT RESEARCH AT UNIVERSITY TEACHING HOSPITAL'S CASUALTY UNIT

I am hereby requesting for permission to conduct research on nurses working in casualty department.

I am currently studying for my masters in nursing science under University of Namibia. Find copies of my proposal entitled " The competence of Registered nurses in managing emergencies at a teaching hospital in Zambia."

Your positive response to my request will be appreciated,

Respectfully yours,

J. K. NKHATA