AN INVESTIGATION INTO THE IMPLEMENTATION OF AN EMERGENCY UNIT TRIAGE SYSTEM IN A SELECTED PRIVATE HOSPITAL

by

JEAN ELISABETH AUGUSTYN

submitted in part fulfillment of the requirements for
the degree of

MASTER OF ARTS

in the subject

HEALTH STUDIES

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: PROF S P HATTINGH

JOINT SUPERVISOR: DR V J EHLERS

NOVEMBER 2006

Student number: 3246-442-8

DECLARATION

I declare that ***AN INVESTIGATION INTO THE IMPLEMENTATION OF AN EMERGENCY UNIT TRIAGE SYSTEM IN A SELECTED PRIVATE HOSPITAL*** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

Jean Elisabeth Augustyn

…….. ……
Signature Date

ACKNOWLEDGEMENTS

I am grateful to God for allowing me the opportunity to develop myself further through this study and give Him all the praise and honour.

I would also like to thank the following persons for their invaluable support:

- Prof SP Hattingh and Dr VJ Ehlers, my supervisors at Unisa, for all their support, prodding and advice during this research process.
- My husband, André for supporting and encouraging me.
- My parents, Keith and Rennie Moir, who have supported me through my whole academic and nursing career, always encouraging me to strive further.
- The Cape Triage Group, under the leadership of Drs Lee Wallis and Clive Balfour, whose researched triage system I was permitted to implement during this study.
- The hospital and its management where the research was conducted.
- The nurses and doctors who participated in the study.
- Mrs L Smith for editing this dissertation.
- Ms S van Molte for the statistical analysis.

AN INVESTIGATION INTO THE IMPLEMENTATION OF AN EMERGENCY UNIT TRIAGE SYSTEM IN A SELECTED PRIVATE HOSPITAL

STUDENT NUMBER: **3246-442-8**
STUDENT: **Jean Elisabeth Augustyn**
DEGREE: **MASTER OF ARTS**
DEPARTMENT: **HEALTH STUDIES,**
UNIVERSITY OF SOUTH AFRICA
SUPERVISOR: **Prof SP Hattingh**
JOINT SUPERVISOR: **Dr VJ Ehlers**

ABSTRACT

Triage assessment of patients on arrival at the emergency unit is an essential function in quality emergency care provision. Triage is the process of sorting and prioritising patients according to their level of acuity. This study was performed within an emergency unit that experienced serious problems with the sorting of patients on their arrival. After implementation of the Cape Triage Score, a questionnaire was distributed amongst staff utilising the new triage system. The investigation sought to answer specific questions concerning the triage nurse's roles, competencies required and strengths and weaknesses of the implemented system. The study also suggests guidelines to improve the triage system within the unit.

The triage system was received well by participants. The roles of the triage nurse are multifaceted and extensive competencies are required. The strengths of the implemented triage system outweighed the weaknesses as perceived by the respondents. Guidelines for implementing triage in emergency units are provided.

KEY CONCEPTS:

Accident and emergency, Cape Triage Score, emergency unit, Level II private hospital, nurse triage, trauma nursing, triage, triage system

Table of contents **Page**

CHAPTER 2

Literature review

CHAPTER 4

Presentation and discussion of findings

List of tables **Page**

List of figures **Page**

List of abbreviations

ACLS	Advanced Cardiac Life Support
ALS	Advanced Life Support
APLS	Advanced Paediatric Life Support
ATLS	Advanced Trauma Life Support
CPR	Cardiopulmonary Resuscitation
CTS	Cape Triage Score
ECG	Electrocardiogram
EMS	Emergency medical services
GP	General Practitioner
POP	Plaster of Paris
RSA	Republic of South Africa
SANC	South African Nursing Council
TEWS	Triage early warning score
UAE	United Arab Emirates
UK	United Kingdom
Unisa	University of South Africa
USA	United States of America
WHO	World Health Organization

List of annexures

CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

Sorting patients, also known as triage, according to their level of acuity on arrival at an emergency unit of any hospital is an essential function of health care workers. Triage is a system of sorting patients to determine which individuals need specialised care for either actual or potential injuries or complications. In order to provide immediate care to prevent further complications, it is necessary that a system be developed to direct the patient to the most appropriate facility or service in the emergency unit so that immediate action can be taken. Physiological parameters alone, such as trauma scores tend to under-assess the severity of the injury or medical condition of the patient and other aspects need to be considered. For example, in the case of injury the mechanism of injury, the type of injury and site need to be considered. Traditionally, assessment for triage was conducted by staff, such as secretaries, admission officers or other non-medically trained personnel with limited knowledge and experience in the medical field. This has lead to delayed decision-making and delays in rendering urgent definitive care needed by patients.

Triage decisions are based on a team approach and are often already made by pre-hospital emergency personnel on the knowledge of the mechanism of injury (for example condition of the collision between vehicles), history of a condition/patient (for example chest pain), rapid assessment of the patient's clinical status and progress of the patient during transportation (Nicol & Steyn 2004:224). Often pre-hospital team members communicate their triage decisions and findings on the condition of the patient(s) to the hospital through radio or other communication channels. However, patients could arrive at an emergency unit without prior assessment or their condition might have deteriorated or improved during prehospital treatment and transportation from the scene to the hospital. It is here that clinical knowledge and expertise in the field of emergency management is needed. Nurses who work in emergency units need to be highly trained professionals while having to deal with the triage of injured or ill people. However, formal triage nursing within an emergency unit is a relatively new concept in the Republic of South Africa (RSA).

1.2 BACKGROUND TO THE RESEARCH PROBLEM

The importance of attending to patients on arrival at the emergency unit of a hospital through triage is emphasised by Alarcon, Fernandez and Wuerz (1998:432), as well as Bekerman, Hay, Peled and Rosenberg (2001:113) as the most important aspect in the prevention of death and disability in patients. Bracken (2003:76) adds that professional intervention in triaging patients is essential.

The nature of the emergency unit attendance leads to unpredictable workloads and the inability for all patients to be attended to on their immediate arrival. Patients therefore need to await their chance to see the appropriate health professionals. However, the practice of triage, whereby patients are assessed immediately on their arrival in the emergency unit, assists in the process of prioritising patients in terms of the complaints and clinical presentations and seeks to alleviate some of the problems which present in the emergency unit (Edwards 1999:20; Fraser-Moodie, George, Pritty, Read, Westlake & Williams 1993:220).

Authors such as Jones (1993:14), Mallet and Woolwich (1990:1444, 1445) and Woolwich (2000:476) present the following positive factors with regard to the triaging of patients on their arrival in the emergency unit:

- The unknown factor of patients' illnesses and injuries waiting in the waiting room can be assessed immediately.
- Overcrowding in the waiting room area can be prevented and/or managed.
- The flow of patients through the emergency unit and wastage of time can be controlled.
- Deterioration of already severely ill/injured persons can be assessed and attended to.
- Long waiting times, without being seen by any health professional, can be prevented as every individual patient is given immediate attention.
- Patient dissatisfaction and aggression can be limited.

- Unbalanced workloads for nurses may be prevented reducing dissatisfaction and demotivation typical of emergency units (Swansberg 1993:292).
- Infection control, such as blood spills, patients with infectious diseases infecting others whilst waiting in the waiting room can be controlled.
- Unsafe clinical environments (physical and psychological) for patients requiring additional assistance from professional staff are limited.
- Incorrect decision-making by reception and administrative staff will not feature, thus limiting ethical and legal actions.
- The privacy, confidentiality and autonomy of the patient will be respected, for example in forensic cases (Pera & van Tonder 2005:103).

The World Health Organization's (WHO 2003:16) Injuries and Violence Prevention Department and the International Association for the Surgery of Trauma and Surgical Intensive Care, have identified three basic rights of the injured patient. These rights are additional grounds for triage on the ill or injured patients' arrival at the emergency unit and so are imperative to all patients' assessment and appropriate management. These include that:

- life threatening injuries are managed appropriately and timeously, according to priorities
- the likelihood of survival is maximised
- potentially disabling injuries are treated appropriately so as to minimise functional impairment and pain and psychological suffering

The concept of "nurse triage" by a specially trained emergency nurse is an unknown entity in the RSA. This is in contrast with the United States of America (USA), United Kingdom (UK), Australia and even the United Arab Emirates (Pillay 2005:26) where only specialist nurses operate. Nurse triage in these countries is not a new concept. Literature found on nurse triage dates back as far as 1975 (Albin, Bell, Jacobson & Wasertheil-Smoller 1975:1065; Estrada 1981:22; Nuttal 1986:66; Selvig 1985:30F). In all these sources, triage is described as the most efficient, cost-effective and time saving venture to apply in disaster and emergency situations.

No information on any implemented formalised emergency unit triage system, nor the inclusion in the curriculum of training basic nursing students, could be found in the RSA. Triage has been based more on the prehospital triage criteria taught through the emergency medical services' colleges throughout the country and nurses in the RSA have traditionally used the "eyeball" method of triaging the patient on his/her arrival in the unit (De Vries, Gottschalk, Wallis & Wood 2005:39), meaning that nurses simply assessed the patients by looking at them without using valid and/or scientifically founded clinical criteria.

From the literature and the background, it is noticeable that further investigation into triage systems and skills for emergency nurses is a much-needed area for research in the RSA.

1.2.1 The source of the problem

Bracken (2003:75) described triage as "… putting the patient in the right place at the right time to receive the right level of care facilitates the allocation of appropriate resources to meet the patient's medical needs". This statement by Bracken unequivocally describes the reason for the research undertaken. Triage, although a known concept to emergency nursing, is neither a formalised, nor a specialised aspect of nursing within the South African emergency nursing sphere.

The identified and proposed setting for this research, a level II regional private hospital emergency unit, has a problem with the correct prioritisation of patients on their arrival. Through the introduction of a formalised triage system, it is expected that the patient will be in the correct place, at the correct time, so as to receive the right level of care within the available resources, so that ultimate quality care will be provided as reflected in the definition by Bracken (2003:75).

1.2.2 Background to the research problem

The researcher works in a private hospital emergency unit encompassing all aspects of emergency medicine, including major and minor trauma and medical emergencies. These include forensic emergencies, surgical emergencies, outpatient wound care, outpatient intravenous antibiotics, paediatric emergencies as well as day-to-day colds and 'flu's'.

Should there be a shortage of hospital beds the unit might even accommodate overnight patients. The unit constitutes a regional emergency centre – the previously, American-defined, level II trauma facility – in terms of proposed national legislation (South Africa 2002:15).

On average, according to hospital records, between 2100-2400 (Durbanville Mediclinic 2005) patients are seen in the emergency unit of the private hospital investigated in this research, per month. Peak times when patient attendance is increased are variable and trends are difficult to identify. With the large variety and number of cases that present at the unit on a daily basis, problems do arise. These include:

- Patients complain that they wait too long to be seen.
- The doctor does not necessarily attend to patients as quickly as required – in terms of the seriousness of their problems
- Patients may be seen in order of arrival at the emergency unit, unless the nurses ask/indicate the urgency of the patient's condition.
- Patients need to be seen by the doctor 'twice' whereas small investigations may have already been undertaken prior to their being seen by the doctor.
- Time is wasted where more serious injured or sick patients could be assessed by the doctor and then be investigated and/or referred to a specialist more timeously – saving waiting times and enhancing the quality of care received by the patient.
- Nursing staff 'wait' for the doctor, when they already know what procedures and/or investigations will follow, subsequently increasing patients' waiting time and inadvertently 'waste' even more time.
- Less serious patients, such as those receiving out-patient treatment (wound care or antibiotic treatment) are the very last in the queue to be seen, should the unit be busy.

Some actual examples of ineffective triage experienced are described:

The receptionist had heard that the patient had chest pain and so placed a note on the patient's file stating "heart attack". This was done so that when the doctor would see the

patient, he would realise the urgency of the problem. Although the non-medically trained receptionist was only trying her best, the attending registered nurse should have already summoned the doctor on realising the seriousness of the patient's condition.

Annexure D includes two actual copies of letters of complaints, outlining the problem of possible ineffective triage. For the purpose of anonymity, personal details have been deleted and other irrelevant details omitted.

- A letter from a relative ('Memorandum" Re: "Vertraging in Noodeenheid"), is an actual example of a written complaint by a woman to the hospital management outlining her husband's emergency situation where he had to wait for the doctor for an extended period of time. The time waited, on investigation into the patient's file, was not a full hour and a half, but it was still too long a waiting period to receive emergency care.
- A facsimile from yet another patient's mother also outlines the extended waiting period experienced in the emergency unit whilst waiting for the doctor. Again, upon further investigation, the actual waiting period was not an hour and twenty minutes, but fifty minutes after arrival, which still exceeds the ideal waiting time for rendering effective patient care.

Interestingly, the above two complainants' perceptions of waiting times were extended. There is often a legitimate reason for a twenty-minute wait. The doctor depends on the nurse's assessment of the patient and due to the large number of patients, as well as the urgency of the cases to be seen by the doctor on a daily basis in the emergency unit, waiting time for the less urgent patients could be extended. This may be solved by implementing a well defined triage system saving time, saving money and reducing dissatisfaction of the patients.

Through the implementation of a formal system of triage within the private hospital emergency unit, triage as a specialised entity may become more recognised as a worthwhile strategy for managing emergency units. This may then stimulate investigations into triage as an area of clinical specialisation in the nursing profession. If, in future, the qualified and experienced emergency unit nurse may prescribe certain investigations (such

as blood tests and radiological investigations), which are imperative for further investigations and treatment, much time could be saved and patient care could be expedited and enhanced.

The researcher was newly employed within the emergency unit of the level II private hospital during 2004, where one of the interview questions posed during the appointment of the researcher was how a triage system could be implemented. It was thus obvious, that the prioritisation of patients posed a problem in this emergency unit.

Some of the factors contributing to the perceived problems include:

- There is no official triage system in place. Some informal triage takes place (done by registered nurses who see all patients as they enter the treatment area of the emergency unit). The interaction amongst staff members is limited between the reception system and two closed consultation rooms that do not allow for effective informal triage to take place on a continuous basis.
- The geographical design of the emergency unit is not ideal to promote triage. The doctor(s) are behind closed doors when consulting patients who only want/need to see the doctor – referred to as "GP" (general practitioner) patients. Thus, nurses are sometimes hesitant to disturb – this might lead to delays and mishaps when other pressing issues arise. The geographic design also, although large and spacious, contributes to poor communication between doctors and nurses on a continuous basis.
- Direct, non-professional triage occurs in the reception area, whereby patients registered with the receptionist, sit and wait for their chance to see the doctor or nurse – unless the receptionist realises the urgency of the problem and calls a nurse for assistance. This is also consistent with the findings of Woolwich (2000:477) who emphasises the fact that receptionists, and not professional staff, are the first point of contact with the patients as they arrive, thus often the urgency of the patients' condition might not be attended to.
- All patients' files that need to see the doctor are left in order of arrival at the reception waiting area. Unless the receptionist is explicitly told that a certain patient

needs to be seen by the doctor urgently (first) or realises the urgency of the case, the files remain in the order of arrival at the unit.

The emergency unit, in spite of all the occasional problems, strives to provide a professional and comprehensive service to all its external and internal clients. However, to increase efficiency, and to provide quality care, a system is required to improve on the current situation of ineffective prioritisation of patients according to their medical conditions.

The problem of inappropriate 'triage', namely ineffective classification of patients and inappropriate prioritisation of patients is not an isolated problem. An interest group was formed during 2004, namely the Cape Triage Group, who under the leadership of Dr Clive Balfour (personal interviews 2004/2005) and Dr Lee Wallis (personal interviews 2004/2005) researched and commenced trial implementation of a triage system within some large emergency departments in the Western Cape Province. The triage system has been designed for prehospital as well as in-hospital (emergency unit) use, both in the private and public sectors (De Vries et al 2005:38).

The purpose of this research was thus to implement a formal triage system, namely the Cape Triage Score, within this specific private hospital emergency unit so as to provide a more efficient and professional emergency healthcare service. At the commencement of the research (in December 2005), all nurses were given training in the Cape Triage Score, a specific triage system that was to be implemented in the emergency unit. Approximately one month after its inception in the operations of the unit (January 2006), the specific triage system was evaluated and recommendations were made based on the findings.

1.3 STATEMENT OF THE RESEARCH PROBLEM

The research problem was ineffective prioritisation of patients due to the absence of a triage system. Patients had to wait for long periods of time to be attended to at the emergency unit. Prolonged waiting times often lead to dissatisfied clients and could lead to complications of trauma and medical emergencies which are not attended to. At the time of commencement of the study, no formal triage process was in use at the unit.

The problem statement of this study was therefore: current systems of sorting patients in a level II private hospital in the Cape Metropole is not efficient and patients have to wait for too long to be attended to and misdiagnosis may result in patients developing complications due to prolonged waiting times.

How can an efficient triage system be implemented to overcome the current difficulties in the emergency unit of a selected level II private hospital?

1.4 AIM OF THE RESEARCH

From the problem statement of this research, the purpose, questions and the objectives of the research can be formulated.

1.4.1 Research purposes

The overall purpose of this research was to investigate and to describe the implementation of a triage system in a level II private hospital emergency unit in the Cape Metropole, primarily to reduce patients' waiting times and enhance the quality of patient care rendered at this emergency unit.

1.4.2 Research questions

In order to address the overall aim and the purpose of this research, the following research questions were formulated:

- What is the role of the nurse in the triage of patients in the emergency unit?
- What core competencies should the nurse possess to perform triage?
- What are the strengths of the newly implemented triage system?
- What are the weaknesses of the newly implemented triage system?
- What guidelines could be implemented to improve the current triage system?

1.4.3 Research objectives

The research objectives of this research attempted to:

- Determine the role of the nurse in the triage of patients in the emergency unit.
- Determine the core competencies of the nurse in the triage of the patient in the emergency unit.
- Explore and describe strengths of the newly implemented triage system.
- Explore and describe weaknesses of the newly implemented triage system.
- Provide guidelines for the improvement of a triage system.

1.5 SIGNIFICANCE OF THIS RESEARCH

The significance of this study is that the results could lead to an improvement of the prioritisation of patients in the emergency unit, which, in turn will enhance the effectiveness of the care and services rendered in the emergency unit of this particular hospital. It will bring an already recognised body of knowledge, regarding triage, to the emergency unit, and will hopefully assist in improving the non-formal triage system in place when this research commenced in 2005.

Non-medical staff will benefit because they will not be pressurised to receive and prioritise patients at the front door, doctors will benefit because the patients may be assessed to the degree that patients will be prioritised for them as some investigations will already have been completed when doctors see patients; and nurses will feel more empowered in being able to manage the unit and patient flow more efficiently.

Medicolegal aspects could be limited as patients who need urgent attention will be seen before complications are caused by time delays or unobserved complications or deterioration of patients' conditions.

1.6 DESCRIPTIONS OF TERMS USED IN THIS RESEARCH REPORT

For the purpose of this research, the following descriptions of terms will apply.

1.6.1 Triage

Triage is derived from the French word “trier” which means to ‘pick or to sort’. Patients or problems are thus sorted according to their degree of seriousness – their need for treatment – and the available resources to offer the treatment (American College of Surgeons Committee on Trauma 1997:25). This view is supported by Bracken (2003:75) and Caroline (1995:438).

According to Woolwich (2000:475), *direct* triage is the face-to-face assessment of patients arriving in the emergency unit. This is in contrast with “*indirect* triage” where patients are triaged per telephone. Clochesy, Breu, Cardin, Whittaker and Rudy (1996:1338) state that triage is “the sorting of patients to determine which individuals need specialised care for either actual or potential injury.” This definition is also adopted by Nicol and Steyn (2004:442).

In this research, *triage* is prioritising by an assigned nurse of patients who had been subjected to any form of trauma or has any form of illness, who arrive at the emergency unit of a selected level II private hospital in the Cape Metropole.

1.6.2 Definitive care facility

In this research the different definitive care facilities are defined as modified by the Trauma Society of South Africa, based on recommendations of the American College of Surgeons Trauma Society Verification Committee (Heyns 2002:11) as follows:

- A level I facility (Major Trauma Referral Centre) refers to “a regional resource trauma centre, that is a tertiary care facility central to the trauma care system. The facility has a 24 hour availability of all major specialities and includes the capability

of providing leadership and total care for every aspect of injury, from prevention through to rehabilitation."

- A level II facility (Urban Trauma Centre) refers to as "a hospital that provides the initial trauma care regardless of the severity of the injury. Doctors are in the hospital on a 24 hour basis and the basic care in the common specialties is available on a 24 hour basis." In addition, a trauma team co-coordinator (medical doctor) is in-house and available at all times, and on-call surgeons and physicians are no more than 20 to 30 minutes away from the emergency unit (Champion, Mabee & Shair 1994:29).
- A level III facility (Community Hospital) refers to "a hospital that serves the communities that do not have immediate access to level I and level II facilities. These hospitals can provide prompt assessment, resuscitation, basic emergency operations and stabilisation and then arrange for possible transfer to a facility that provides definitive trauma care. Prompt availability of general surgeons or general practitioners with surgical expertise is required in these facilities."

This research was conducted in the emergency unit of a *level II* private hospital in the Cape Metropole. The definition used in this research for this facility is consistent with the one provided by Heyns (2003:11) and Champion et al (1994:29) as this facility is situated within an urban area in the Cape Metropole, admits all emergencies, irrespective of severity and urgency, provides a 24 hour service and has specialists in most fields available on a 24 hour basis. Staffing of this emergency unit includes a general practitioner in the department 24 hours a day (two doctors during peak hours) as well 2 to 3 registered nurses (see emergency unit nurse) and/or 1 to 2 enrolled nurses – on average, 4 nurses on day duty and 3 nurses on night duty. The unit manager (researcher) and senior registered nurse are generally on duty from 06:45 until 16:00.

1.6.3 Private hospital

A private hospital is defined by the Department of Health (South Africa 2003: section 1) as "a (hospital) health establishment that is not owned nor controlled by the state."

In this research, a private hospital is consistent with the definition provided by the Department of Health and is a level II hospital that provides an accident and emergency

service on a 24 hour basis, owned by shareholders of a private company and is situated in the Cape Metropole.

1.6.4 Quality care

Quality, as an adjective is defined as “having a high degree of excellence” (*Free Online Dictionary* 2005:654). Quality of care is also “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge” (Lohr 1990:21).

In this research, quality care refers to the service of excellence by triaging, provided to patients by nurses and other health care personnel, admitted to an emergency unit of a level II private hospital in the Cape Metropole.

1.6.5 Accident and emergency

According to the *Concise Oxford Dictionary* (1995:8) an accident is “… an event that is without apparent cause, or is an unexpected, unfortunate and unintentional event causing physical harm or damage.” An emergency situation on the other hand is “… a sudden state of danger requiring immediate action or a medical condition requiring immediate action” (*Concise Oxford Dictionary* 1995:441).

For the purpose of this research, emergency means any physical, psychological or medical condition admitted in the emergency unit of a level II private hospital in the Cape Metropole. Throughout the literature study, emergency units are also referred to as accident and emergency units or casualties but the term used for the purposes of this study will remain “emergency unit.”

For the purpose of this research, the emergency unit refers to a well equipped level II accident and emergency facility of a private hospital in the Cape Metropole provided with the following facilities:

- Two-bed resuscitation room with overhead gantry x-rays

- One-bed isolation room
- Two-bed overnight room
- General emergency room area with eight beds/patient cubicles
- A triage room (used for wound care at the onset of the research)
- Two doctors' consultation rooms
- Reception area with waiting room with 34 chairs

For the purpose of this research, the emergency nurse (also referred to as emergency nurse in the literature) is, according to the South African Nursing Council (SANC 1993:24), "a nurse, registered with the SANC, caring for patients involved in accidents and emergencies within the emergency care environment and who is lecturing, studying or has completed one or more of the following additional qualifications registered at the South African Nursing Council."

- Medical and surgical nursing science: Critical care nursing (general surgery and trauma)
- Medical and surgical nursing science: Critical care nurse (trauma)
- Medical and surgical nursing science: Trauma and emergency nursing
- Medical and surgical nursing science: Trauma nursing (Regulation R212 as amended, 1993, Paragraph 1)
- Certificate: Traumatology (category added by Heyns 2002:10).

1.6.6 Nurse

Where nurses are referred to in the research, all categories of nurses are included, namely the registered nurse, enrolled nurse and enrolled auxiliary nurse as registered /enrolled under section 16 of the Nursing Act of 1978 (South Africa 1978:917).

1.7 RESEARCH DESIGN AND METHOD

The research design and method constitute the overall plan for collecting and analysing data (De Vos 1998:123; Polit & Hungler 1997:467). In addition, Polit, Beck and Hungler

(2001:167) define research design as “a blueprint for conducting a study and are necessary as it maximises control over factors that interfere with the validity of the findings.” Burns and Grove (2001:223) state that the design guides the planning and implementing of the study in a way that it will most likely achieve the intended goal. In order to achieve the goal a strategy or plan is required to conduct the study.

Burns and Grove (2001:26) define research methodology as “the application of all steps, strategies and procedures for gathering and analysing data in a research investigation in a logical and systematic way.”

An exploratory quantitative descriptive design was used in this research. These concepts will be described in more detail in chapter 3.

Data collection, population, pretest, context, data analysis, validity and reliability, scope and limitations, and ethical considerations will be briefly addressed.

1.7.1 Data collection

According to Polit et al (2001:36), data collection is the method used to gather pieces of information required to conduct the research. Research objectives in a quantitative study must be accomplished by the data collected (Burns & Grove 2001:50). In this study, the researcher collected the data through the use of a questionnaire to gather the desired responses from participants according to the inclusion criteria. The information was accessed from the emergency unit of a level II private hospital. Permission was obtained from the nurse manager of the level II private hospital (see Annexure A) and from the Research and Ethics Committee of the Department of Health Studies at the University of South Africa.

1.7.2 Population

Polit and Hungler (1999:278) describe a population as the representation of the entire set of individuals that meet the criteria, also known as the “target population.” In addition, Polit

et al (2001:233) add that the population is the “entire aggregation of cases that meet a specified set of criteria.”

In this study, the population consists of all male and female staff members involved in receiving patients in the emergency unit of a level II private hospital. These staff members include the nurses and doctors operational in the emergency unit.

1.7.3 Sample

According to Polit et al (2001:234), a sample is the “subset of the target population selected through a sampling process to study.” In this study, 18 participants were selected according to the following inclusion criteria:

- Participants had to work in the emergency unit of a level II private hospital.
- Participants had to be either a nurse or medical doctor assigned to prioritise patients admitted to the emergency unit.

1.7.4 Context

According to Polit et al (2001:44), context refers to “the setting within the site where the data collection will occur.”

In this study, the data was collected in the emergency unit of a level II private hospital in the Cape Metropole after permission has been obtained from management (see Annexure A).

1.7.5 Data analysis

The Excel (Microsoft Office version 2003) computer program was used in the analysis of the data, with the assistance of a statistician. Frequencies and basic statistics were calculated and presented in table and graph format in chapter 4. Findings were discussed and significant findings compared with research results reported in the literature review.

1.7.6 Validity and reliability

Polit et al (2001:308) define validity as “the degree to which an instrument measures what it is supposed to measure,” and reliability as “the consistency with which an instrument measures and attribute.”

Burns and Grove (2001:399) also add that for an instrument to be reliable it must yield the same measure when used twice. During the development phase of the instrument, several steps were taken to ensure that only relevant information was collected. This was achieved by structuring the instrument so that only relevant data necessary to achieve the research objectives was gathered. The researcher consulted literature and obtained critique from experts in the field of triaging.

1.8 ETHICAL CONSIDERATIONS

To ensure high standards of research, ethical standards and measures are set to direct this research. Burns and Grove (2001:191) declare that in order to maintain a high standard of research, “the conduct of nursing research not only requires expertise and diligence but also honesty and integrity.” In addition, the authors add that ethical research is essential to generate sound knowledge for practice. Polit et al (2001:90) are of opinion that in order to ensure a high standard of research, ethical guidelines are set to direct researchers. The ethical considerations followed in this study are discussed in chapter 3.

The research proposal was sent for approval to the Research and Ethics Committee at the Department of Health Studies at the University of South Africa (Unisa) prior to commencement of the study. Permission was obtained from the nurse manager of the private hospital to conduct the study (see Annexure A).

Burns and Grove (2001:206) state that it is essential to obtain informed consent from participants for conducting research. Informed consent consists of four elements, namely disclosure of essential information, comprehension, competence and voluntarism. All four elements were included in this research. Implied informed consent was obtained from

participants through attachment of a research information brochure and letter (annexure B) to each questionnaire. Completion of the questionnaire therefore implied consent. These aspects will be discussed in more detail in chapter 3.

1.9 SCOPE OF THS STUDY

Scope refers to the degree to which the findings of a study can be generalised to other settings (Van Eeden & Terre Blanche 2000:135). The nature of research implies that it is meant to have practical consequences for all participants (Uzzel 1995:311). This study therefore primarily attempts to provide an in-depth description of the particular emergency unit and little attempt will be made to generalise its results to other situations.

Should the intervention, however, enhance quality improvement, the researcher will present the intervention to the private hospital group's emergency medicine co-ordinators for consideration for possible implementation in other emergency units. The implementation process could eventually be generalised to other emergency departments that encounter similar challenges. This action is consistent with the statements of Uzzel (1995:311) as well as Van Eeden and Terre Blanche (2000:135).

1.10 LIMITATIONS OF THE STUDY

"The validity of empirical research is still judged in terms of replicability and generalisability" (McNiff & Whitehead 2002:31). The lack of a triage process is not claimed to be a problem that is general, nor is the implementation of the triage process meant to be reproducible. The study is thus limited in that is not generalisable to other emergency unit situations not included in this study, but is applicable only to the level II private hospital in which it was conducted. However, the principles and findings could be used to serve as guidelines for future researchers who wish to implement similar systems at other sites.

1.11 ORGANISATION OF THE RESEARCH REPORT

The research report consists of the following chapters:

- Chapter 1 presents the introduction to the research.
- Chapter 2 covers the literature review.
- Chapter 3 describes the research design and methodology in more depth, including the validity and reliability of the research instrument, the ethical considerations and limitations of the study.
- Chapter 4 contains the data analysis, research findings and interpretation of the findings, supported by literature and research.
- Chapter 5 reflects on the conclusions of the research and provides recommendations and guidelines for establishing a triage system in practice.

1.12 SUMMARY

In this chapter, a brief introduction was given to the sorting of patients in emergency units by means of triage. It was pointed out that triage is an essential action in any emergency unit to provide a quality service to all patients reporting with trauma or any other emergency, such as medical, psychiatric, psychological or forensic conditions. To ensure that quality care is provided, a skilled health care professional, with the necessary training and experience, should perform the triage, substantiated in the background to the research. This chapter also provided an overview of the research problem, and the research objectives. The next chapter focuses on the literature study and theoretical concepts pertaining to triage.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

In order to provide a comprehensive view on triage in emergency units, a review of literature was undertaken. This provided an overall picture of what was perceived and stated in the past, what is currently known about the topic and how the principles of the past have been implemented in the current situation to facilitate the implementation of a triage system in the RSA. A literature review also indicates what is known about the topic and reveal the existing knowledge gaps for implementation of such a system. This rationale is consistent with the view of Burns and Grove (2001:43).

References made to literature sources preceding 1990 are made to contextualise the historical development of triage globally and within South Africa. They are merely provided for the historical perspective on triage and were not used to design items in the questionnaire.

Due to the limited application and knowledge base of applying triage in the RSA, a short historic background is given for the benefit of the readers who might be unfamiliar with this approach.

2.2 A GLOBAL PERSPECTIVE ON TRIAGE

Triage as a concept within the emergency nursing context in the RSA appears to be a non-entity in the literature. The literature search produced no articles related to triage in the RSA nursing situation. To date no actual South African emergency nursing textbook could be found which addresses this topic in more detail except for a few sentences acknowledging its existence. It is therefore deemed necessary to provide a more comprehensive background indicating where triage comes from, what it entails and how it is applied in practice.

2.2.1 The history of triage

Prior to the concept of medical triage being borne, triage was used as a means of grading the quality of commodities such as coffee beans and wool (Woolwich 2000:476).

The founder of the medical triage concept was Baron Dominique Jean Larrey (1766 – 1842) (Howell 1988:9). In addition, Nestor (2003:3-4) describes how, during the French Revolution and Napoleonic wars of the 18th and 19th centuries, the plight of soldiers were generally ignored. However Baron Larrey, a dynamic and well-respected French military surgeon revolutionised the care of soldiers on the battlefields, showing care and compassion in a period where surgeons were generally perceived as butchers. Not only was he recognised as being a brilliant surgeon, but he also contributed to more efficient care of the injured during war (Howell 1988:9).

At the young age of thirteen, this revolutionary left his home in the Pyrenean Mountains to commence his medical studies. He completed his studies in Toulouse and in Paris and subsequently commenced service in the French Navy. He is, according to Nestor (2003:3), perceived by many as the father of triaging principles.

During his service in the 1972 French Revolution, war rules stated that Larrey was to remain three miles behind the frontline to receive the injured. Soldiers who were not carried off the battlefield by their comrades, were left to find assistance themselves or simply died. Class differences also dictated that officers received assistance first and soldiers would be forced to wait for a few days or go without medical treatment if many officers suffered injuries.

At the time, if the injured soldiers were not helped off the battlefield by their fellow exhausted comrades, they were assisted by bulky and impractical wagons called “fourgons”. These wagons took up to three days to reach the injured, and many died prior to receiving any sort of medical assistance. Where the patients were assisted by the fourgons’ transport, they suffered further trauma due to the lack of any suspension on the wagon.

It was then that Larrey, according to Howell (1988:9) decided to break the rules and ride onto the battlefield, together with fellow surgeons and his medical orderlies ("infirmiers"), during battles, and operate on the wounded in the field or at a nearby secluded site. Realising that this too was not very practical, Larrey decided to evacuate the injured off the war zone in a light transport vehicle, which reduced response time and increased survival rates. This became the "Flying Ambulance" ("*les ambulances volantes*") a horse-drawn carriage, which was light, but tough, yet had padding and suspension which improved the journey's comfort to reach medical assistance. During the medical evacuations in the flying ambulances, Larrey and the "infirmiers" were often attacked during live combat, having to defend themselves with whatever weapons available – the Red Cross and Geneva Convention were not in effect yet.

At this time, Larrey, according to Howell (1988:9-10), realised that the order of treating the injured according to class – upper class treated first, followed by the lower classes and prisoners last – was not conducive to increased survival. He then introduced the first form of triage, namely treating the most seriously wounded first, in spite of nationality and rank.

Larrey also realised that operating on the injured within the first hour of trauma would increase the victim's chance of survival – possibly the birth of the "golden hour" concept (ATLS 1997:9). It was there that those with minor injuries were forced to wait and more seriously injured persons assisted first, whilst the fatally wounded were laid aside with alcohol to ease their last moments. According to Howell (1988:10) it was here that the concept of triage, *trier*, "to sort" was borne.

Woolwich (2000:476) described that nurse triage was conceptualised during the 1960s Vietnam War. There, trained ambulance personnel entered field hospitals and taught the art of triage. It was only in the 1980s that nurse triage was formally recognised in the UK.

2.2.2 The description of triage

Definitions of triage are varied. However the core of 'triage' is related to its French translation, namely, "to sort" (*trier*). A common definition noted throughout the literature is that of a process which "places the patient in the right place at the right time to receive the

right level of care" (Querishi & Veenema 2003:153). Thus, these patients or problems were already described in 1988 by Ross, Morgan and Schwab (1988:375) who stated that patients had to be sorted according to their seriousness. The same principles have been adopted by Caroline (1995:438) who states that triage is the degree of urgency for care required and "the type of care required in the multiple victim situation."

A second aspect of triage is described by Ross et al (1988:375) whereby triage methods are used to determine to which trauma centre a specific patient should be transferred. These guidelines - described by different organisations such as the Committee on Trauma of the American College of Surgeons in the ATLS® manual (1997:329) - are given to medical personnel to enhance their decision-making in transferring severely injured persons to major trauma centers. This application is probably more organised in the USA where trauma care systems are more formalised than in most other countries. The ATLS® course is widely taught in South Africa (ATLS®) and these guidelines are followed in a less organised manner – of interhospital transfers per road, fixed wing and rotor wing aircraft.

In figure 2.1, Klein (1996:1337) illustrates the Advanced Trauma Life Support (ATLS®) manual's model whereby all care providers are integrated into the system (Klein 1996:1336). The author describes how each patient's medical needs should be coordinated to use a healthcare facility's resources. For example, should a severely injured trauma patient (comprising 30%) of all trauma patients as per pie graph inserted in the figure) be triaged as the highest priority patient (described as "emergent", or "red" or "priority I" – discussed further on), he or she should, if appropriate be taken to a major trauma centre for the most severely injured. Alternatively, he or she may be transferred from the acute care facility to the major trauma centre if unable to cope with the patient's injuries – where specialist services are available.

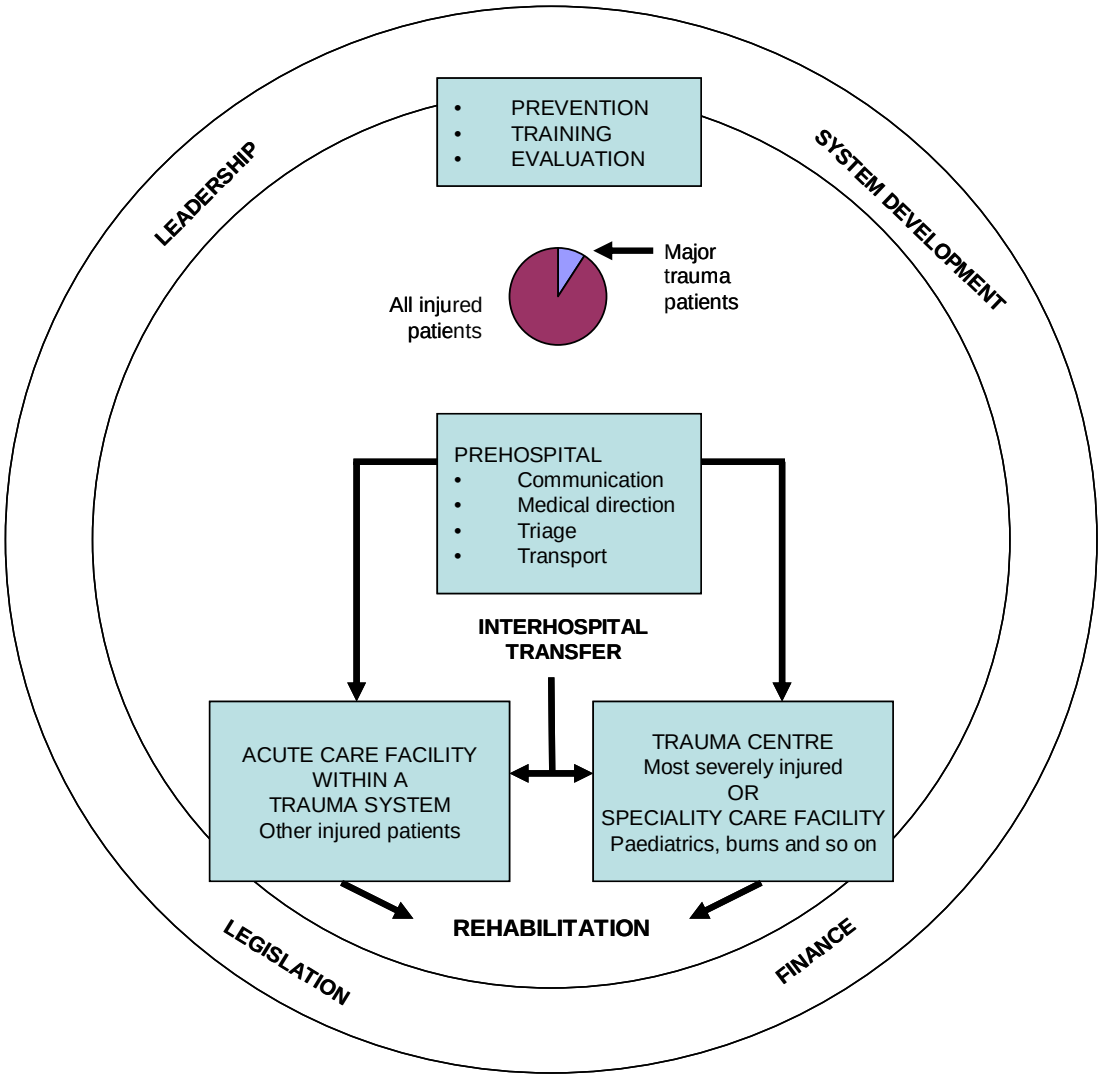


Figure 2.1: An inclusive trauma system

(Source: Klein 1996:1337)

The "inclusive trauma system" illustrated in figure 2.1 should work within a framework of integrated trauma care, based on leadership, legislation, finance and continual system development – as management strategies. Core components on which all aspects of the emergency unit system should focus include prevention of trauma, training and evaluation of staff and systems. The first line aspect of further trauma care, prehospital trauma care comprises communications, medical direction, triage and transport, both from the primary scene as well as interfacility transportation. Two trauma care institutions are illustrated, namely the acute care facility that can manage trauma in general, with the specialised

centres that provide specialist services, such as paediatric hospitals, burns centers and major trauma centres. The final aspect of comprehensive trauma care is that of rehabilitation of the patient (Klein 1996:1336).

2.2.3 The scope of triage

Triage is used in a variety of incidents. These include, during disasters, on the battlefield, in hospitals by nurses, in multiple casualty incidents and in communication media such as the telephone.

- **Triage during disasters**

Caroline (1995:438) states that triage should be done in several rounds at an accident scene. The initial triage round should be where patients are situated on the scene and the triage officer should then move from one person to the next, deciding which victims requires immediately assistance. During this triage phase, priorities for treatment are based on the "airway, breathing, circulation" (ABC) model. Thus patients are treated according to problems with the airway, breathing and/or circulation in that order. Patients who are however "hopelessly injured" (Caroline 1995:438), such as in decapitation injuries, should be bypassed. These patients are regarded as those where continued treatment is deemed "futile", a word, according to Hall, Schmidt and Wood (1999:931) which defies clear definition in modern intensive care and emergency science. Other patients who can be bypassed initially are those with non-life threatening injuries (Qureshi & Veenema 2003:154).

The second round of triage should be done at the triage area (Caroline 1995:438), namely an area designated for treatment. Once life-threatening injuries are managed, secondary injuries may be managed. Subsequent triage rounds should occur where the less seriously injured are initially assessed on scene, whilst the critically injured should be receiving a detailed secondary survey en route to hospital.

- **Tactical-military/battlefield triage**

Qureshi and Veenema (2003:155) describe the tactical-military battlefield triage as being similar to disaster triage, with the greater emphasis being triage and transport strategies. Thelan, Urden, Lough and Stacy (1998:1052) mention that the care of soldiers and victims during wartime enhanced the principles of triage and rapid transport of the injured to appropriate facilities. The military experience has thus demonstrated throughout history that more lives can be saved by decreasing the time from injury to definitive care.

- **Nurse triage**

The UK has recognised the importance of immediate assessment of patients on their arrival in the emergency unit and so have included the (registered) nurse triage concept into their national *Patient's Charter* (Department of Health 1991). The UK thus distinguishes between two types of nurse triage namely:

- Direct triage occurs when each patient entering the emergency unit department is assessed face-to-face.
- Indirect triage is done by the nurse via a telephone (see "Telephone triage")
- Direct triage can be further categorised into three types of triage, namely non-professional triage, basic triage and advance triage:
- Non-professional triage: On the patient's arrival, he or she registers with the receptionist and has a seat to wait for the doctor. Only if the receptionist has a specific concern about the patient's condition, will she call a nurse to assist or evaluate.
- Basic triage: The patient is briefly assessed by the nurse on his or her arrival, the nurse assigns a priority rating and the patient is then allocated to the treatment area. This often occurs only when there is a nurse available to do so.
- Advanced triage: Here the most comprehensive care is rendered by the trained and highly experienced nurse where the patient is assessed and then suitable investigations are initiated such as X-rays, phlebotomy and a limited physical

examination. The patient may then be referred to an external service provider (Woolwich 2000:477).

In addition, (Woolwich 2000:478) also describes a much used triage system in the UK, which lies between basic and advanced triage, namely intermediate triage. Here the nurse not only assesses and prioritises the patient on his or her arrival, but she also initiates some nursing interventions such vital signs, ECG, urinalysis and pregnancy testing. Some emergency departments also have written protocols where patients may receive early analgesia or, have initial X-rays for certain injuries. This type of triage requires stringent written standards and policies as well as thorough training by nurses, supported by regular in-service education sessions.

Walsh (1990:43) mentions the extended role of triage where, if triage were more formalised, the nurse could have more scope in sending a patient with a minor injury for X-rays without seeing the emergency unit doctor, thereby speeding up the time spent in the emergency unit.

The concept of direct triage, as described in the preceding paragraph, is the type of triage that is researched and discussed in this dissertation.

- **Multiple casualty incidents**

Multiple casualty incidents occur in the emergency unit when the department is stressed by a large number of patients but still remains functional. On call staff may be called in, but the disaster plan is not activated. Delays may occur in seeing patients but patients do eventually get attended to (Qureshi & Veenema 2003:155).

- **Telephone triage**

“Telephonic triage is a systematic process that screens a caller’s symptoms for urgency and advises the caller when to seek medical attention based on the severity of the problem described” (Briggs 2002:1). This process has evolved recently where healthcare consumers have become increasingly aware of the financial implications of healthcare and

so have been forced to carefully evaluate whether care is needed at a particular moment (Swansberg & Swansberg 2002:234). When a doctor is unavailable, it has become the nurse who is more accessible due to his or her 24 hours per day availability. Thelan et al (1998:1052) are of the opinion that nursing management of the patient which requires emergency treatment and attention begins the moment a call for help is received and continues until the patient is seen as a continuum that includes six phases, namely pre-hospital care, hospital resuscitation, definitive care and operative phase, critical care, intermediate care and rehabilitation.

2.3 THE PURPOSE OF TRIAGE

Historically, the purpose of triage was to return as many soldiers as possible to full capacity on the battlefield, as well as save as many lives as possible (Caroline 1995:438). Where mass casualties occur (section 2.4), "the purpose of triage is to accomplish the greatest good for the greatest number" (Caroline 1995:439). This is also the view of Nicol and Steyn (2004:224-225) who are of the opinion that during a crisis there is little opportunity for "lateral thought or prolonged considerations of alternatives."

Woolwich (2000:476) differentiates between military triage and nurse triage functions. Whereas military triage identifies "salvageable cases for evacuation", nurse triage prioritises emergency patients into a system of care as part of an integral process. Nurse triage is not done primarily to reduce waiting times for patients (Woolwich 2000:476). On the contrary, it has been found in several studies that although the seriously ill have had shorter waiting times, overall waiting times have increased.

Woolwich (2000:476) describes the main purpose of triage therefore, "to make the best possible use of the available medical and nursing personnel and facilities" and to determine "which patients need immediate care … and which patients can wait". This view is also expressed by Hall et al (1999:8) who add that the system of triaging contributes to the success of randomisation. Patients are thus not only seen by the right people at the right time, but also within the appropriate clinical area.

Whereas many different triage systems occur, Jones (1993:13) as well as Woolwich (2000:476) state that the main purposes of triage include patient assessment, priority rating, first aid, and control of infection. First aid can be provided on arrival instantly and infection controlled as soon as an initial assessment has been made – thus reducing exposure risk to other patients. Hall et al (1999:8) add that scoring systems, applied during triage, cannot measure quality of life, functional status or patient satisfaction nor do they predict long-term outcomes beyond hospital survival. Although these aspects are important, the physical well-being of the patient is the primary factor, which needs to be considered in triage.

Jones (1993:14) describes two advantages of formal triage systems,

- *Practical advantage*: consistent management of patients occurs with decreased disparity in the quality of prioritisation decisions.
- *Moral advantage*: decisions based on an official triage system are fairer, and so less subjectivity occurs in decision-making. Accountability is assured in that some measurement can be instituted to measure good or bad management.

Through constant triage and assessment of the waiting patients, the waiting area becomes a known entity and patient flow can be controlled and organised (Woolwich 2000:476).

Once the patient and family have noted that their relative has received initial attention, they will have an easily identifiable source of information for enquiries. This ultimately will reduce anxiety and lessen aggression associated with longer waiting times. This will then assist in increasing patient satisfaction with the service provided (Nielson 2004:336; Woolwich 2000:476).

In terms of quality of care, nurse triage thus appears to have advantages for the client and health care provider.

2.4 FACTORS INFLUENCING TRIAGE DECISIONS

The first two principles of triage, and thus factors influencing triage decisions at the core, are the following (Caroline 1995:438):

- Salvage of life takes precedence over salvage of a limb.
- The principle of immediate threats to life is asphyxia and haemorrhage.

The ATLS® principles on triage describe two categories which are based on the magnitude of the casualty situation. These categories essentially differ in their principles of triage and thus their description is warranted (American College of Surgeons Committee on Trauma 1997:25):

- *Multiple casualties*: The number of patients and the seriousness of their injuries do not exceed the capacity of the facility to provide the appropriate care. Triage is thus aimed towards treating those with the most life-threatening injuries first.
- *Mass casualties*: The number of patients and the seriousness of their injuries *exceed* the capacity of the facility to provide the appropriate care. In this grave situation, the patients with the greatest probability of survival are treated first.

Ross et al (1988:375) maintain that the third factor that influences the triage decision is that of the magnitude of the situation, and thus the ability to manage the situation together with the chances of victims' survival. This view is still supported by various authors such as Thelan et al (1998:1052), Hall et al (1999:8).

2.5 THE RIGHTS OF THE INJURED AND THE ROLE OF TRIAGE

In a draft document by the WHO's Injuries and Violence Prevention Department and International Association for the Surgery of Trauma and Surgical Intensive Care (WHO 2003:16), three broad sets of rights of the injured patient have been identified. With careful consideration, these could be applied to any patient with a medical emergency. These rights are quoted below:

- Life threatening injuries are appropriately treated, according to appropriate priorities and in a timely fashion, to maximise the likelihood of survival.
- Potentially disabling injuries are treated appropriately so as to minimise functional impairment and to maximise return to independent and participating community life.
- Pain and psychological suffering are minimised (WHO 2003:16).

In terms of the Patients' Rights Charter of the Republic of South Africa (RSA) every citizen in the Republic has the right to receive "timely emergency care at any health care facility … regardless of one's ability to pay" (The Patients' Rights Charter, 2006). This statement implies that a system of triage must be in place at every medical emergency facility so as to sort patients and determine patient treatment priority.

2.6 REQUIREMENTS FOR EMERGENCY UNIT TRIAGE

The Cape Triage Group (2005) recommends certain elements for triage within the emergency unit namely a location, equipment and additional optional equipment:

- *Location:* An area should be isolated and private at all times, ensuring safety for patient and staff as well as being accessible at all times. Ideally a flow should be possible from the reception area through the triage room to the general area where patients are seen.
- *Equipment*: Universal precautions such as gloves, facemasks and protective clothing are imperative. A wall clock should be available for good time keeping as well as basic equipment to measure the patients' vital signs such as a thermometer (mercury or digital) and baumanometer (manual or electronic). Basic dry dressings should be available to initiate some basic first aid when required.
- *Additional (optional) equipment* that may be useful includes a pulse oximeter, an ECG machine, haemogluco- and haemoglobin finger-prick tests, urinalysis strips and urine pregnancy tests.

Staffing for triage is discussed in the literature and different opinions occur:

- The situation where triage is to be done will determine who should be responsible for the role of triage. Caroline (1995:438) states that the most senior person, with the highest degree of training and most experience should be responsible for such a function.
- The Cape Triage Group (De Vries et al 2005:40) on the other hand, believe that the most junior level of nurse should be able to triage patients in the emergency unit, therefore releasing the registered nurse to provide more comprehensive care. If the Cape Triage Score is considered, this may be the case where limited triage aids may be initiated, such as urinalysis, ECGs and pregnancy tests.
- When the intermediate and advanced triage (Woolwich 2000:477) is considered, however, a registered nurse may be required to initiate further advanced investigations such X-rays and phlebotomy. This is, however a UK-based emergency nurse scope of practice not a South African practice as yet. In defense, Heyns (2002:4) states that in the South African context, the comprehensive role of the nurse as well as the scope of practice is still a controversial one and that there is no decisive answer as to what the registered nurse's core competencies are during life-threatening situations. This may, according to Heyns (2002:4), in cases where immediate actions need to be taken for life-saving interventions lead to powerlessness experienced by nurses and "questions often arise concerning the ethical and medico-legal aspects".
- Some traits that the triage nurse should have are suggested by Querishi and Veenema (2003:154) namely, being clinically experienced, having good judgment and leadership, being calm under stressful situations, decisiveness, knowledgeable about available resources, having a sense of humour, being a creative problem-solver, being available and having experience and being knowledge of anticipated emergency unit patients. When these traits are analysed, it is obvious that a senior nurse with experience and specialised training in emergency nursing, is more suitable to triage than a junior nurse with less experience.

Woolwich (2000:478) states that investing in a triage system is a costly exercise and up to 15% of the nursing budget may be required to staff a medium sized emergency unit's triage system. The system must be a 24 hour service and the nurse should be free to do only

triage with no other obligations. The triage nurse's role should be a clear one, ensuring rapid assessment, identification of the primary complaint, prioritising and documentation. The nurse should, however have some flexibility in the triage decision process, not staring blindly into taking vital signs when inappropriate at times, in life threatening situations such as in cases of profuse bleeding and cardiac arrest. In such cases immediate 'first aid' should be implemented and the patient referred to a primary care giver so that the triage nurse can resume her clinical duties.

2.7 TRIAGE AND THE ROLE OF THE EMERGENCY UNIT NURSE

A typical emergency unit is a busy one and so to avoid confusion, care should be logically organised from the patient's entry until discharge. Walsh (1990:34) suggests that each patient has a primary nurse who will care for him or her from admission until discharge. This is in contrast with task-based nursing, which Walsh suggests should have no place in the emergency unit. Primary care nursings' advantages are numerous, namely enhanced communication between administrative staff, nurse, patient and doctor, holistic care ensuring all care is rendered, increased patient security, knowing who he/she is dealing with and finally improved monitoring of the patient's condition. The emergency nurse can thus be seen as the most important person in the emergency unit in co-coordinating all the interventions that are to take place once the patient enters the emergency unit.

Walsh (1990:43) continues to describe triage as comprising extended roles of the triage nurse, where a suitably trained and experienced nurse should initially assess all patients on their arrival at the emergency unit, prioritise them and then refer them on to a primary nurse. This is probably the only task-based nursing approach in the emergency unit.

The triage nurse should be at the frontline of the unit, together with the reception/administrative staff to alleviate non-medical staff's decision-making of who should be seen first and who is stable enough to have his or her hospital file opened instead of being attended to immediately by medical staff (Alarcon et al 1998:432).

Nuttal (1986:66) already stated in 1986 that the triage nurse assists in managing the unknown factor of patients' illnesses and injuries in the waiting room, especially during

busy periods, reducing administrative, nurses' and patients' frustration and tension. Selvig (1985:30B) stated that whilst the nurse at least knows what is happening in the waiting room, the patients also feel reassured that at least, someone with knowledge is monitoring their condition. This view is strongly supported in the literature by Almes, Davis, Elder and Littlepage (2004:263), Mallet and Woolwich (1990:1445) and Thelan et al (1998:1052). This also leads to increased patient satisfaction emphasising the caring role of the nurse as reported by Heyns (2002:77).

Managing patient flow is also important in a busy emergency unit and this can be managed by the triage nurse (Parish 2000:6). This holds definite advantages for all staff in the emergency unit, namely the administrative staff, doctors, other nurses and ancillary staff such as porters. The patient may receive all the treatment and/or investigations required from the triage nurse, or he or she may be sent further on to a primary nurse who will facilitate further treatment and monitoring. With the correct decision made, all staff will know where the patient is at that particular moment. The triage nurse's role of controlling flow should assist the doctor, so that he or she will know, at any given time, which patient requires assistance in which order and initial side room tests may be initiated (such as urinalysis, vital sign monitoring and electrocardiogram) (Gottschalk 2004:326). Patient flow management also assists in preventing overcrowding in the waiting room because more ill/injured patients will be assisted to the general area of the emergency unit (Fraser-Moodie et al 1993:220; Edwards 1999:20). Workloads will be more evenly distributed between nurses if the triage nurse allocates patients equally (Dolan 1998:1; Edwards 1999:20).

Through triage, infection control in the emergency unit can be managed more efficiently (Edwards 1999:20). Should a patient be assessed by the triage nurse as potentially having an infectious disease, he or she can be isolated immediately. In the same way, a patient entering the unit with an actively bleeding wound can be assisted to the appropriate area so that the blood spillage can be contained immediately.

Safety of the patient can also be assured through quick triage (Edwards 1999:20). The triage nurse would be able to determine, for example that the patient is in need of a safe environment, should he/she be a threat to himself/herself. Privacy can also be provided

should the patient be noted as being in severe distress, emphasising the professional-ethical responsibility of the registered nurse which he or she must fulfill with competence, integrity and compassion (Searle & Pera 1997:273).

Potential admissions to the hospital may also be gauged through triage and further resource consumption may be predicted (Alarcon, Fernandez & Wuerz 1998:432). Therefore, some of the core responsibilities that are fulfilled by the triage nurse as stated in the older literature such as by Estrada (1981:16) include:

- Initial assessment: history taking
- Focused physical examination and taking of vital signs
- Initial diagnostic studies such as x-rays
- Documentation
- Crisis intervention
- Public relations
- Triage rounds (quick evaluations and re-evaluations)

In more recent literature, different authors express different views of the tasks that the triage nurse should and could perform. Bucknall and Gerdtz (2000:28) list some specific secondary triage roles performed by nurses including:

- Urinalysis
- Blood glucose measurement
- Administration of paracetamol to a febrile child
- Performing a plaster of Paris check
- Administering oxygen therapy
- Initiating oral rehydration in a child
- Administering nebulised medication
- Initiating an ECG
- Collecting venous blood for laboratory studies
- Initiating intravenous cannulation

The scope of practice of the nurse, must, however be taken into account. The tasks listed by Estrada (1981:16), are still crucial to triage and applicable to the South African context – except the ordering of X-rays. Some of the tasks listed by Bucknall and Gerdtz (2000:28) are questionable within the South African nurse's scope of practice (Heyns 2003:76), but most of them can be noted in the interventions to be carried out at triage as recommended in the South African Triage Score (Cape Triage Group 2005:19) (see Annexure F) which are compulsory and optional – discussed in section 2.9.3.

2.8 TRIAGE AND NURSING MANAGEMENT

The role of the emergency unit nurse manager is a vast and challenging one. The unpredictability of an emergency unit adds to the challenges. The emergency unit nurse manager needs to ensure that work processes and systems are optimal as well as being user friendly to both clients and staff members.

The advantages of implementing triage in the emergency unit are numerous as noted in the discussion and hold benefits for the patient, administrative staff, doctors, nurses and support staff alike. This then represents one of the roles of the emergency unit manager of satisfying internal and external clients and to provide a comprehensive quality service (Chokani-Namame 2003:5-6; Swansberg & Swansberg 2002:239).

Almes et al (2004:267) state that emergency department managers must constantly integrate any measures that can improve on the unit's strengths and correct its weaknesses. Controlling patient flow at admission is one process that needed improvement in the unit investigated.

More than 20 years ago, Joy (1988:20) described several nursing management aspects related to triage, faced by an emergency unit manager. Amongst them are leadership responsibilities, nursing governance, nursing satisfaction and retention, and patient satisfaction. Today, these challenges still exist according to Mellish and Wannenburg (1997:186-195) who describe the roles of the nurse manager, namely facilitation of patient care, ensuring patient safety and co-ordination. Although the literature does not relate

triage to improved nursing management as such, from the literature study, the benefits of triage will assist in enhancing these aspects.

Nursing governance is a shared function where the management model encourages autonomous operation at unit level. This encourages the unit manager to manage the unit with his or her level of competence and expertise so that the system used to deliver nursing care is related to positive patient outcomes. Triage nursing is definitely a speciality within emergency nursing and so shared governance is required to implement such an operation.

Maintaining staff satisfaction and retention of nurses is becoming more of an issue in the light of the world-wide nursing shortage. Factors increasing staff satisfaction include achievement and responsibility (Heyns 2003:254-255). Triage implementation has been proved to increase staff morale and feelings of autonomy (Fry 2001:22).

Increased patient satisfaction also increases with the implementation of triage in the emergency units (Almes et al 2004:266; Dolan 1998:1; Fry 2001:22; Mallet & Woolwich 1990:1445). Not only are waiting times reduced, but patients feel that someone communicated with them and “they are not in no-man’s land” (Dolan 1998:1).

Facilitation (defined as making easy, promoting and helping by Mellish and Wannenburg 1997:186) of improved patient care, is one the nurse manager’s roles, including streamlining of processes and workflow through the implementation of triage. These authors recommend that the unit manager should have several qualities, namely up-to-date knowledge, needs assessment skills, organisational abilities, calmness and leadership abilities. Co-ordination as a management function is also included under this topic.

Patient safety and infection control, as triage processes, are also linked to unit management. Managing budgetary constraints, whilst maintaining quality service, are challenges faced by the unit manager. Boyes (1995:6) describes how health care assistants should be applied appropriately to allow the (more qualified) nurse to do what is required. Although the literature generally recommends that a senior nurse be utilised for triage, the newly implemented Cape Triage Score (section 2.9.3) suggests that the enrolled

nurse assistant can be trained to triage the patient – and this would allow the registered nurse to continue with more important nursing tasks (Cape Triage Group 2005:4).

A final aspect that the unit manager should consider is that of risk management (Swansberg & Swansberg 2002:585). With regard to risk management, Goldstone, George and Quattrone (1996:241) discuss how the triage nurse is at increased risk medicolegally due to patients having to wait while the nurse is only able to see one patient at a time. Some suggestions for improvement by the authors (Goldstone et al 1996:241) are that:

- Additional emergency staff should assist (including the doctor) when busy or required.
- The patient could be seen before registration by administrative staff.
- Modification of the triage process through less documentation and talking to patients in the waiting room between assessments to see if they are safely able to wait.

It is therefore crucial from the literature studied that while triage has many advantages for all, it needs to be managed appropriately by the unit manager to ensure that the risks do not outweigh the benefits.

2.9 TRIAGE CLASSIFACTION AND SYSTEMS

In the following section, the various triage systems are discussed. These include international and South African triage systems.

2.9.1 International triage systems

Several different triage classifications occur internationally, ranging from three tiers to five tier systems. The three main categories are known as “emergent, urgent and nonurgent” and where a four or five tier classification system is used, subcategories are added to the end of the spectrum (Qureshi & Veenema 2003:157). These authors compare the triage categories in the following table:

Table 2.1: Hospital triage categories for a 3, 4, or 5 tier system

Three-tier system	Emergent Class 1	Urgent Class 2	Non-urgent Class 3		
Four-tier system	Emergent Class 1A	Emergent Class 1	Urgent Class 2	Non-urgent Class 3	
Five-tier system	Emergent Class 1A	Emergent Class 1	Urgent Class 2	Non-urgent ED care Class 3	Non-urgent ambulatory care Class 4

Source: Qureshi and Veenema 2003:157

From table 2.1 three different tiered systems are compared. They are described as follows (Qureshi & Veenema 2003:157):

- In the three-tier system, *emergent* represents any condition that requires immediate treatment, such as airway obstruction, cardiac arrest, seizures and asthma. *Urgent* denotes any serious injury or illness, which must be attended to but can also afford to wait up to two hours without any significant mortality or morbidity. Examples include long bone fractures, bleeding controlled by direct pressure and pyrexia. *Non-urgent* describes any condition that can wait for more than two hours, without any possibility of deterioration. This includes minor lacerations, rashes and simple fractures.
- The *emergent* category is subclassified into two categories in the four-tier system, namely conditions which require treatment immediately (1A) versus rapid treatment (within a few minutes or 1B). 1A problems would include cardiac arrest, airway obstruction or haemorrhagic shock, whereas 1B problems would include asthma and a cardiac dysrythmia with stable blood pressure. *Urgent* and *non-urgent* problems are the same as the three-tier system.
- In the five-tier system, the *emergent* as well as the *non-urgent* categories are subcategorised. The *emergent* category is categorised as in the four-tier system and the *urgent* case as in the three-tier system. The *non-urgent ED* case is described as a condition that is not acute, but still requires the technology of the Emergency Department (ED) such as minor lacerations requiring suturing, or minor joint injury that requires x-rays for diagnoses. Cases that could be managed in the

ambulatory setting such as a clinic, are classified as *non-urgent ambulatory care*. Examples of such cases are where patients collect chronic medication refills.

Qureshi and Veenema (2003:157) state that emergency units, that are traditionally busy and experience overcrowding, usually use the five-tier system whilst those that seldom experience delays would use the three-tier system. It is recommended, however, that the units using the three-tier system would be able to change to a more complex system in cases of disasters where large numbers of patients would need to be assisted simultaneously (Qureshi & Veenema 2003:157).

Caroline (1995:441) describes a five-tier classification to priotise patients for evacuation in a multicasualty situation, which, when compared to table 3, shows a similar trend to triage category definitions. This table is quoted to demonstrate how similar the South African classifications are to those in the international community.

Table 2.2: Triage classification in priorities for evacuation

Priority classification	Definition	Examples
Priority I	Patients in persisting danger of asphyxiation or exsuanguination	Thoracic injuries (massive haemothorax, cardiac tamponade, tharocoabdominal injuries) Any injuries threatening the airway Shock
Priority II	Stabilised patients in danger of shock Patients with closed head injury and deteriorating level of consciousness	Blunt abdominal trauma Widespread burns
Priority III		Spinal cord injuries Eye injuries Hand injuries Major compound fractures or injuries to large areas of muscles
Priority IV	Patients with lesser fractures and soft tissue injuries	Wrist fractures Joint injuries
Priority V	“Walking wounded”	Minor lacerations and abrasions

Source: Caroline 1995:441

From table 2.2, it is evident that Caroline's (1995:441) categories are very similar to the five-tier classification with five levels of prioritisation. Differences are noted in the identification of the categories. The *Priority I* patient that would be equivalent to the *Emergent 1A* patient, *Priority II* equivalent to *Emergent 1*, *Priority III* equivalent to *Urgent*, *Priority IV* similar to *Non-urgent ED* care and *Priority V* similar to *Non-urgent ambulatory* care.

Actual examples of injuries are given in table 2.2 of types of injuries with the most serious injuries falling into the *Priority I* category where problems are noted with the airway, breathing and/or circulation. *Priority II* is a more stable patient but who are in danger of developing problems in the *Priority I* category. Serious head injuries also fall into this category. *Priority III* patients can also be described as serious when the examples are noted. They are, however, more stable than *Priority II* patients. Priority IV patients are again more stable than Priority III patients and can wait a longer period of time to be treated as with priority V patients who would be seen as the least seriously injured of all patients who could wait the longest to be treated in a multiple casualty situation.

Another example of an international triage scale is the National Triage Scale (Woolwich 2000:482) that is utilised in the UK (see table 2.3). This was developed recently by The Manchester Triage Group and is very similar to the Cape Triage Score (CTS), which is discussed further on in this chapter. The full triage system is not described due to its similarity to the CTS. However, a description of each category is given to show another system of naming the categories (which is similar to South Africa's current triage systems) as well as another set of criteria pertinent to each category, namely the designated time interval between arrival and first attention by a health care practitioner to begin treatment – by a doctor or nurse.

Table 2.3 The standard triage scale with colour codes and target times

Classification name	Description	Time interval
Immediate resuscitation **(red)**	Patients in need of immediate treatment for the preservation of life	To be seen on arrival (Ideally seen by a medical team awaiting the patient's arrival after prior notification by the ambulance service)
Very urgent **(orange)**	Serious ill or injured patients whose lives are not in immediate danger	All these patients should be seen within 10 minutes of arrival
Urgent **(yellow)**	Patients with serious problems but apparently in a stable condition	All these patients should be seen within 60 minutes of arrival
Standard **(green)**	Standard emergency unit cases without immediate danger or distress	The aim should be for these patients to be seen within 120 minutes
Non-urgent **(blue)**	Patients whose conditions are not true accidents or emergencies	If the patient is to wait, it should not be more than 240 minutes – patient can also be redirected to more appropriate facilities

Adopted from Woolwich (2000:482)

It is therefore obvious that the most serious patient, the *red* patient is in need of assistance on his immediate arrival at the emergency unit. The *orange* patient, who is also serious but not in immediate danger, should be seen within 10 minutes of his/her arrival. The *yellow* patient, who is stable should be seen within 60 minutes of his/her arrival at the emergency unit and the *green* patient can wait up to 120 minutes. The *blue* patient is classified as a patient which can be seen elsewhere, such as at an out-patient clinic (which is in line with the UK state health system), but if he/she is to wait, it should not be more than 4 hours.

2.9.2 Traditional South African triage classifications

De Vries et al (2005:38-41) refer to several Emergency Medical Services (EMS) triage classifications as instructed at EMS colleges. Common to these classifications are four general categories, classified in terms of colours and/or priority ratings. Typically, the northern areas of South Africa refer to priority ratings, namely priorities one (P1), two (P2), three (P3) and four (P4), whereas the southern areas of South Africa refer to colours, namely red, yellow, green and blue. Although named differently, the categories represent virtually the same patient condition. While referred to as being taught in the EMS colleges,

these triage systems are commonly known to emergency unit staff as well and are used specifically within multiple casualty situations or disasters in the emergency unit setting. A table outlining different definitions of triage categories, used with permission by the authors De Vries et al (2005:41) follows:

Table 2.4: Current EMS triage criteria as instructed at colleges throughout South Africa

College	Red (P1)	Yellow (P2)	Green (P3)	Blue (P4)
Cape Technikon, Cape Town	Primary survey compromised	Maintaining own primary survey. Injury/illness requires treatment within 60 minutes	Injury/illness that should not compromise the primary survey within 60 minutes	The obviously dead
DTI, Natal	Life-threatening emergencies	Non life-threatening emergencies requiring hospital treatment	Minor injury/illness Walking wounded	The obviously dead
Lebone Ambulance College, Pretoria	Treatable life-threatening injuries/illness	Serious non life-threatening injuries	Minor, easily managed injury/illness that may not require ambulance transportation	The obviously dead
Natal Ambulance College	Life-threatening emergencies	Seriously injured patients	Moderate injuries	The obviously dead
EMS College, Cape Town	Primary survey is compromised or an injury that will lead to permanent disability	Maintaining own primary survey. Injury/illness requires treatment within 60 minutes	Injury/illness that should not compromise the primary survey within 60 minutes	Mortal injury

(With permission: De Vries, Gottschalk, Wallis & Wood 2005:41)

Table 2.4 compares the four triage categories utilised in SA, namely *red (P1), yellow (P2), green (P3) and blue (P4*). The SA triage systems can be equated with the three-tier scale where the *red* patient is similar to the emergent patient, the *yellow* patient is similar to the urgent patient and the *green* patient is similar to the non-urgent patient. An additional fourth category, the *blue* patient, is the deceased person. The *red* patient is described generally throughout the provinces as the patient with life-threatening injuries or where his/her airway, breathing or circulation is compromised (as examined in the primary survey). However, *yellow* patient's definition of condition is not uniform throughout the provinces. The Cape Province and Witwatersrand (Johannesburg) training institutions

describe the *yellow* patient as maintaining his primary survey, his airway, breathing and circulation, and requiring treatment within 60 minutes. DTI Natal see the *yellow* patient as being having a non life-threatening injury which requires hospital management versus Lebone College which states that the *yellow* patient must have serious non life-threatening injuries. This is in contrast with Natal's college that says the *yellow* patient is seriously injured. Ambiguity also exists in the comparison of the provinces' definitions of *green* patients. The Cape Province and Witwatersrand training institutions describe the *green* patient as having injury or illness that should not compromise the primary survey within 60 minutes – a very vague definition. The Durban Technical Institute (DTI), Natal and Pretoria training institutions describe the *green* patient as having minor injuries or illness but who is an ambulant patient. Natal's college states the patient has "moderate injuries."

It is evident from table 2.4 that although colour/priority code definitions are similar, they are not uniform in or clear. It was for this reason that the Cape Triage Score, discussed further on, was developed.

2.9.3 Cape Triage Score (CTS)

Following the research done by De Vries et al (2005:38-41) in 2004 and 2005, the Cape Triage Group designed the Cape Triage Score, a triage assessment tool (algorithm) that could be used within the prehospital and the emergency unit hospital. The tool was designed for, and used successfully by the least-qualified category of nurses, namely enrolled nurse auxiliaries, and has proven successful within a secondary (provincial) hospital where mortality rates and waiting times improved subsequent to its implementation.

It was decided to remain with the colour classifications, as colours were more easily identifiable and practical, such as with hospital folder identification and labeling. The classifications remained with the current colour codes used within South Africa, only an additional colour was included namely an orange colour which was to assist in distinguishing between the "stable red" and "unstable yellow." The colour codes are:

- Red : resuscitation / physiologically unstable patients
- Orange : serious cases with potentially unstable physiology or potentially life-/limb threatening pathology

- Yellow : physiologically stable cases with reasonably serious medical or trauma problems
- Green : minor injuries/illness
- Blue : those who are clearly dead (De Vries et al 2005:39)

The above are descriptions only of the final triage colour-coding. Two tables were designed to assist in using the CTS algorithm, namely the physiological scoring system (the Triage Early Warning System, the TEWS) and the Symptom List (Annexure E). These two instruments are used in conjunction with each other by the triage nurse to come to a final classification of the patient's injury/illness severity. However, Hall et al (1998:8) state that the use of severity-of-illness scoring systems to guide patient management is controversial. The author states that "most instruments were designed and validated using data from patients already admitted to the emergency unit or intensive care unit". Therefore, using scoring systems in Hall et al's opinion, in making triage decisions regarding admission and treatment, is not valid. Using scoring systems to guide decisions regarding withholding or withdrawal of care is problematic because these instruments were developed to describe illness severity and predict mortality in groups of patients rather than for any individual patient.

The Triage Early Warning System (TEWS) was adapted by the Cape Triage Group CTG) from the original Modified Early Warning System (MEWS). Although used with success in a pilot study at GF Jooste Hospital in 2004 (De Vries et al 2005:40), the MEWS was found to be biased towards medical patients whose vital signs may deteriorate versus trauma patients whose vital signs would not be altered so soon after trauma occurring, in spite of having experienced major traumatic injuries – having "more physiological reserve" (De Vries et al 2005:40). An additional parameter included in the TEWS included a mobility parameter that was to increase the severity score of the physiologically stable ischaemic

stroke patient who remains a time-critical patient. Due to vital signs differing between adults, children and infants, the CTG designed a TEWS specific for the adult, child and infant and thus it would be used accordingly for the different age groups.

The symptom list (Cape Triage Group 2005:15) generates the actual triage colour – which ultimately indicates the patient's seriousness and so who should be attended to in which order. The symptom list acts as the "safety net" where a patient's vital signs are normal but whose pathology requires more urgent attention. In the same way that the TEWS was adapted for the adult, child and infant, so the symptom list was also slightly adapted to include age-specific criteria. Examples of these differences include pregnancy being only included in the adult and purpura included in the child and infant symptom list (refer to Annexure E for the TEWS scores and symptom lists specific to the adult, child and infant).

The calculation of the triage colour is thus two tiered. The TEWS is calculated (Cape Triage Group 2005:13, 14) first by matching the vital signs to scores as specified in the TEWS table. The scores are then added to obtain a total TEWS. Once the total TEWS score is obtained, it is carried over to symptom list (Cape Triage Group 2005:15) and placed in to a colour code. The health care provider then covers that specific colour code with his/her right hand and examines the columns(s) to the left of the hand to determine whether any of the obtained history falls into the higher triage colour code. If a symptom is noted in the higher colour, the triage code is then changed into the matching code of the column that symptom was found in. Triage is only done upwards (for example from yellow to orange, and never downwards by the nurse).

The suggested methodology of a stepwise approach to triage that should be used by the nurse is depicted in Annexure F. The researcher does not entirely agree with the first two steps' order and would suggest changing the first two steps around. Assessment of a patient should be done first by obtaining a short, concise history and then obtaining vital signs accordingly. This is also the opinion of Dolan and Holt (2000:29), McQuillan, Von Rueden, Hartsock, Flynn and Whalen (2002:113) and Proehl (1999:4).

A final aspect of the CTS is the use of triage aids and further management. Annexure G describes interventions to be carried out at triage. Triage aids are suggested interventions

that should be undertaken to enhance triage sensitivity. These interventions should be done only if waiting times will not be prolonged. The interventions described should also be undertaken within the scope of the health care provider and at the discretion of the institution. Interventions are classified into compulsory and optional where compulsory interventions should be performed if time permits and optional interventions performed to enhance the triage process.

Final management of the patient according to the CTS is suggested according to the colour code specified in table 2.5.

Table 2.5: Further management of the patient after triage

Colour	Management
Red	Patient must be taken to resuscitation room for emergency management
Orange	Patient must be referred to the front room of the emergency unit for urgent management
Yellow	Patient must be referred to the front room of the emergency unit
Green	Patient for potential streaming where a specific person cares for these patients
Blue	Patient to be certified dead

Source: Cape Triage Group 2005:18

Therefore according to table 2.5, the colour code of the patient should guide the nurse into where the patient should be managed further after triage. The red, most seriously ill or injured patient should be taken directly to the resuscitation room/area, versus the orange patient who must be in an area where he will under observation due to his or her seriousness. The yellow coded patient should be taken to the front room (general area) of the emergency unit and the green coded patient can be streamlined to be managed elsewhere or he or she can wait in the waiting room.

2.10 NURSE TRIAGE IN SOUTHERN AFRICA

Nurse triage grew as a concept in the UK in the 1980s stemming from nursing colleagues' experiences in the US (Woolwich 2000:476). Although South African nursing is well recognised in the world, formalised emergency nursing triage and recognition of emergency nurse practitioners remains lacking in the RSA.

In the researcher's experience in private hospital emergency units in the Western Cape, it appears that the level of triage done ranges from non-professional triage to intermediate triage **without** advanced investigations (X-rays and phlebotomy) or administration of drugs. The highly experienced and emergency trained nurse would be able to implement advanced triage, knowing exactly what the emergency unit doctor will prescribe ahead of time, should hospital policies allow him/her to do so.

2.11 DISADVANTAGES OF TRIAGE

This discussion has discussed the benefits of triage. Edwards (1999), however, discusses three weaknesses of triage that are discussed briefly.

Referring to 'category dominance' Edwards (1999:20) describes how allocating a colour or urgency category to a patient and cessation of further management can be a hindrance to triage. It is argued that triage fragments the patient's visit to the emergency unit, where for example, a patient triaged green is required to wait for the secondary medical appraisal when he or she may have been referred to the more appropriate agency by the nurse immediately after triage. The gate-keeping function therefore that triage performs can therefore also waste time.

Another argument that can be added to the preceding discussion may be that triage can cause a bottleneck retarding patients' processing the emergency unit. This is especially true in the private hospital emergency unit setting where patient loads are not necessarily as severe as in the public sector. The private hospital visitor may be able to see the doctor immediately on his/her arrival and so seeing the triage nurse may cause delay in seeing the doctor. In this way bottlenecks may occur whereby all patients may be required to see the triage nurse whereas seeing the doctor immediately on arrival might have expedited his/her emergency unit visit.

Edwards' (1999:21) second argument pertains specifically to triage algorithms such as the Manchester Triage System whereby a proper history is not taken but a specific sign or symptom is categorised and then the patient's treatment course is managed accordingly. Edwards (1999:21) refers to this as "patients being in danger of being reduced to a

repository of signs, and symptoms, passive recipients of others' decision making, having no part in the construction of the encounter".

The final argument (Edwards 1999:21) states that triage is a medically delegated role with two aspects to this role. The first is that the effectiveness of the triage can be judged only by medical judgment. This could, however, be true in cases where the medical diagnosis corresponds to the nursing diagnosis. The medical perspective assumes no differentiation. However this is not always the case. The second aspect is that patients are categorised in terms of the threat to physiological function, "a decision completely divorced from the context of the problem or its impact on the person" (Edwards 1999:21). This author states that nurses also work on the foundation of 'concern', obviously concerned initially about the physiologically threatening problems, but also being concerned about the rape victim with less physiological damage and the distraught mother of three demanding children. Ultimately, nurses care holistically for their patients and the triage model is designed more to suit the needs of the organisation than the needs of individual patients.

2.12 SUMMARY OF LITERATURE FINDINGS ACCORDING TO RESEARCH QUESTIONS

In this section, a short summary regarding the literature findings related to the specific research questions is provided.

2.12.1 What is the role of the nurse in the triage of patients in the emergency unit?

The triage nurse has several key roles concerning the smooth operations of the emergency unit. Most importantly, he or she should initially assess all patients on their arrival at the emergency unit, prioritise them and then refer them to a primary nurse.

The triage nurse also assists the frontline reception staff in two ways. Firstly he or she decides who should be seen first and who is stable enough to have his or her hospital file opened instead of being attended to immediately by medical staff. Secondly, the triage nurse assists in managing the unknown factor of patients' illnesses and injuries in the waiting room, especially during busy periods, reducing administrative, nurses' and patients'

anxiety. Patients feel more reassured, knowing that someone with knowledge is monitoring their condition. Patient satisfaction should therefore increase.

Managing patient flow is another crucial role of the triage nurse. This holds definite advantages for all staff in the emergency unit, namely the administrative staff, doctors, other nurses and ancillary staff such as porters. The patient may receive all the treatment and/or investigations required from the triage nurse, or he or she may be sent to a primary nurse who will facilitate further treatment and monitoring. With the correct decision made, all staff will know where the patient is at that particular moment. The triage nurse's role of controlling flow should assist the doctor, so that he or she will know, at any given time, which patient requires assistance in which order and initial side room tests may be initiated (such as urinalysis, vital sign monitoring and electrocardiogram) (Gottschalk 2004:326). Patient flow management also assists in alleviating overcrowding in the waiting room in that more ill/injured patients will be assisted to the nurses' general area of the emergency unit (Fraser-Moodie et al 1993:220; Edwards 1999:20). Workloads will be more evenly distributed between nurses if the triage nurse allocates patients systematically (Dolan 1998:1; Edwards 1999:20).

Through triage, infection control in the emergency unit can be managed more efficiently (Edwards 1999:20). Should a patient be assessed by the triage nurse as potentially having an infectious disease, this patient can be isolated immediately until further clarification is obtained at a later stage. In the same way, a patient entering the unit with an actively bleeding wound can be assisted to the appropriate area so that the blood spillage can be contained immediately.

Safety of the patient can also be assured through quick triage (Edwards 1999:20). The triage nurse would be able to determine, whether the patient is in need of a safe environment, should he/she be a threat to himself/herself. Privacy can also be provided should the patient be noted as being in severe distress, emphasising the professional-ethical responsibility of the registered nurse which he or she must fulfill with competence, integrity and compassion (Searle & Pera 1992:273).

Potential admissions to the hospital may also be gauged through triage and so further resource consumption may then be predicted (Alarcon et al 1998:432).

2.12.2 What core competencies should the nurse possess to perform triage?

Broad core competencies that the triage nurse should possess can be described as including initial assessment through history taking, focused examination through the taking of appropriate vital signs, the initiation of diagnostic tests such as X-rays and/or the collection of venous blood, documentation, crisis intervention, public relations and triage rounds.

More specific investigations that the triage nurse should be able to perform include urinalysis, blood glucose measurement, administration of paracetamol to a febrile child, performing Plaster of Paris check, administration of oxygen therapy, initiation of oral rehydration in a child, administering nebulised medication, performing an ECG and an intravenous cannulation.

These competencies are summarised from international literature sources and therefore do not take into account different nurses' scopes of practice of different countries. Thus, when referring to the South African context, the triage nurse would, under the current legislation, not be able to prescribe radiological studies or pathological investigations.

2.12.3 What are the strengths of the newly implemented triage system?

The Cape Triage Score has not yet been scientifically evaluated by independent researchers other than the Cape Triage Group and literature reviews on this aspect were not available.

2.12.4 What are the weaknesses of the newly implemented triage system?

The argument presented in 2.12.3 also applies here.

2.12.5 What guidelines could be implemented to improve the current triage system?

Recommendations based on the conclusions of this study, will be provided in chapter 5 of this dissertation.

2.13 SUMMARY

This chapter addressed the literature review on triage. Triage is a relatively old concept within the realm of emergency nursing when the history is examined. However, formalised nurse triage is comparatively new. Within the South African situation, triage nursing is not a formal entity although it is known in EMS circles.

Chapter 3 will describe the research methodology adopted to study the implementation of a triage system in the level II private hospital in the Cape Metropole.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This chapter describes the research design and methodology used in the study, including the population, data collection, validity and reliability, and ethical considerations.

The overall aim of this study is to investigate and to describe the implementation of a triage system in a level II private hospital in the Cape Metropole. The research methodology facilitated the attainment of the research objectives, namely to:

- Determine the role of the nurse in the triage of patients in the emergency unit.
- Determine the core competencies of the nurse in the triage of the patient in the emergency unit.
- Explore and describe strengths of the newly implemented triage system.
- Explore and describe weakness of the newly implemented triage system.
- Provide guidelines for the improvement of a triage system.

3.2 RESEARCH DESIGN

To undertake a specific study, all the components should comprise a meaningful whole. To achieve this goal, the researcher needs to draw up a design, the strategy for conducting the study or the plan to obtain answers to the research questions. The research design is associated with the structural framework of the research in order to reach the goals (Burns & Grove 2001:223; De Vos 1998:77) The research design also provides the guidelines and instructions to be followed when addressing the research problem (Mouton 1996:107; Polit & Hungler 1997:445). Thus thorough planning of the research design is the “blueprint” for the research, it anticipates what appropriate research decisions should be taken in order to “increase validity and to minimise, or where possible, exclude errors within the research” (Mouton 1996:107-108).

An explorative, descriptive and a contextual research design was used, using quantitative methodology to investigate the implementation of an emergency unit triage system in a selected private hospital.

3.2.1 Research design

In this study, the following research design was used, namely an explorative, descriptive and a contextual design. These terms were described and the rationale for using it in this research will be described in this section.

3.2.1.1 Explorative

A large portion of this research was conducted to explore a topic or to provide a basic familiarity with the specific topic (Babbie & Mouton 2001:79). It was also aimed at exploring the full nature of the phenomenon, how it manifested and other relevant factors (Polit & Hungler 1997:20).

In this research, the researcher explored the topic about which little was known and which was not practiced formally in South Africa, namely the implementation of a triage system in a private hospital in the Cape Metropole. The researcher aimed to explore the dimensions of the research problem through a literature review. Based on the literature review, a questionnaire was designed. Questionnaires were handed out to individuals who participated in triaging in the emergency unit at the private hospital in the Cape Metropole.

3.2.1.2 Descriptive

Burns and Grove (201:248) state that descriptive designs help to identify problems in current practice with a view to improve practice outcomes. The purpose of descriptive research is the “exploration and description of real-life situations” and to provide information of the elements as they occur. This study attempts to describe the implementation of an emergency unit triage system in a selected level II private hospital in the Cape Metropole.

3.3 RESEARCH METHODOLOGY

Polit et al (2001:465) state that research methodology refers to the techniques used to structure a study, gather and analyse the data in the course of the research investigation. In addition, it consists of a set of orderly disciplined procedures, steps and strategies to acquire and analyse information.

Quantitative methodology was used in this research, namely by constructing a questionnaire to find out from nurses how they perceive the implementation of an emergency triage system in a selected level II private hospital. According to Burns and Grove (2001:26), quantitative research is the "formal, objective, systematic process in which numerical data are used to obtain information about the world." The authors add that this method is used to describe variables, examine relationships among variables and determine cause-effect interactions between variables." This is currently the method of choice for scientific investigations in nursing practice and it requires rigorous control to identify and limit the effects of extraneous variables not under study (Burns & Grove 2001:26). The extent of the control is to provide precise information on the topic under investigation and is suited to this particular study as the researcher aims to limit extraneous factors irrelevant to study that may influence the results. Furthermore, control decreases the possibility of error and increases the probability that the study's findings are an accurate reflection of reality.

The researcher considered this method most suitable for this study as the data could be obtained from all staff at convenient times. Therefore, all the staff that were willing to participate in the study could do so, including those on night duty, day duty, on leave and off duty. It made it more effective and easy to manage. Pilot et al (2001:185) are of the opinion that the "independent and dependent variables are collected concurrently, but the independent variable usually captures events or behaviours occurring in the past." In this research, all the nurses conducting triage in an emergency unit of this hospital and who fall under the eligible criteria as discussed in section 3.3.1 were included in the research. The researcher approached the hospital management (see Annexure A) as well as the nurses of the emergency unit of the selected hospital to gather the relevant data at convenient times by questionnaire.

3.3.1 Population and sampling

A population is defined by Polit et al (2001:233) as “the entire aggregation of cases that meet a specified set of criteria”. The target population in this study represents all the nurses who were conducting triage in emergency units of the company who owns a group of level II private hospitals in Southern Africa.

In this study, the population consists of all male and female staff members involved in receiving patients in the emergency unit of a level II private hospital.

In this study, only one of the hospitals of the company where the problem of triaging patients occurs, were selected. All the nurses who conduct triage at this hospital were included in the study.

3.3.2 Selection of participants

In this study the population that was studied included all the nurses who do triage in the unit as well as the doctors who manage the triaged patients. The participants were chosen if they met the following inclusive criteria:

- had to be willing to participate in the study and give permission for their involvement
- had to work in the emergency unit of a level II private hospital
- had to be either a nurse, medical doctor, or a person assigned to sort patients admitted to the emergency unit

3.3.3 Number of participants

A total of 18 participants were selected for the study as the eligibility criteria applied to the subjects (see section 3.6).

Participants were from the following categories:

- Medical doctors = 4
- Registered nurses = 10
- Enrolled nurses = 3
- Enrolled nursing assistant = 1

3.3.4 Sampling method

Burns and Grove (2001:376) define purposive sampling as “judgmental sampling that makes the conscious selection by the researcher of certain subjects or elements to include in the study.” This method was appropriate for this study as the cases were consciously and deliberately included because they had been working in the emergency unit and were involved in triage of patients admitted to the unit.

3.3.5 Context

According to Polit et al (2001:44), the context refers to “the setting within the site where the data collection will occur.” This study was conducted at a level II private hospital in the Cape Metropole that delivers emergency services.

Prior permission was obtained through the appropriate channels from nursing management (see Annexure A: Letter of approval from Hospital).

3.3.6 Data collection

Burns and Grove (2001:49), define data collection as “the precise systematic gathering of information relevant to specific research objectives or questions”. According to Burns and Grove (2001:50), data can be collected in several ways depending on the study and can include a variety of methods. However, the research objective must be accomplished with the instrument used.

The data for this study were gathered with the use of a questionnaire that was developed to achieve the research aim and objectives.

3.4 CHOICE OF INSTRUMENT

In this study, data were collected by the researcher by using a structured questionnaire, developed to elicit responses relevant to achieve the aims. According to Burns and Grove (2001:426), a questionnaire is a "printed self-report form designed to elicit information" and is developed with specific items to assist with the data collection. The development of the questionnaire involved aspects such as deciding on the type of questions, compiling the questions, and refining the questionnaire.

3.4.1 Development

Burns and Grove (2001:49) describe measurement as "the process of assigning numbers to objects or events to situations in accord with some rule". According to these authors, a component of measurement is instrumentation, which is the application of specific rules to the development of a measurement device or instrument and the instrument is selected to examine a specific variable in the study. Selection of the instrument requires extensive examination of its reliability and validity (Burns & Grove 2001:49). The purpose is to produce trustworthy evidence that can be used in evaluating the outcomes of the study. The literature was searched to identify critical points in the study and thereafter the researcher developed a set of specific questions, based on findings in the literature search.

3.4.2 Items in the questionnaire

The researcher developed a uniquely structured questionnaire (Annexure C) to elicit the specific responses required for this study to enable control over the extraneous factors affecting the study. Closed and open-ended questions were formulated so that the responses were specific to the research objectives.

3.4.3 Compilation of the questions

The demographic details did not require the identity of the participant, thereby maintaining confidentiality. The questionnaire was structured and guided by the study problem, purpose and objectives.

Closed-ended questions were formulated with the aim of achieving the objectives and to maintain control over extraneous variables. The questions were ordered in a logical sequence to allow for meticulous documentation of events.

The language of communication was English and the same tool was used for all the respondents. All respondents worked in the emergency unit where English was spoken. They were all capable of communication in English and were familiar with emergency terminology. The researcher was available to clarify uncertainties.

3.4.4 Structure of questionnaire

The questionnaire was divided into the following sections:

Section A: Demographic information
Section B: Previous triage experience
Section C: Problems experienced in the emergency unit regarding sorting of patients
Section D: Perception of the nurses' role during triage
Section E: Core competencies of the nurse in the triage of the patient(s)
Section F: Strengths and weaknesses of the triage system
Section G: Recommendations for an improved triage system in the specific emergency unit
Section H: Training needs
Section I: Other comments, suggestions

Questions were open ended as well as closed ended.

3.5 VALIDITY

Polit et al (2001:308) define validity as “the degree to which an instrument measures what it is supposed to measure.” According to Polit et al (2001:309), three aspects of validity are important namely: content, criterion-referenced and construct validity.

Content-related validity is defined by Burns and Grove (2001:400) as “the extent to which the method of measurement includes all the major elements relevant to the concept being measured”. These authors add that the researcher may cite sources from literature to seek feedback for understanding the phenomenon under study. In this study, the questions were formulated on the basis of the findings in the literature study.

Criterion validity is assessed using statistical measures, whereas construct validity is assessed using a combination of logic and statistical measures. These were not measured in this study.

3.6 DATA COLLECTION

Permission was obtained from the nurse manager of the private hospital to conduct a study (see Annexure A). In addition the research proposal was preserved to the Research and Ethics Committee at the Department of Health Studies of the University of South Africa to review the proposal.

The researcher presented the questionnaires to the selected subjects in the morning and collected them again in the afternoon. Those on leave were also contacted to fill in the questionnaires. All of the questionnaires distributed were returned. Subjects were under no obligation to complete the questionnaires and received no remuneration for doing so. Should any person have refused to complete the questionnaire, no negative consequences would have resulted from such a refusal (refer Annexure B).

3.7 ETHICAL CONSIDERATIONS

Conducting research ethically begins with the identification of the topic and continues through to the publication of the study. Therefore the conduct of research requires not only expertise and diligence but honesty and integrity (Burns & Grove 2001:191; De Vos 2001:24; Polit & Hungler 1999:90). In this study, the researcher was committed to ensure strict confidentiality of information, identity (of individuals and institutions) and data throughout the study. Participants were assured that their responses were confidential and were only to be used within the context of the research. This was assured through handing each individual an information brochure explaining confidentiality (see Annexure B).

Once participants had completed the questionnaire, they were asked to place the anonymously completed questionnaire in a non-identifying envelope. The information accessed was kept locked up in the possession of the researcher in a safe place and kept confidential. The data stored in the computer was linked to a secret password to which only the researcher had access.

The study commenced with prior written permission and approval granted by the institution where the research was to be conducted. A copy of the proposal was submitted to the hospital's nurse manager and hospital group emergency services coordinator.

Prior to the commencement of the study, all participants involved were informed of the purpose of the research as well as their rights to be involved. Implied information consent was obtained from all staff through the completion of the questionnaire. Anonymity of participants and their views was ensured through the explicit request in the information brochure (see Annexure B) that participants do not place their names in the questionnaires.

3.8 SCOPE AND LMITATIONS OF THE STUDY

This study primarily attempted to provide an in-depth description of the particular emergency unit and little attempt was made to generalise its results to other situations.

The study is limited in that only one emergency unit in a private level ii hospital was investigated. Thus, the findings cannot be generalised for other private emergency units in level II private hospitals or public emergency units. However, the principles and findings could be used to serve as guidelines for future researchers who wish to implement similar systems at other sites.

Only questionnaires were used for the purposes of this study and triangulation of research instruments might have added other dimensions to the results.

Only a small number of respondents were used for this research that limits generalisation of the findings.

3.9 CONTROL OF EXTERNAL VARIABLES

Researchers strive to control external variables to determine the true nature of the relationship between the independent and dependent variables. The questionnaire enabled control over extraneous factors and the questions were developed to elicit only those responses relevant to the study.

3.10 DATA ANALYSIS

The Excel (Microsoft Office 2003) computer program was used for data analysis. The program can generate frequency tables, graphs, pie diagrams, and representative characteristics or values, such as averages and percentages. A statistician assisted with the statistical analysis.

3.11 CONCLUSION

This chapter described the research design and methodology. The researcher developed a questionnaire as the data-collection instrument to elicit responses relevant to the research problem. The researcher collected all the information personally and confidentiality was maintained throughout the study.

Chapter 4 presents the analysis and discussion of the data obtained from the completed questionnaires.

CHAPTER 4

PRESENTATION AND DISCUSSION OF FINDINGS

4.1 INTRODUCTION

This chapter discusses the data analysis and results of the research, particularly the experience of the emergency health care professionals in triage, the problems experienced in the emergency unit in triaging patients, the perceptions of the triage role and feelings of the nurse in triage as well as the strengths and weaknesses of the current triage system.

4.2 DEMOGRAPHIC INFORMATION

4.2.1 Gender

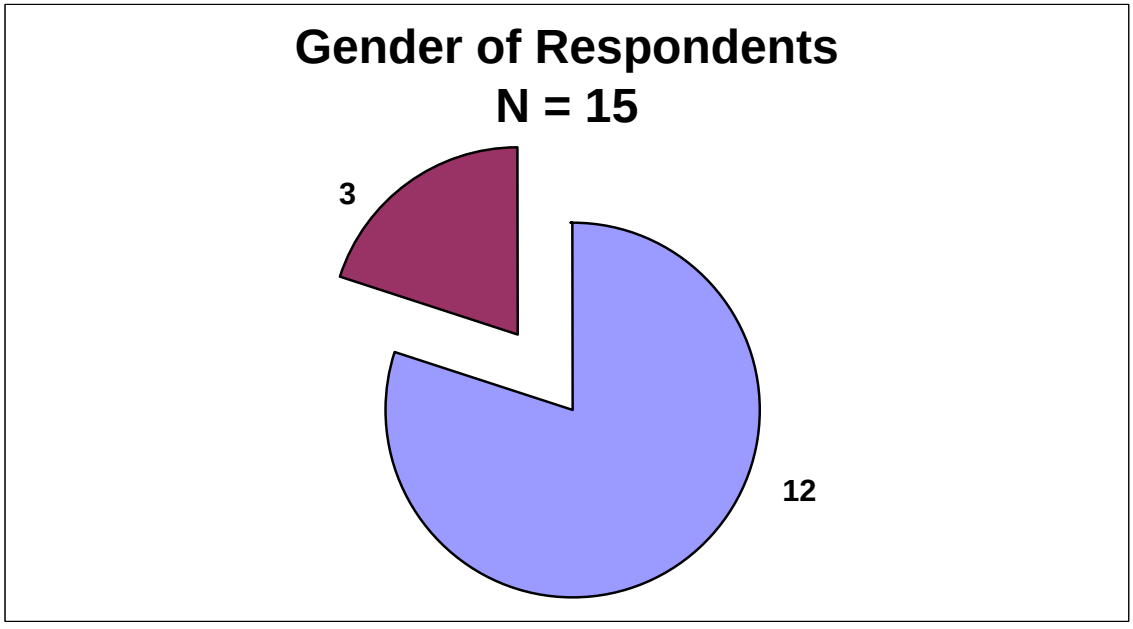


Figure 4.1

Gender of respondents

From figure 4.1 it is evident that of the total of 15 respondents, only three were males and 12 were females.

4.2.2 Age

Most of the respondents (46.7%) were in the age group 35-39 years. Two respondents (13%) were in the age group 45 and older and two (13%) in the age group 40-44, while three (20%) between 30 and 34 years. Only one respondent (10%) was younger than 25 years. This is an indication that the largest number of respondents (93.3%) was experienced professional nurses.

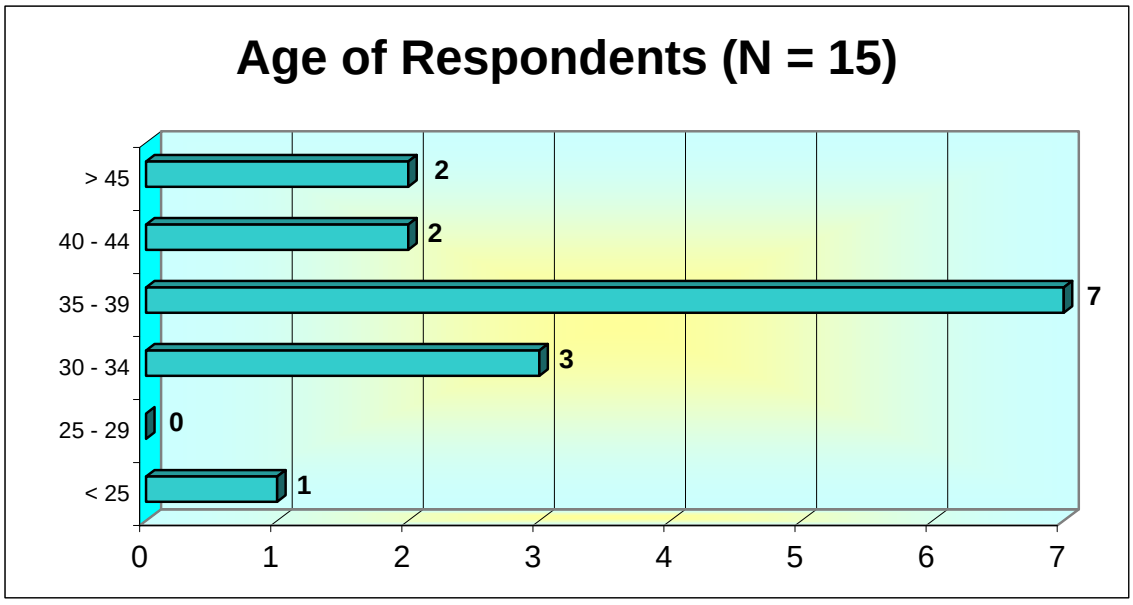


Figure 4.2

Age of respondents

4.2.3 Professional status

In figure 4.3 the professional status of the respondents is reflected. From the figure, it is evident that 53% of respondents were registered nurses of which 13% were also trauma trained. In addition, 20% of the respondents were enrolled nurses. Twenty seven percent of the respondents consisted of other medical services, namely 20% were medical doctors and 7% enrolled nursing assistants (ENA). This finding is an indication that a balanced

profile of emergency providers were present and that the overall knowledge and skills base were diverse and balanced.

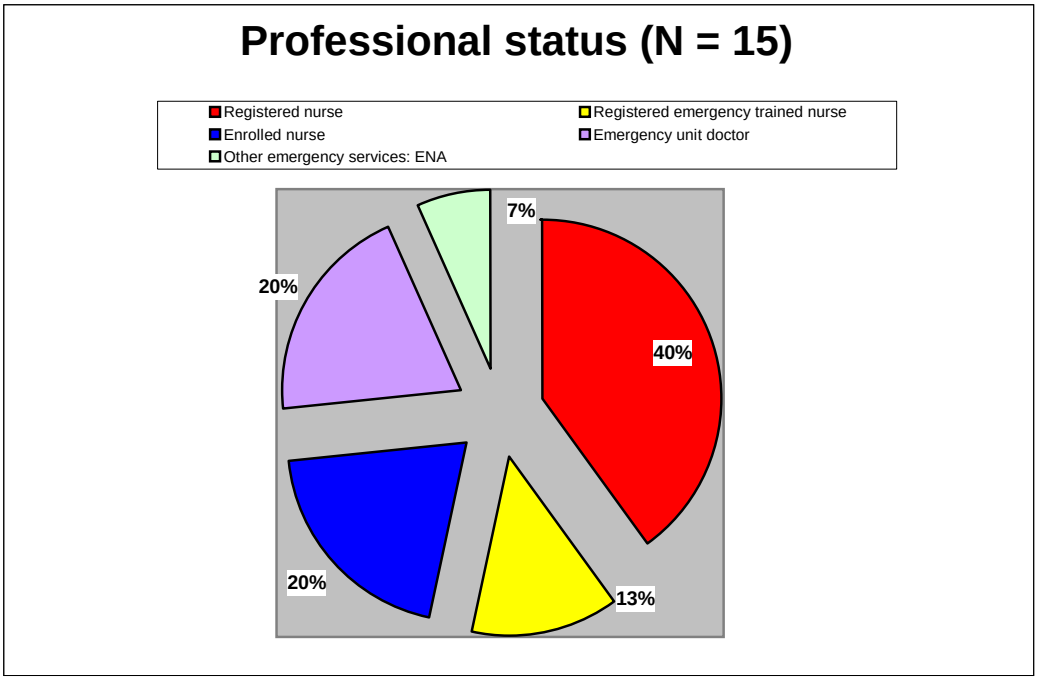


Figure 4.3

Professional status of respondents

4.2.4 Years' emergency medicine / nursing experience

Figure 4.4 demonstrates the respondents' number of year's emergency medical/nursing experience.

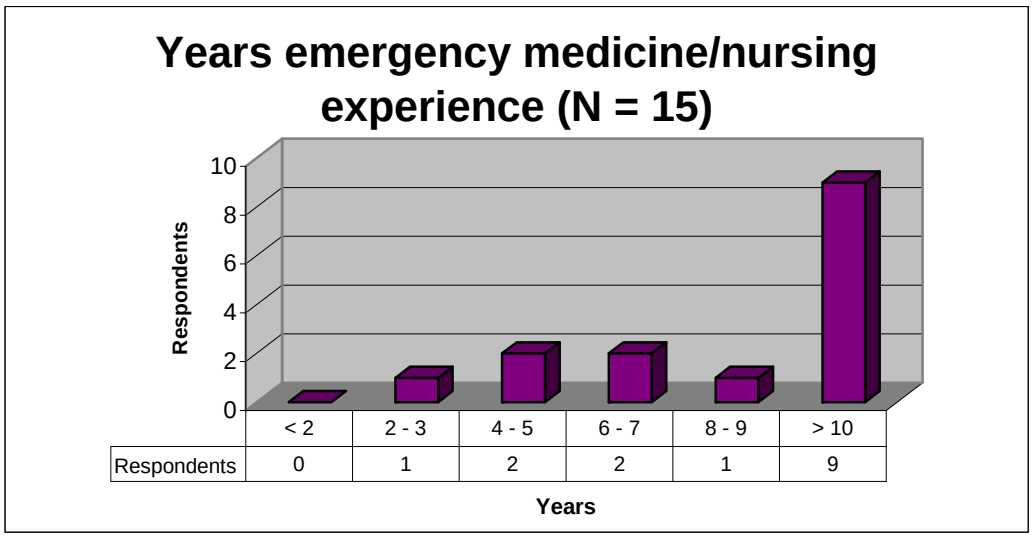


Figure 4.4

Years of emergency medicine/nursing experience

From figure 4.4 it can be deduced that 6 of the respondents (40%) had between two and nine years' experience in emergency medicine, while 9 (60%) had more than 10 years trauma and emergency experience. The type of professional experience that most of the respondents had is also consistent with their age as well as their professional qualifications.

4.2.5 Additional training in emergency medicine / nursing

The additional training that respondents had in the medicine or nursing field with regard to triage is depicted in figure 4.5.

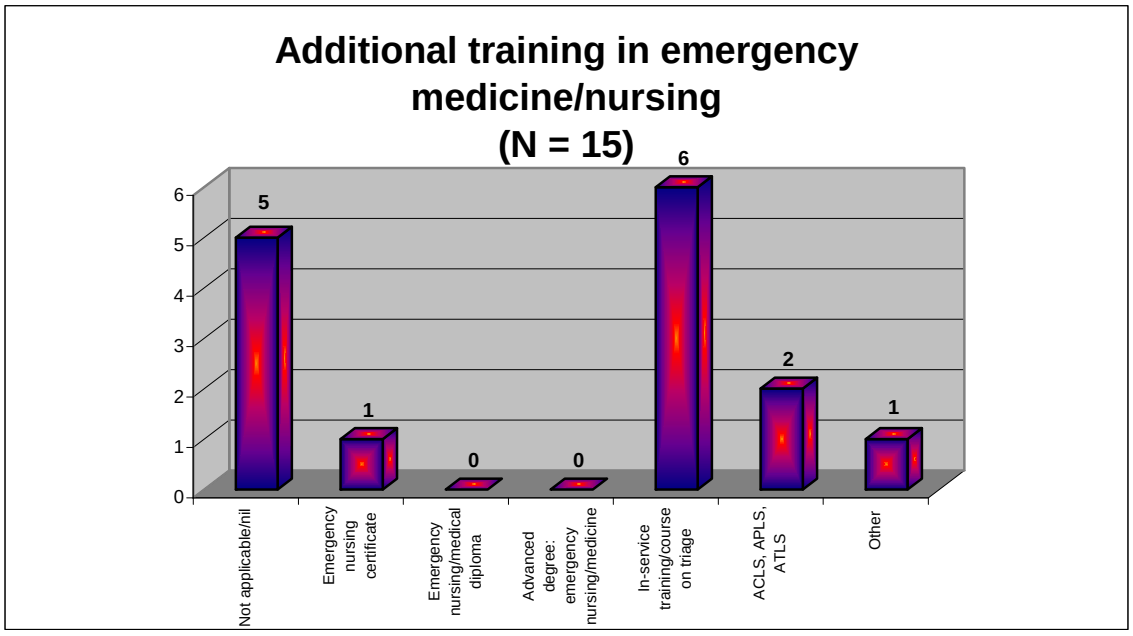


Figure 4.5

Additional training in emergency medicine/nursing

Five of the respondents (33.3%) had no additional training in emergency medicine or nursing and particularly in triage, while six (40%) received in-service training or attended courses in triage. Three (20%) of the respondents had advanced training, namely in Advanced Cardiac Life Support (ACLS), Advanced Paediatric Life Support (APLS) or Advanced Trauma Life Support (ATLS). Thus, in total, 60% of the total population working in the unit was trained to triage patients.

4.2.6 Conclusion

From the demographic information obtained, it can be deduct that most respondents were female (80%) and 30 years of age or older (93%). Eighty percent of the respondents were nurses, of whom 13% were trauma trained and the remainder (20%), emergency unit doctors. All respondents had more than two years' emergency medicine experience with 60% having more than 10 years' experience in this field. Of all the respondents, only 40% had had in-service training in triage.

4.3 PREVIOUS TRIAGE EXPERIENCE

4.3.1 Environment in which previous triage was practiced/experienced

Table 4.1: Environment of previous triage practiced/experienced

Environment(s) of previous triage practice/experience	Respondents: N = 15
Not applicable - never practiced/experienced triage before	4
Prehospital environment	3
Disaster triage	1
Telephonic triage	0
Tactical - battlefield	0
Multiple casualty incidents	2
Emergency unit triage	7
Other	2

From table 4.1 it is evident that 27% (n=4) of the respondents had never practiced or experienced triage while 3 (20%) had previous experience of triage in the pre-hospital environment. One respondent (6%) had experience of disaster triage, two (13.3%) had experience of multiple casualty incidents and two (13.3%) of other triage types. It is of significance to note that 46.7% of the respondents had emergency unit triage experience.

4.3.2 Country/continent in which triage was previously practiced/experienced

In figure 4.6, the country or continent where respondents had previously experienced or practiced triage is reflected.

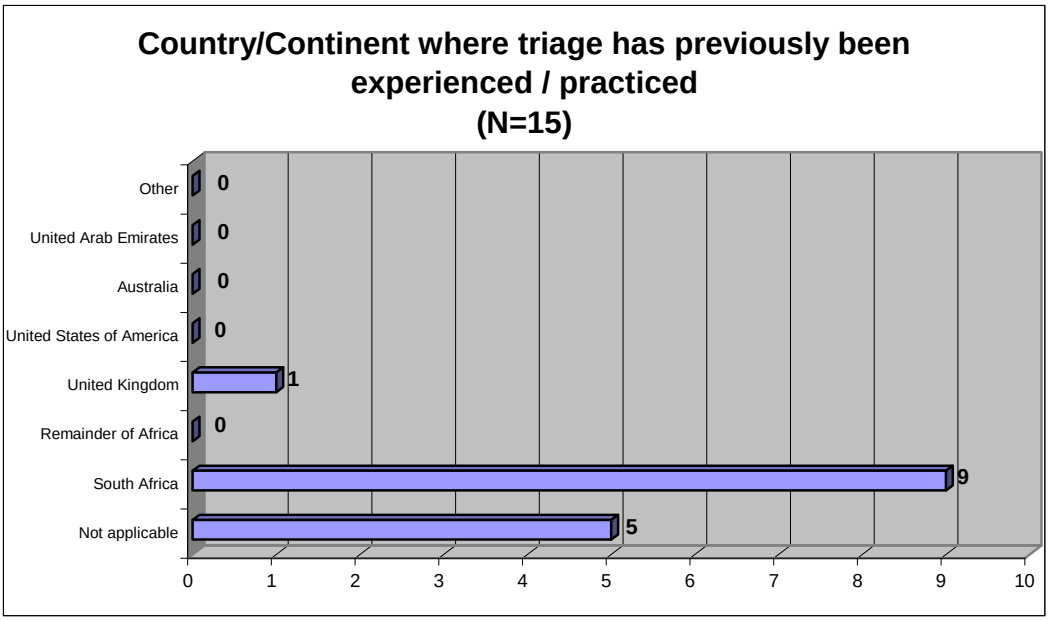


Figure 4.6

Country/continent where triage had previously been experienced or practiced

Only one respondent had experience of triage in another country. Nine (60%) had experience of triage in South Africa and five (33, 3%) had no experience of triage either in another country or in South Africa.

4.3.3 Type of triage practised

In table 4.2 the type of triage practiced by the respondents is indicated.

Table 4.2: Type of triage practised

Type of triage practiced	Respondents: N = 15	Percentage
Not applicable - never practiced / experienced triage before	4	27%
Indirect triage via telephone	0	0%
Prehospital environment	2	13%
Non-professional triage	4	27%
Basic triage	6	40%
Basic triage amended	2	13%
Intermediate triage (basic)	4	27%
Intermediate triage	5	33%
Advanced triage	1	7%
All patients are seen by any nurse	2	13%
Other	0	0%

Table 4.2 indicates that 33% of the respondents practised intermediate triage, 27% had never practised triage, 27% practised non-professional triage and 13% practised basic triage. Only 7% (1 person) had experience of advanced triage, while 13% indicated that they have conducted triage in the pre-hospital environment. None had any experience of telephone triage and 13% indicated that their experience is that all patients are seen by any nurse available at any time.

4.3.4 Perceptions of the emergency unit's ability to sort and prioritise patients

In figure 4.7 the perceptions of the respondents regarding the emergency unit's ability to sort and prioritise patients are reflected.

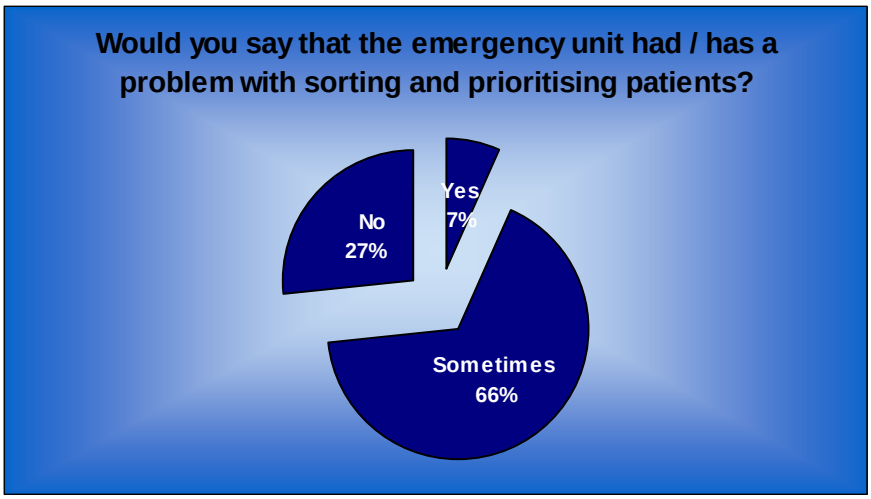


Figure 4.7

The perceptions of the emergency unit's ability to sort patients

As many as 66% of the respondents indicated that the emergency unit was not able to triage patients on a full time 24-hour basis, but was only sometimes able to cope with triage. While 27% of the respondents indicated that the emergency unit had no problem with sorting of patients, 7% indicated that there is a problem with the sorting of patients.

4.3.5 Conclusion

From this section it can be concluded that the triage environment and type of triage practised or experienced by respondents is varied but not greatly significant. Fewer than half (46.7%) of respondents had emergency unit experience whilst smaller ratios had other triage experience within the prehospital environment and hospital environment – such as in disaster and multiple casualty incidents. Only one person had experienced triage abroad and so experience of formalised triage as practised overseas is very limited. The type of triage experienced by participants is limited to non-professional, prehospital, basic and intermediate triage whilst only one respondent had experienced advanced triage. As many as 66% of respondents perceived the emergency unit under investigation to be unable to manage a 24-hour triage service.

4.4 PROBLEMS EXPERIENCED IN THE EMERGENCY UNIT REGARDING THE SORTING OF PATIENTS

4.4.1 Problems experienced

In this section, the problems related to the sorting of patients experienced in the emergency unit is reflected in table 4.3. It would seem as if the most prominent problem that emerged from this research were patients' long waiting times for doctors. Eighty seven percent of the respondents indicated that the patients complained that they waited too long to be seen or to be attended to, while 80% indicated that long waiting times for the patients to be seen by a doctor was a major problem. In addition, 33% indicated that patients were not necessarily rapidly seen by the doctor in terms of the seriousness of their problem. Time, as indicated by 33% of the respondents is also wasted when more seriously sick or injured patients were not timeously referred to a specialist.

In addition, 53% of the respondents indicated that receptionists and administrative staff made incorrect decisions about those patients who had to be seen by a professional person immediately and those who had less urgent conditions and could wait a while to be seen.

Table 4.3: Problems experienced in the emergency unit regarding the sorting of patients

Problems experienced:	Respondents: N = 15	Percentage:
Nursing and medical staff did not know what patients' illnesses and injuries were in the waiting room	7	47%
Overcrowding in the waiting room	4	27%
Long waiting times to see the doctor	12	80%
Patients complained that they waited too long	13	87%
Patient dissatisfaction and aggression	7	47%
Lack of flow of patients through the department and wastage of time	5	33%
Patients needed to be seen by the doctor 'twice' whereas small investigations may have already been undertaken prior to their being seen by the doctor	6	40%

Problems experienced:	Respondents: N = 15	Percentage:
Deterioration of already severely ill/injured patients	1	7%
Patients were not necessarily rapidly attended to by the doctor in terms of the seriousness of their problems	5	33%
Unbalanced workloads for nurses	2	13%
Poor infection control, such as blood spills or patients with infectious diseases infecting others whilst waiting in the waiting room	1	7%
Unsafe clinical environments for patients requiring additional assistance such as distressed/psychiatric patients	2	13%
Incorrect decision-making by receptionists and administrative staff of who should sit and wait and who should be assisted by a nurse	8	53%
Time is wasted where, more serious, patients could be assessed by the doctor and then be investigated and/or referred to a specialist more timeously	5	33%
Nurses 'wait' for the doctor, when they already know what procedures/investigations will follow, subsequently increasing waiting time and inadvertently 'waste' even more time	8	53%
No problems were experienced	0	0%

Fifty three percent of the respondents indicated that although they were trained, experienced or had full knowledge of procedures that would be prescribed by the doctor for certain patients, nurses were compelled to wait for the doctor's written prescription before patients could be attended to. These rules increased the waiting time and inadvertently wasted even more time.

Forty seven percent of the respondents indicated that patient dissatisfaction and aggression occurred, possibly due to long waiting times. In addition, 47% also indicated that nursing and medical staff often did not know what patient's illnesses and injuries were present in the waiting rooms.

Problems in triage were also indicated due to the fact that the doctor had to assess the patient twice while limited investigations could already have been performed or undertaken by the nurses prior to being seen by the doctor. In this case 40% of the respondents remarked that this is a serious problem in the emergency unit. Twenty seven percent of the respondents also indicated that waiting rooms were overcrowded which could lead to a lack of flow of patients through the emergency unit causing time to be wasted.

Seven percent of respondents remarked on the deterioration of sick and/or injured patients as well as poor infection control and environmental hygiene that could affect other patients. Only 13% of the respondents remarked about unsafe clinical environments for patients who need special attention such as psychiatric and depressed/suicidal patients.

4.4.2 Conclusion

One of the aspects regarded as problematic refers to non-professional triage (as referred to in section 2.2.3). In other words, prioritisation of patients is done by administrative staff where they will call for a nurse in cases of concern after registration at reception. 53% of respondents experienced this type of triage as problematic with incorrect decision-making occurring at times. As these staff members are not medically trained, they could not be expected to prioritise – triage – patients correctly, and so this is a reason for concern and a strong motivation for triage to transpire correctly.

Another primary purpose of triage (according to the literature study) is to make appropriate use of personnel and facilities. Several problems were cited regarding this aspect; yet again further motivating for effective triage. Problems related to inappropriate resource usage include lack of flow of patients through the unit, patients seeing the doctor twice due to small investigations having to be done, delays in patients seeing the doctor irrespective the seriousness of their condition, uneven workloads for nurses, slow referral of patients to specialists and nurses waiting for further instructions from doctors – ultimately all these factors lead to time wastage.

The main reasons for triage include patient assessment, prioritisation, infection control and first aid. The most problems cited in table 4.3 are related to the main reasons for triage and so the obvious solution for the problems mentioned would be to institute an effective triage system.

An additional advantage to triage as discussed in section 2.3 is that of increased patient satisfaction. Problems related to patient dissatisfaction as mentioned by respondents include long waiting times and patient dissatisfaction and aggression. Thus proper triage could address this difficulty.

Finally, when the rights of the injured are considered as stipulated by the World Health Organization (section 2.5), all the rights of the patients seen in the affected unit are probably not being met (the injured in this discussion include those with medical illnesses). Whilst life threatening conditions are probably being treated according to appropriate priorities and potentially disabling conditions are treated appropriately to minimise functional impairment, this cannot be proven – whereas documented triage would prove this. The final right, namely pain and psychological suffering, could not to be met at all times.

From this discussion, it is evident that proper triage would be the solution to all the problems marked positively by the respondents.

4.5 PERCEPTION OF NURSES' ROLE DURING TRIAGE

4.5.1 Nurses' role during triage

More than 80% of the respondents indicated that the nurses' role is to prioritise patients and to institute first aid. In addition, 67% of the respondents viewed crisis intervention, ensuring patients' safety, assisting distressed patients and their families and the physical examination including the taking of vital signs as priorities. Seventy three percent regarded brief investigations such as urine analysis, pregnancy tests and haemoglucotests as well as infection prevention and control and keeping patients and relatives informed of delays as an important role of the nurse in the emergency unit.

Sixty percent of the respondents indicated that the nurse must be at the frontline if the emergency unit, together with the reception/administrative staff to alleviate non-medical staff members' decision-making of who should be seen first and who is well enough to have his/her hospital file opened prior to being attended to by a professional nurse or doctor. In addition 67% also indicated that the nurse should be the person responsible for the management of the waiting room, controlling overcrowding and getting a brief overview of each patient's problem. Fifty three percent of the respondents indicated the role of the nurse as improving patient/client relations, thereby improving patient satisfaction.

Forty seven percent regarded it the role of the nurse to interact with the patient and the family as well as oversee documentation. Only 40% viewed the nurse as an agent to reduce stress and tension in other nurses, while 33% indicated that the nurses' role is to reduce the doctors' stress and strain. Only 13% saw the nurse's role as reducing the stress of reception and administrative staff members.

A limited number of respondents viewed the nurse's role as being a manager as only 47% of the respondents indicated that the nurse should manage the flow of patients through the unit knowing where every patient is and only 33% viewed the nurse's role as informing the unit manager or senior nurse of unusual problems or occurrences. Only 20% of the respondents' regarded the nurse as having an independent function and directing others in stressful situations as well as gauging potential admissions to the hospital. Only 13% of the respondents regarded the nurse's role as foreseeing any physical or other problems that may arise.

Table 4.4: Nurses' roles during triage

The nurses' role during triage	**Respondents: N = 15**	**Percentage:**
The nurse must be at the frontline of the unit, together with the reception / administrative staff, to alleviate non-medical staff's decision-making of who should be seen first and who is well enough to have his/her hospital file opened	9	60%
Manage the waiting room, controlling overcrowding and getting a brief overview of each patient's problem	10	67%
Initiate contact with patients and family	7	47%
Institute first aid measures where necessary	12	80%
Keep patients and relatives informed of delays, expected time to be seen	11	73%
Assessment of patient	8	53%
Focused physical examination and taking of vital signs	10	67%
Brief investigations such as urinalysis, pregnancy test and haemoglucotest	11	73%
Prioritisation of patients	13	87%
Allocate patients appropriately to a specific nurse or doctor, evenly distributing workloads amongst staff members	6	40%
Documentation	7	47%
Crisis intervention and ensuring patients' safety, assisting very distressed patients or relatives/friends	10	67%
Manage patient flow through the unit, knowing where patients are on arrival	7	47%
Infection control, for example preventing blood spills and referring patients with a potential infectious disease to an isolated area	8	53%
Gauging potential admissions to hospital	3	20%

The nurses' role during triage	Respondents: N = 15	Percentage:
Reduce reception/administrative staff's stress/tension	2	13%
Reduce nurses' stress/tension	6	40%
Reduce the emergency doctor's stress/tension	5	33%
Inform the unit manager or senior nurse of unusual problems/occurrences	5	33%
Function independently and direct others in stressful situations	3	20%
Improve on patient/client relations, thereby improving on patient satisfaction	8	53%
Other: foreseen any physical or other problems that may arise	1	7%

4.5.2 Feelings experienced when working in the triage area

It is evident from figure 4.8 that 91.6% (11 of the 12) nurses who worked in the triage area felt satisfied and empowered. Only two respondents (13%) felt indifferent to this nursing function. Three of the respondents were not nurses and therefore did not answer this question.

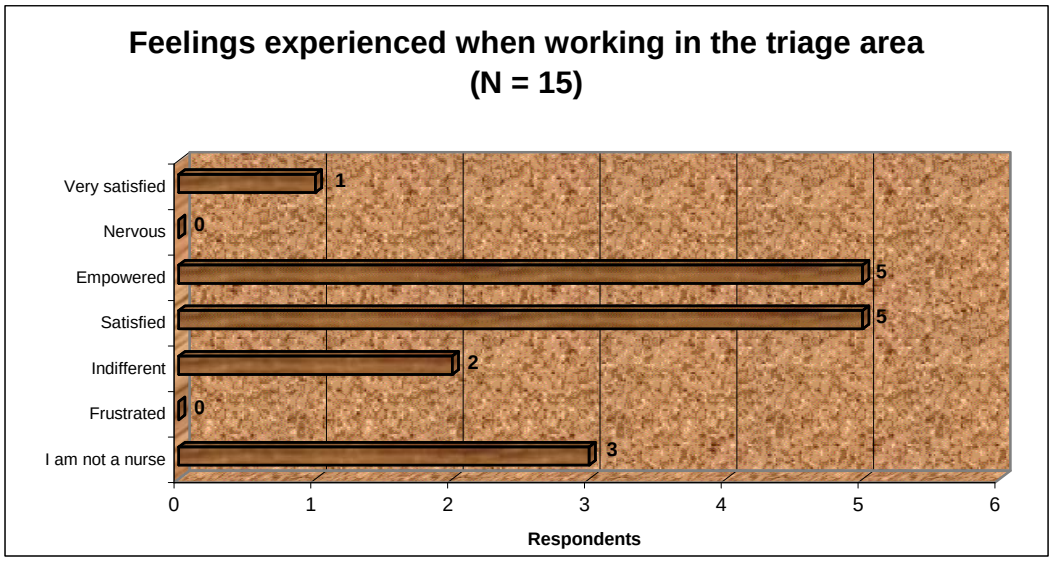


Figure 4.8

Feelings experienced when working in the triage area

4.5.3 Factors contributing to feelings

From table 4.5 none of the respondents felt they were inadequately trained or that triage fell beyond their scope of practice. An overall positive attitude was observed amongst the respondents who felt that their morale had improved (7%), that they felt more responsible (40%) and the unit was running more smoothly (20%) as well as maintaining better control (27%).

More negative responses indicated that the process of triage was not yet flowing smoothly (20%), and that the respondents were still inexperienced (7%) in performing triage functions.

Table 4.5: Factors contributing to respondents' feelings about the implementation of triage

Factors contributing to feelings	Respondents:	Percentage:
I do not feel adequately trained	0	0%
I am trained but still inexperienced	1	7%
I feel this is not within my scope of practice	0	0%
The process is not flowing smoothly yet	3	20%
I feel I have more control in the unit	4	27%
My morale has improved	1	7%
I feel more responsible	6	40%
The unit is running more smoothly	3	20%
Other	1	7%

4.5.4 Conclusion

From this section it can be concluded that the nurses generally perceived the triage function as being positive, enhancing the operations of the unit as well as improving nurses' feelings of autonomy. This is in accordance with sections 2.7 and 2.8 where the role of the emergency nurse in triage and nursing management and triage was discussed. Problem aspects were related to operational failures that could improve over time, namely inexperience and the triage process not yet flowing smoothly.

Perceptions of what the nurses' roles should be during triage varied, showing a possible lack of insight into how triage can actually contribute to the smooth operation of an emergency unit. The most important role of triage is to prioritise patients and most of the respondents realised this. This view is supported by Alarcon et al (1998:432), as well as Bekerman et al (2001:113) and the authors state that speedy and correct prioritising of patients by nurses prevent death and disability. Bracken (2003:76) adds that professional intervention by skilled nurses enhance speedy treatment of the patient.

In addition respondents viewed first aid as one of the most important triage roles. The second most important function of triage, according to the respondents, was to commence brief investigations as well as infection control and public relations through informing patients and relatives about actual or potential delays.

The third most important perceived role in triage was to initiate crisis intervention, and ensure patient safety – two important aspects related to ensuring a therapeutic environment for the patient. Another aspect was to take patients' vital signs – perceived to be less important than instituting minor investigations. Another role related to public relations is waiting room management, controlling overcrowding and performing brief patient evaluations through quick history taking. Related to this was the role of decision-making by the nurse as to who needed immediate attention versus those who could wait.

In terms of unit management, fewer respondents generally believed that triage could impact on the smooth management of the unit, whilst the literature review (Almes et al 2004:267; Chokani-Namame 2003:5-6; Swansberg & Swansberg 2002:239) state that triage also has this important function. Aspects related to this include reducing other staff members' stress levels, as well as forecasting and identifying potential problems. Respondents may not have had the bigger picture in mind when considering the advantages of triage within the operations of a specific emergency unit.

Although most of the triage roles ultimately lend themselves to improving patient relations, approximately half the respondents explicitly realised this. Patient satisfaction is one of the advantages of triage but many respondents did not realise this, or did not see this as being important.

4.6 CORE COMPETENCIES REQUIRED OF THE NURSE IN THE TRIAGE PROCESS

4.6.1 Core nursing competencies required in the triage process

Table 4.6 describes the core competencies, as perceived by respondents, which triage nurses should have to enable them to perform effective triage functions.

Table 4.6: Core competencies required of the nurse in the triage process

Core competencies required of the nurse during triage process	Respondents: N = 15	Percentage:
Good interpersonal skills: crisis intervention in distressed patients/relatives	13	87%
Primary assessment (ABCs)	13	87%
Secondary assessment (head-to-toe)	3	20%
Taking of a good medical history: good documentation skills	10	67%
Taking vital signs	12	80%
Determine level of consciousness	11	73%
Perform a urinalysis	10	67%
Utilise pulse oximetry	8	53%
Perform a blood glucose measurement	9	60%
Perform a blood heamoglobin measurement	8	53%
Perform an ECG	10	67%
Interpret an ECG	6	40%
Specific assessment: Plaster of Paris check	7	47%
Specific assessment: healing of sutured wound prior to removal of sutures	8	53%
Removal of sutures	7	47%
Basic life support procedures (such as basic CPR)	11	73%
Advanced life support procedures (such as defibrillation and administration of adrenaline)	2	13%
Medicolegal aspects in management	3	20%
Other: accurately prioritising patients	1	7%

Of the respondents, as many of 80% of the respondents, regarded good interpersonal skills during crisis intervention and management of distressed patients and their relatives as well as the primary assessment of the patient and the taking of vital signs of the patient as the most important core competencies of the nurse. Of the respondents, 73% indicated that the determination of the level of consciousness of the patient as well as the ability to perform

basic life support procedures such as cardiopulmonary resuscitation are vitally important core competencies.

In addition, the taking of a good medical history, performing an electrocardiogram (ECG), conducting urine analysis and good documentation skills were regarded by 67% as core competencies while 60% indicated that core competencies included the performing of a blood glucose measurement. Only 53% of the respondents indicated that blood haemoglobin measurement and the specific assessment of sutured wounds' healing prior to removal of sutures were core competencies of the nurse.

In the lower range, the respondents indicated that specific assessments such as Plaster of Paris (47%), interpreting an ECG (40%) and the removal of sutures were the core competencies of the nurse.

Only 20% of the respondents regarded secondary assessment, and the medicolegal aspects associated with emergency nursing to be core competencies.

Advanced life support procedures such as defibrillating the patient and administration of drugs were rated low on the competencies list and only 13% regarded these interventions to be core competencies. One respondent stated that patient prioritising should be a core competency.

4.6.2 Conclusion

All the competencies stated in section 4.6.1 are core competencies required in triage as discussed in section 2.7 of the literature review. The respondents never (100%) agree that any of the competencies are required to perform effective triage. This might show a lack of insight into how triage could contribute to the improved functioning of an efficient emergency unit.

4.7 STRENGHTS AND WEAKNESSES OF THE TRIAGE SYSTEM

4.7.1 Sorting and prioritising system prior to the implementation of the Cape Triage Score

In figure 4.9 the respondents' perceptions regarding sorting and prioritising of patients prior to the implementation of the Cape Triage Score are depicted. From this figure it is evident that 41% regarded the sorting and prioritising of patients, prior to the newly implemented triage system, as acceptable, while 13% regarded it as good, 13% regarded it as poor and 33% regarded it as average.

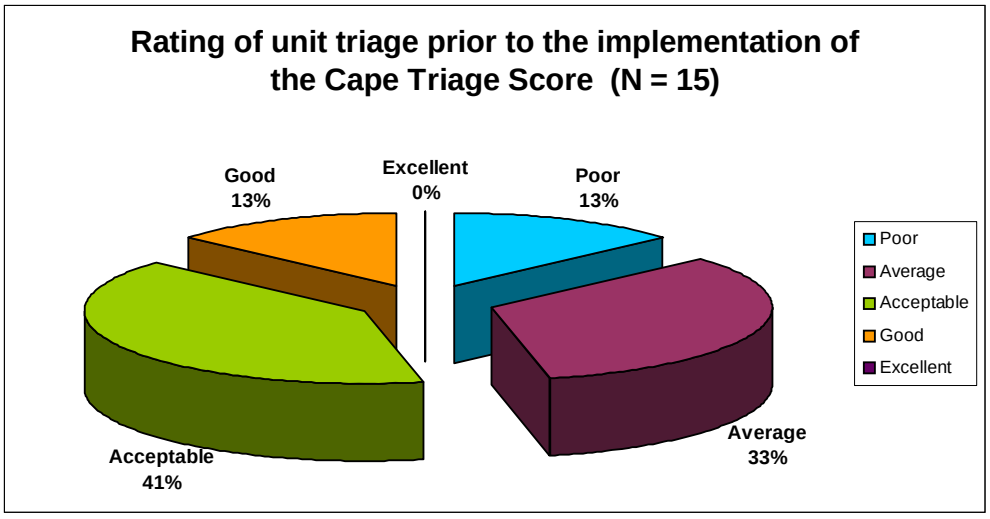


Figure 4.9
Rating of unit triage prior to the implementation of the Cape Triage Score

4.7.2 Rating for prioritising and sorting after the Cape Triage Score implementation

None of the respondents regarded the newly implemented triage system as poor or excellent. Of the respondents, 53.3% regarded the system as being acceptable, while 40% (n=6) regarded it as being good.

Although the perception of the newly implemented triage system is not excellent, staff had noted an improvement. Triage was noted to be “good” by 13% prior to the CTS implementation versus a 40% rating after the CTS implementation. The “acceptable” rating improved from 41% to 53% after the implementation of the CTS.

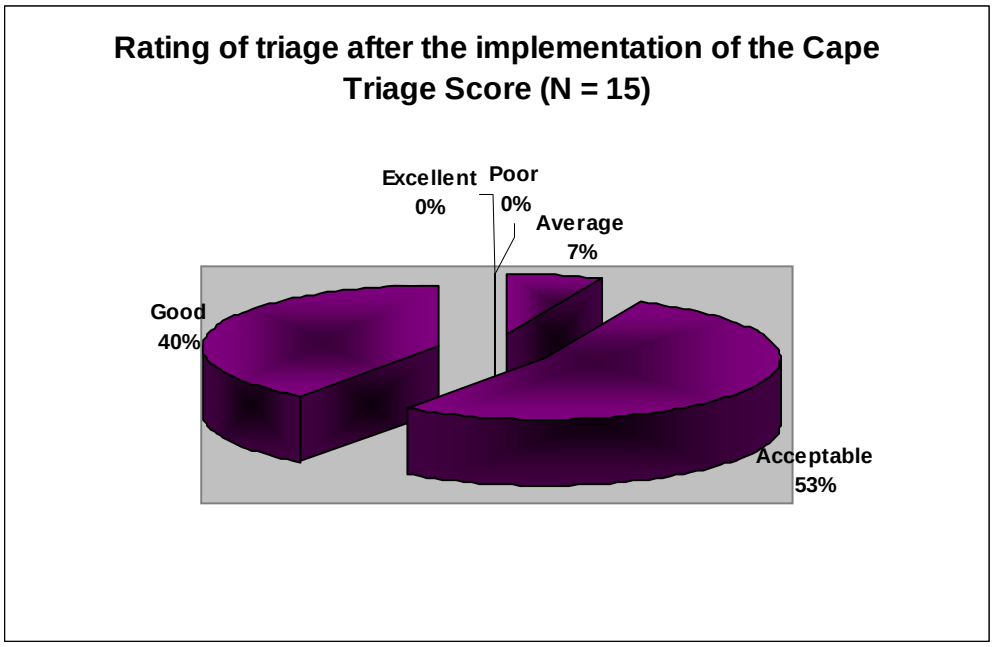


Figure 4.10
Rating of unit triage after the implementation of the Cape Triage Score

4.7.3 Conclusion

Although no formal triage system was in place prior to the implementation of the CTS, more than half of the respondents believed that the currently used ‘system’ was acceptable or good. This is probably due to the EMS triage system adopted in the emergency unit setting as described in section 2.9.2. After the implementation of a more formalised system, namely the CTS, the ratings of triage increased to over 90% where it was rated as acceptable or good.

4.8 STRENGTHS AND WEAKNESSES OF THE CAPE TRIAGE SCORE AS IMPLEMENTED IN ONE EMERGENCY UNIT

In table 4.7, the strengths and weaknesses of the Cape Triage Score as implemented in the emergency unit was evaluated. Respondents had to rate the score according to what they perceived to being strengths, weaknesses as well as its applicability to the specific emergency unit.

Table 4.7: Strengths and weaknesses of the Cape Triage Score as implemented in the emergency unit

	Strength	Weakness	Not in place/not applicable
It is scientifically calculated	13	0	2
It is easier to score compared to other triage systems	12	3	0
It is less subjective compared to other triage systems	11	3	1
The nurse is at the frontline of the unit, together with the reception / administrative staff, to alleviate non-medical staff's decision-making of who should be seen first and who is well enough to have his / her hospital file opened	12	1	2
The waiting room is managed, controlling overcrowding and a brief overview of each patient's problem (triage rounds) is obtained	6	4	5
Initiate contact with patients and family	10	2	3
Institute first aid measures where necessary	14	0	1
Keep patients and relatives informed of delays, expected time to be seen	8	4	3
Assessment (history taking) of patients is done on their arrival	6	5	4
Focused physical examination and taking of vital signs is done on their arrival	8	4	3
Brief investigations such as urinalysis, pregnancy test and haemoglucotest are done	10	2	3
Prioritisation of patients is done	13	0	2
Patients are appropriately allocated to a specific nurse or to the doctor, evenly distributing workloads amongst staff	6	6	3
Documentation is commenced	12	2	1
Crisis intervention and ensuring patients' safety, assisting very distressed patients or relatives / friends is implemented quickly	13	1	1

	Strength	Weakness	Not in place/not applicable
Patient flow through the unit is managed, knowing where patients are on arrival	12	1	2
Infection control, for example preventing blood spills and referring patients with a potential infectious disease to an isolated area, is implemented	11	2	2
Potential admissions to hospital are gauged	4	7	4
Reception/administrative staff's stress/tension is reduced	8	4	3
Reduce nurses' stress/tension	9	3	3
The emergency doctor's stress/tension is reduced	9	3	3
Inform the unit manager or senior nurse of unusual problems/occurrences	12	1	2
Function independently and direct others in stressful situations	11	2	2
Relationships with administrative/reception staff have improved	12	1	2
Relationships with doctors have improved	12	1	2
Relationships with nurses have improved	13	0	2
Patient/client relations are improved upon, improving on patient satisfaction	11	3	1
The system is not fully functional 100% of the time	1	10	4
The new layout of the unit is conducive to triage	11	2	2
Other			

Other comments made include the following:

- Often the doctor has to suggest that triaging should be taking place at that specific moment – during peak times.
- The triage would only be successful if implemented 100% of time where permanently allocated staff were appointed to manage it.
- There isn't always enough time to triage when you have to.

4.8.1 Strengths

The strengths of the system were rated the highest. Ninety three percent of the respondents indicated that the instituting of first aid measures is a strength and necessary in the triage area. Of the respondents, 87% (n=13) indicated that the Cape Triage Score is scientifically calculated, that prioritisation of patients is done, crisis interventions are

conducted thereby ensuring the patient's safety, assisting very distressed patients or relatives or friends more efficiently, and that the relationships with nurses had improved.

Similarly, high scores were indicated for strengths whereby 80% (n=12) of respondents indicated that the Cape Triage Score was easier to manage than the previous triage system used. It was also a strength that the nurse is at the frontline of the unit together with the reception and administrative staff to alleviate non-medical staff's decision-making of who should be seen first and who is well enough to have his or her file opened prior to being attended to. In addition, documentation is commenced by the nurse that is a strength as it saves time and limits medicolegal issues. The patient flow through the unit is controlled and the nurse knows where the patient is in the unit. In addition, respondents also viewed the notification of the unit manager or senior nurse of unusual problems or occurrences in the unit as a strength, and they also indicated that relationships with administrative personnel, reception staff and doctors had improved.

Of the respondents, 73.3% stated that the Cape Triage Score as being less subjective compared to other triage systems, the unit's layout being conducive to triage, more effective infection control for example preventing blood spills and referring patients with potential infectious diseases to an isolated area. In addition, 73.3% stated that another strength of the implementation of the CTS was allowing independent functioning of the nurse and giving her power to direct others during stressful situations. Positive scores were also given for the improvement of patient satisfaction levels.

Of the respondents, 66.67% indicated that the new triage score initiated more contact with patients and family and that brief investigations such as urinalysis, pregnancy tests and haemoglucotests could be carried out without delays caused by waiting for the doctors' orders for these tests.

Sixty percent of the respondents regarded the new Cape Triage Score as a strength regarding the reduction in the stress and tension levels of nurses and doctors and administrative staff. In addition, 53% indicated that relatives and patients were informed about delays and the expected time to be seen was indicated to the patient and relatives

and there was a more focused physical examination of the patients and vital signs were taken on arrival.

Only 40% of the respondents regarded the management of the waiting room, controlling of overcrowding and a brief overview of each patient's problem and the assessment (history taking) of the patient on arrival as being a strength of the Cape Triage system. In addition, the appropriate allocation of patients to a specific nurse or doctor and the even distribution of the workload amongst staff were also given a low rating.

Only 27% of the respondents regarded the gauging of potential admissions to the hospital to be a strength of the CTS implementation.

4.8.2 Weaknesses

There were limited weaknesses, although two major weaknesses needed to be considered. Although the strengths of the system were highly rated, 67% of the respondents regarded the system as not fully functioning 100% of the time as a serious weakness of the triage system. In addition, 47% of the respondents indicated that potential admissions were not gauged and that history taking of patients was not conducted on arrival.

4.8.3 Not in place

The views under weaknesses are consistent with the findings under the category "not in place". As many as 67% of the respondents indicated that the system was not in place adequately and that potential admissions were not gauged.

4.8.4 Conclusion

The major identified weakness of the CTS implementation was that it was not in place 100% of the time and so this was a great impediment to the unit. Where triage is identified in the literature (section 2.7) as being a tool to identify potential admissions to the hospital, the CTS also does not explicitly do so according to the respondents. The experienced

healthcare professional would however, with the initial assessment, probably be able to identify potential admissions.

Of the items listed in table 4.7, most were cited in the literature as benefits of triage (see sections 2.7 and 2.8). Not all respondents had insight into the advantages of triage, possibly due to lack of adequate training, lack of experience or the fact that the triage was not 100% in place, hampering effectiveness thereof and creating negative attitudes.

4.9 RECOMMENDATIONS FOR AN IMPROVED TRIAGE SYSTEM

The recommendations for an improved triage system yielded interesting and helpful results for future planning. None of the respondents indicated that the system should not have been implemented.

Table 4.8: Recommendations for an improved triage system

Recommendations for enhanced efficiency of the triage system implemented in the unit	Respondents: (N = 15)	Percentage:
No recommendations - the system should never have been implemented	0	0%
No recommendations suggested	0	0%
The system works 100% of the time	9	60%
We need additional nurses to have the system work 100% of the time	12	80%
Communication must improve between administrative/reception staff and nurses	4	27%
Communication must improve between doctors and nurses	5	33%
Hospital management must buy into the system	8	53%
Other	4	27%

Of importance was that 80% of the respondents indicated that more nurses were needed to have the system function effectively 100% of the time, although 60% indicated that the system was working 100% of the time. In addition, 53% indicated that hospital management should buy into the system, and 33% indicated that communication should improve between doctors and nurses. Other recommendations made by 27% of the respondents included that the triage should be conducted in the reception area, one

designated nurse should do triage and that nurses should rotate on a daily basis in the triage area. In addition, it was indicated that there was not sufficient time to triage when needed.

4.10 TRAINING NEEDS

In this section, the adequacy of training before the triage system was implemented as well as the future needs were investigated.

4.10.1 Adequacy of training before triage system was implemented

As many as 80% of the respondents indicated that they were adequately trained to conduct the triage of patients. Only two (13,3%) respondents indicated that they were unable to attend the scheduled training and one respondent (6,7%) indicated no need for training and no training received. These findings are reflected in figure 4.11.

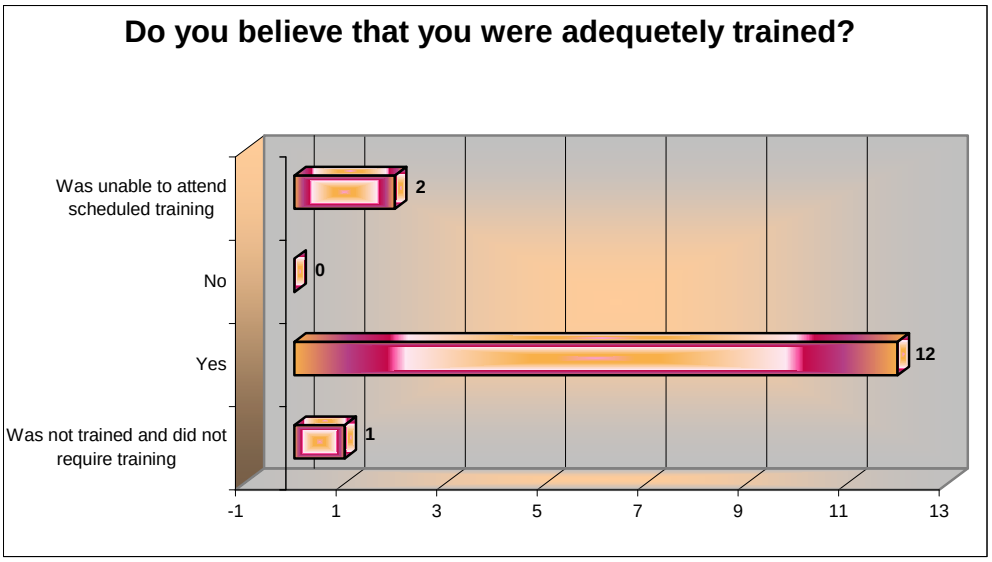


Figure 4.11

Adequacy of training

4.10.2 Future training needs

In table 4.9, future training needs as indicated by the respondents are provided.

Table 4.9: Future training needs

Further training needs:	Respondents:
Not applicable - do not practice triage	1
Not applicable - sufficiently trained	7
I need more practice and mentorship (supervision)	3
I still need to attend the triage training that was offered prior to implementation	3
I need more training in triage - at least a day's workshop	1
I need more training in triage - more than a day's workshop	0
Other	2

Of the respondents, 8 (53,3%) indicated that they did not need any further training in triage, although previous reports indicated that few nurses had indeed been exposed to additional training or lacked experience in various types of triage, for example triaging mass casualties.

However, 20% of the respondents indicated that they needed more practice and supervision in conducting triage and needed more training in this field. Two respondents (13,3%) suggested ongoing training as the system develops to keep up to date and that experience have added to training.

4.10.3 Conclusion

Although in section 4.10.1, 80% of respondents stated that they were adequately trained, 26.6% of respondents stated that they needed basic/additional training in triage (section 4.10.2). It could therefore be said that on-going in-service training would be required as developments occur in the triage system. From section 4.8 it was noted that insight lacked amongst respondents as to the multifaceted roles and advantages of triage requiring

further reinforcement. Another need expressed was for more supervision or where the triage nurse possibly felt inexperienced or uncertain about triage actions and decisions.

4.11 OTHER COMMENTS AND SUGGESTIONS

In this section, an open ended question provided an opportunity for the respondents to express their views not addressed by the questionnaire.

Helpful suggestions emerged from this open-ended question. These include are indicated in table 4.10.

Table 4.10: Other comments and suggestions

Comments/suggestions	N=15	%
Triage can work 100% if one person is appointed on every shift	4	26,7
Triage can work better if beds aren't occupied by consulting room patients	4	26,7
Triage room inadequately equipped	5	33,3
Designated person required to do triage	5	33,3
Administrative staff need to be trained	3	20
Triage should only be performed when there are more than 4 patients	1	6,0
Triage will function better if there are more personnel	5	33,3

As many as 33,3% of the respondents stated that the triage room was not adequately equipped and that personnel ran around for things such as dipstix, HGT and other equipment. This, according to the respondents, wasted time. In addition, they also suggested that one designated person should be allocated to the triage area and that administrative staff should receive basic training in triage. One respondent suggested that triage should only be performed where there are more than four patients.

Comments by 26,7% of the respondents were that triage could be more effective if one person per shift would be appointed to do triage and 4 (26,7%) respondents indicated that consulting room patients hampered the triage process.

4.12 SUMMARY

This chapter presented the results obtained from the completed questionnaires. The emergency unit's ability to triage was reviewed in terms of problems related to and ability to triage prior to the Cape Triage Score (CTS) implementation. The roles of the nurse in triage as well as strengths and weaknesses of the CTS were analysed. Finally recommendations were provided to enhance triage to improve on the operations of the unit as well as to increase staff awareness through in-service training.

CHAPTER 5

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1. INTRODUCTION

Patients who arrive at an emergency unit, expect appropriate treatment and service. Emergency units are, due to the nature of their business, unpredictable entities and so must have systems that aid personnel to decide which emergencies require the greatest priority. Triage offers an answer to this challenge.

The South African Patients' Rights Charter states that patients have the right to timeous emergency treatment at emergency medical facilities. This implies that a triage system be in place to determine patients' levels of acuity on arrival at these facilities so that they can be sorted and prioritised for care in terms of the actual or potential injuries and/or complications.

The emergency unit utilised for this study had several problems related to the sorting and prioritising of patients on their arrival at the unit that led to several problem and complaints. These included that patients complained when they had to wait too long to be seen, patients were seen in order of arrival at the emergency unit and were not seen in terms of the seriousness of their problems, nurses were frustrated as patients were not necessarily seen according to the patient's acuity level, and nurses knew that time was wasted where they could have undertaken smaller investigations or knew that patients could have been referred on to a specialist, enhancing speed of care rendered.

The emergency unit attempted to implement the Cape Triage Score (CTS) as a working triage system. The implementation thereof was not completely successful as reported by the particulars in this research. The main problem was that the triage could not be instituted 100% of the time as there was a staff shortage during peak times – precisely the time when effective triage was required.

This study attempted to gauge the unit's emergency medical staff's perceptions of the implemented triage system in terms of five research questions. Questionnaires were issued to the whole population of 17 candidates and 15 questionnaires were returned. The conclusions reached are discussed in terms of the five research questions posed at the beginning of the study, namely:

- What is the role of the nurse in the triage of patients in the emergency unit?
- What core competencies should the nurse possess to perform triage?
- What are the strengths of the newly implemented triage system?
- What are the weaknesses of the newly implemented triage system?
- What guidelines could be implemented to improve the current triage system?

5.2 CONCLUSIONS

After analysis of the questionnaires results, the following conclusions were made based on the research questions posed at the onset of the study.

5.2.1 What is the role of the nurse in the triage of patients in the emergency unit?

When the literature is consulted, it is noted that the role of the nurse in triage is an extensive one associated with great responsibility in the daily operations of en emergency unit. Respondents did not have a clear understanding of the role of triage nor of its advantages for the efficient management of the emergency unit.

The most important role of a nurse in triage is probably prioritisation of patients – deciding which patients are more in need of medical attention at any given time. Together with this role of the nurse, instituting first aid was rated as another important triage role. Neither prioritisation nor first aid implementation can occur without an appropriate history-taking and assessment of the patient. Measuring a patient's vital signs was seen by participants as a less important triage role.

Other roles of the nurse in triage that were measured as being less important included instituting minor investigations such as urinalysis. Infection control, such as removing a potentially infectious person from a crowded waiting room, and controlling blood spills, were also gauged amongst these less important triage roles.

Improving client satisfaction is one of the advantages of triage and an important role of the nurse in triage. This is done through informing patients of actual or potential delays, controlling overcrowding and brief evaluations through quick questioning in the waiting room, expediting patient management.

One of the nurse's roles is to create a therapeutic environment for the patient. Through triage, the nurse is able to initiate crisis intervention such as in cases of severe psychological distress. Ensuring a safe environment for the patient is also crucial in cases of patients attempting suicide.

Although respondents did not gauge triage as playing a role in unit management, triage has the potential to assist greatly in the overall management of the emergency unit. Specifically, nurses' stress can be reduced through the appropriate management of the unknown in the waiting room, as well as in recognising actual or potential problems. An example would be a sudden multiple casualty incident, requiring greater resources in terms of staffing, resources and facilities.

5.2.2 What core competencies should the nurse possess to perform triage?

One of the most important competencies required in triage is exceptional interpersonal skills. These skills are crucial in times of crisis intervention when patients and families are distressed as well as during delays when the unit is busy. Diplomacy in explaining to people that their own emergency, although important, is less important than another patient's, is a skill that every emergency nurse should learn with experience.

Along with the most important competencies gauged, patient primary assessment and vital sign taking featured. Rated also as important were the assessment of neurological status and basic life support procedures (such as CPR). These are obvious skills required to

assist in prioritising patients according to their acuity level as well as instituting first aid measures – these two roles having been rated as the most important roles of the nurse in triage.

Other vital competencies required by the triage nurse included taking of a good medical history, performing an ECG, conducting urine analysis, good documentation skills and blood glucose measurement. Again, these competencies are required to assess the patient on his arrival at the emergency unit.

Of less importance, (but still gauged by half the participants as important skills) in triage were blood haemoglobin measurement and the specific assessment of sutured wounds' healing prior to removal of sutures. The assessment of sutured wounds and limbs in Plaster of Paris were also found to be core competencies in triage.

Although also rated as core competencies, the removal of both sutures and Plaster of Paris in triage are debatable procedures. These procedures may be time-consuming and may again defeat the objective of rapid and effective triage processes.

Rated as even less important was the interpretation of an ECG. This is again a debatable subject as all emergency registered nurses should be able to interpret certain aspects of an ECG, namely the lethal arrhythmias and signs of acute myocardial infarction. Thus this question was open to interpretation and might have been ambiguous.

Competencies rated the least important included secondary assessments, medicolegal aspects' management and advanced life support skills. Secondary assessment was open to interpretation and participants might have understood that a full head-to-toe assessment was implied. However, specific assessment of the affected area should be included as a core competency. The lack of understanding of the importance of medicolegal aspects' management might be the reason for lack of support as a competency required in triage. By its nature, an emergency unit is a risk-laden department where patients present with many conditions related to medicolegal aspects, including assaults, rape, gunshot wounds and intoxication. With the arrival of such patients, the triage nurse must have insight as to how these problems should be managed.

Finally, advanced life support (ALS) as a core competency by the triage nurse is a debatable issue. Although all emergency nurses should be competent in certain advanced life support procedures such as defibrillation, the question remains as to whether the triage area, especially in a third world such as the RSA, would always carry ALS equipment. However in the ideal world, the triage room should have a defibrillator and the triage nurse should be competent in ALS.

5.2.3 What are the strengths of the newly implemented triage system?

The advantages of the implemented triage system were noticeable and the system appeared to have been received well by participants. Not only are there advantages for the doctors and nurses operational in the emergency unit, but it holds advantages for patients, receptionists and for the daily operations of the unit as a whole.

Treatment of the patient and his/her family and friends is improved with the implementation of triage. First aid is initiated faster during the emergent phase of the emergency on the patient's arrival in the emergency unit, as the nurse is able to receive the patient "at the front door" and refer him/her to the appropriate primary nurse or doctor, in case many patients might be waiting.

For the nurse performing triage, the actual calculation of the triage category is more objective, ensuring uniformity in triage categorisation. Although debatable whether the least qualified nurse should be allowed to perform triage, some authors believe that even an enrolled nurse assistant should be able to carry out triage due to its simplicity.

If prioritisation of patients is done and crisis interventions are conducted, the patient's safety will be enhanced, assisting distressed patients or relatives or friends more efficiently, and the relationships with nurses could improve.

Similarly, high scores were indicated for strengths whereby 80% of respondents indicated that the Cape Triage Score was easier to manage than the previously used triage system. It was also a strength that the nurse was at the frontline of the unit together with the reception and administrative staff to alleviate non-medical staff's decision-making of who

should be seen first and who is well enough to have his or her file opened prior to consultation. In addition, documentation was commenced by the nurse, which was a strength as it saved time and limited medicolegal issues. The patient flow through the unit was controlled and the nurse knew where the patient was in the unit. In addition, respondents viewed the notification of the unit manager about unusual problems or occurrences as a strength, and they also indicated that relationships with administrative personnel, receptionists and doctors had improved.

Of the respondents, 73.3% stated that the Cape Triage Score was less subjective compared to other triage systems, the unit's layout being conducive to triage, more effective infection control for example preventing blood spills and referring patients with potential infectious diseases to an isolated area. Of the respondents 73.3% stated that another strength of the implementation of the CTS as allowing independent functioning of the nurse and giving her power to direct others during stressful situations. Positive scores were also given for the improvement of patient or client relationships whereby patient satisfaction is achieved.

As many as 66.67% respondents indicated that the new triage score initiated more contact with patients and family and that brief investigations such as urinalysis, pregnancy tests and haemoglucotests could be carried out.

Sixty percent of the respondents regarded the new Cape Triage Score as a strength regarding the reduction in the stress and tension levels of nurses and doctors and administrative staff. In addition, 53% indicated that relatives and patients are informed of delays and expected time to be seen is indicated to the patient and relatives and there is also a more focused physical examination of the patients and vital signs are taken on arrival.

Only 40% regarded the management of the waiting room, controlling of overcrowding and a brief overview of each patients problem and the assessment (history taking) of the patient on arrival as being a strength of the Cape Triage system. In addition, the appropriate allocation of patients to a specific nurse or doctor and the even distribution of the workload amongst staff were also given a low rating.

5.2.4 Weaknesses of the newly implemented triage system

When the strengths of the implemented triage system were compared to its weaknesses, few weaknesses could be identified. The major weakness, unrelated to the actual Cape Triage Score, but related to its implementation, was that it was not fully functional at all times, which is a significant downfall in the unit's daily operations. It is crucial that triage be conducted continuously so as, at all times, to know the current status of patients and their acuities in the emergency unit at any one time.

Another weakness identified was that potential admissions were not gauged through the triage system. Gauging of potential admissions is stated as one of the advantages of triage in the literature. The CTS does not explicitly state which conditions are admissible into hospital and it is possible that respondents did not have adequate insight how triage could assist in predicting prospective admissions.

5.2.5 Guidelines to improve the current triage system

The results of the study indicated that the appropriate number of nurses are required to make the triage system function effectively 100% of the time. A related aspect was that participants believed that hospital management should buy into the system. It could be said that if the buy-in was there, then management would ensure that staffing was sufficient to make the system work effectively. The Cape Triage Score, by implication, requires a certain amount of time dedicated to obtain a history and assess vital signs. This was time consuming in the investigated emergency unit that traditionally did not allow all patients to be seen by the nurses in the unit. Therefore the recommendation that staff resources are required to effectively manage the triage process is based on the conditional time required by nurses to perform triage functions effectively.

Therefore, to improve the system, hospital management must have insight into the purpose and advantages of triage and provide adequate numbers of nurses. It may not necessarily imply employing additional nurses but re-evaluating the organisation and flow of patients through the emergency unit. Each unit would need to assess it's own flow and organisation of patients to nurses.

Another recommendation suggested by the participants was that communication should improve between nurses and doctors. Communication barriers may have been due to lack of interpersonal relations, time or geographical constraints where flow of patients and organisation of nurses relative to doctors' locations might have been inadequate. Effective communication between the multidisciplinary team is important to ensure effective management of patients according to priority rating.

Another recommendation was that triage should be conducted in the reception area, rather than in the triage room. The Cape Triage Score as implemented in the investigated unit, requires full history-taking as well as taking of vital signs and other possible interventions. These interventions require a private area away from a busy reception area. The suggestion is, however, a valid one as the privacy requirement once again removes the nurse from the reception area for a stipulated period of time that negates some of the purposes of triage. Also a bottleneck of patients may occur whilst the nurse is assessing the patient according to the CTS –which may take a few minutes at a time – the ill patients may be missed in the process of catching up. The suggestion of triage in reception implies that a "gross" form of triage be done where the nurse only asks general questions and relies on the "eyeball technique" where observation and prioritisation be done according to certain criteria of general definitions – as was the only technique used in the RSA prior to CTS implementation. This has many repercussions such as medicolegal issues (where documentation may not be done). However this is an alternative system, which warrants further research. The suggestion of reception triage could be considered where nursing personnel are limited.

The need for more practice and supervision in triage was indicated in the study. This recommendation is an important one where nurses should be supervised and guided in their initial exposure to triage (after formal training). A senior, qualified emergency nurse should be allocated to work with the new triage nurse until she is satisfied that the nurse is able to function independently and take vital decisions on her/his own.

Although not determined in the study, it is recommended that audits are done on triage documentation. Quality of nursing care is measured through documentation audits and triage decisions and insight may be measured through retrospective audits. In-service

training is recommended after the results of this study are analysed as staff have inadequate insight into the roles and advantages of triage. Those who had not undertaken formal triage training should attend such training. Results of audits should also be discussed at in-service training so as to discuss triage methods, decisions and quality improvement techniques.

5.3 RECOMMENDATIONS FOR THE DEVELOPMENT OF TRIAGE NURSING IN THE REPUBLIC OF SOUTH AFRICA

This study lends itself to further research and development in training “emergency clinical nurse practitioners” that could be trained specifically in triage nursing. These nurses could be trained and given the scope of practice to prescribe certain blood tests and radiological investigations, which would assist in managing emergency units and emergency medical practitioners’ management of patients.

5.4 RECOMMENDATIONS FOR FURTHER STUDIES

Recommendations for future studies include the following questions, namely:

- Do we need a triage nurse allocated at all times/only when busy (bottlenecks) or not at all?
- Does triage not cause a bottleneck – slowing down of patients’ management?

5.5 FINAL CONCLUSION

In this chapter, the conclusions, limitations and recommendations of the study were described. Further recommendations for studies to follow this research were provided.

BIBLIOGRAPHY

Alarcon, J, Fernandez, CMB & Wuerz, R. 1998. Inconsistency in emergency department triage. *Annals of Emergency Medicine*, 32(4): 431–435.

Albin, SL, Bell, B, Jacobson, S & Wasertheil-Smoller, S. 1975. Evaluation of emergency room triage performed by nurses. *American Journal of Public Health*, 65(10): 1063–1068.

Almes, E, Davis, BA, Elder, R & Littlepage, N. 2004. Patient satisfaction with triage nursing in a rural hospital emergency department. *Journal of Nursing Care Quality*, 19(3): 263–268.

American College of Surgeons Committee on Trauma. 1997. *Advanced trauma life support for doctors*. 6th edition. Chicago: American College of Surgeons.

ATLS [Online] Available: Advanced Trauma life Support Website. http://www.atls.co.za/courses.htm accessed 14 August 2004.

Babbie, E & Mouton, J. 2001. *The practice of social research*. Cape Town: Oxford University Press Southern Africa.

Balfour, C. 2004. Personal communication 15 November 2004. Telephone number: 082 551 4000. E-mail: clive.balfour@intekom.co.za

Bekerman, L, Hay, E, Peled, R & Rosenberg, G. 2001. Quality assurance of nurse triage: consistency of results over three years. *American Journal of Emergency Medicine*, 19(2): 113–117.

Boyes, AP. 1995. Health care assistants: delegation of tasks. *Emergency Nurse*, 3(2): 6–9.

Bracken, J. 2003. Triage in *SHEEY'S Emergency nursing: principles and practice*. 5th edition. St Louis: CV Mosby.

Briggs, JK. 2002. *Telephone triage protocols for nurses*. 2nd edition. Philadelphia: JB Lippincott.

Bucknall, T & Gerdtz, M. 2000. Australian triage nurses' decision-making and scope of practice. *Australian Journal of Nursing*, 18 (1): 24–33.

Burns, N & Grove, SK. 2001. *The practice of nursing research: conduct, critique & utilization*. 4th edition. Philadelphia: WB Saunders.

Cape Triage Group meetings, 2005. Chairperson: Dr L. Wallis. Meetings attended and permission obtained for use of *Cape Triage Score* and its literature.

Cape Triage Group, 2005. Chairperson: Dr L. Wallis. Cape *triage score: hospital provider manual.* Cape Town: Joint Emergency Medicine Division – University of Cape Town & University of Stellenbosch. Unpublished material.

Cardona, VD, Hurn, PD, Bastnagal Mason, PJ, Scalion, AM & Viese-Berry, SW (eds.). 1994. *Trauma nursing: from resuscitation through rehabilitation*. 2nd edition. Philadelphia: WB Saunders.

Caroline, NL. 1995. *Emergency care in the streets*. 5th edition. Philadelphia: Lippincott, Williams & Wilkins.

Champion, HR, Mabee, MS & Shair, EK. 1994. *Economic issues in trauma care: trauma nursing: from resuscitation through rehabilitation*. 2nd edition. Philadelphia: WB Saunders.

Chokani-namame, NM. 2003. *Pre-hospital care: the perceptions of registered nurses in Gaborone, Botswana*. Unpublished Masters Dissertation. Pretoria: University of South Africa.

Cioffi, J. 1998. Decision making by emergency nurses in triage assessments. *Accident and Emergency Nursing*, 6(4): 184–191.

Clochesy, JM, Breu, C, Cardin, S, Whittaker, AA & Rudy, EB. 1996. *Critical care nursing*. 2nd edition. Philadelphia: WB Saunders.

Concise Oxford Dictionary. 1995. 9th edition. New York: Oxford University Press.

Department of Health (United Kingdom). 1991. *The patient's charter*. London: Department of Health.

De Vos, AS. (ed). 1998. *Research at grass roots: a primer for the caring professions.* Pretoria: Van Schaik.

De Vries, S, Gottschalk, SB, Wallis, LA & Wood, D. 2005. The Cape triage score. *Nursing Update*, 29 (7): 38–43.

Dolan, B & Holt, L.(eds) 2000. *Accident and emergency: theory into practice.* London: Ballière Tindall.

Dolan, B. 1998. Dynamic process of triage. *Emergency Nurse*, 6(4): 1.

Dooley, D. 1995. *Social research methods*. 3rd edition. Upper Saddle River: Prentice-Hall.

Durbanville Mediclinic. 2005. Summary of monthly statistics: December 2004 – November 2005. (Unpublished report). Durbanville: Mediclinic.

Edwards, B. 1999. What's wrong with triage? *Emergency Nurse*, 7(4): 19–23.

Estrada, EG. 1981. Triage systems. *Nursing Clinics of North America*, 16(1): 13–24.

Fraser-Moodie, A, George, S, Pritty, P, Read, S, Westlake, L & Williams, B. 1993. Nurse triage in theory and practice. *Archives of Emergency Medicine*, 10(3): 220–228.

Free Online Dictionary. 2005. [Online]. Available: Free Online Dictionary, Thesaurus and Encyclopedia Web Site.
http://www.thefreedictionary.co./quality accessed 14 November 2005.

Fry, M. 2001. Triage nurse order x/rays for patients with isolated distal limb injuries: a 12 month ED study. *Journal of Emergency Nursing*, 27 (1): 17 – 22.

Goldstone, M, George, JE & Quattrone, MS. 1996. Risk management spotlight: increased risk potential of the ED triage nurse. *Journal Emergency Nursing*, 22 (3): 241.

Gottshalk, S. 2004. Triage – a South African perspective. *CME*, 22 (6): 325 – 327.

Hall, JB, Schmidt, GA & Wood, LDH. 1999. *Principles of critical care*. 2nd edition. St Louis: McGraw-Hill.

Heyns, T. 2003. Core competencies of the emergency unit nurse in life-threatening situations in the emergency care environment in South Africa. Unpublished Masters Dissertation. Pretoria: University of Pretoria.

Heyns, T. 2002. Core competencies of the emergency unit nurse in life-threatening situations in the emergency care environment in South Africa. Unpublished Masters dissertation proposal document. Pretoria: University of Pretoria.

Howell, E. 1988. *Foundation for trauma nursing: comprehensive trauma nursing: theory and practice*. Glenview, Illinois: Scott & Foresman.

Howell, E, Wildra, L & Gail Hill, M (eds). 1988. *Comprehensive trauma nursing: theory and practice*. Glenview, Illinois: Scott & Foresman.

Howell, E. 1988. Foundation for trauma nursing, in *Comprehensive trauma nursing: theory and practice*, edited by E Howell, L Wildra & M Gail Hill. Glenview, Illinois: Scott & Foresman: 3-33.

Jones, C. 1993. Triage decisions: how are they made? *Emergency Nurse*, 1 (1): 13 – 14.

Joy, C. 1988. Administrative issues in trauma care *in Trauma Nursing from Resuscitation through Rehabilitation*. 2nd edition. Philadelphia: WB Saunders.

Klein, DG. 1996. *Patients with trauma.* 2nd edition. Philadelphia: WB Saunders.

Lohr, KN. (ed). 1990. *Medicare: a strategy for quality assurance*. Washington, DC: National Academy Press.

Mallet, J & Woolwich, C. 1990. Triage in accident and emergency departments. *Journal of Advanced Nursing*, 15 (1): 1443 – 1451.

McNiff, J. & Whitehead,J. 2002. *Action research: principles and practice.* 2nd edition, London: Routeledge Farmer.

McQuillan, K, Von Rueden, KT, Hartsock, RL, Flynn MB and Whalen, E (eds). 2002. *Trauma nursing: from resuscitation through rehabilitation.* 3rd edition. Philadelphia: WB Saunders.

Mellish, JM & Wannenburg, I. 1997. *Unit teaching and administration for nurses*. Johannesburg: Heinemann.

Mouton, J. 1996. *Understanding social research*. Pretoria: Van Schaik.

Nestor, P. 2003. Triage history. [Online]. Available: *Journal of Emergency Primary Health Care*, 1 (3-4) : (Article Number: 990004) http://www.jephc.co./uploads/990004.pdf Accessed 15 November 2004.

Newberry, L (ed). 2003. *SHEEY'S Emergency nursing: principles and practice*. 5th edition. St Louis: CV Mosby.

Nicol, A & Steyn, E. 2004. *Handbook of trauma for Southern Africa*. Cape Town: Oxford University Press.

Nileson, D. 2004. Improving emergency department patient satisfaction when triage nurses routinely communicate with patients as to reasons for waits: one rural hospital's experience. *Journal of Emergency Nursing*, 30 (4), 336 – 338.

Nuttal, M. 1986. The chaos controller. *Nursing Times*, 82 (20): 66 – 68.

Parish, C. 2000. Nurse-led triage will help streamline emergency unit services. *Nursing Standard*, 14 (39): 6.

Pera, SA & Van Tonder, S. 2005. *Ethics in health care*. 2nd edition. Cape Town: Juta.

Polit, D, Beck, C & Hungler, B. 2001. *Essentials of nursing research: methods, appraisal and utilization*. Philadelphia: JB Lippincott.

Polit, DF & Hungler, BP. 1999. *Nursing research: principles and methods.* Philadelphia: JB Lippincott.

Polit, DF & Hungler, BP. 1993. *Essentials of nursing research: methods, appraisals and utilisation*. 4th edition. Philadelphia: Lippincott-Raven.

Proehl, A. 1999. *Emergency nursing procedures.* 2nd edition. Philadelphia: WB Saunders.

Qureshi, K & Veenema, TG. 2003. *Disaster triage and chemical decontamination: disaster nursing and emergency preparedness for chemical, biological, and radiological terrorism and other hazards*. New York: Springer.

Rademeyer, G. 1999. *Psychology research methodology*. Tutorial Letter 105/1999 for PSY471-S. Pretoria: University of South Africa.

Ross, SE, Morgan, T & Schwab, CW. 1988. The emergent phase, in *Comprehensive trauma nursing: theory and practice,* edited by E Howell, L Wildra & M Gail Hill. Glenview, Illinois: Scott & Foresman: 367 – 377.

Searle, C & Pera, S. 1992. *Professional practice: a South African nursing perspective.* 2nd edition. Durban: Butterworths.

Selvig, MR. 1985. Triage in the emergency department. *Nursing Management*, 16 (8): 30B, 30F & 30H.

South Africa (Republic). Department of Health. 2003. *National Health Bill.* (Bill no 32B of 2003). Pretoria: Government Printer.

South Africa (Republic). 2002. *Draft 2: Regulations governing emergency centres in South Africa* – Discussion document. Pretoria: Government Printer.

South Africa (Republic). 1978. *Nursing Act no 50, no 1978, (as amended).* Pretoria: Government Printer.

South Africa (Republic). 1993. *Regulations relating to the course in Clinical Nursing Science leading to registration of an additional qualification*. Regulation R.212, in terms of the Nursing Act, 1978 (Act no 50, 1978, as amended). Pretoria: Government Printer.

Swansberg, RC. 1993. *Introductory management and leadership for clinical nurses.* London: Jones & Bartlett.

Swansberg, RC & Swansberg, RJ. 2002. *Introduction to management and leadership for nurse managers*. 3rd edition. Boston: Jones & Bartlett.

Thelan, LA, Urden, LD, Lough, ME & Stacy, KM. 1998. *Critical care nursing diagnosis and management*. 3rd edition. St Louis: CV Mosby.

The Patients' Rights Charter. 2006. [Online]. Available: Department of Health Web Site, http://www.doh.gov.za/docs/legislation/patientright/chartere.html Accessed October 2006.

University of South Africa. 2000. *Research in the social sciences*. Only Study Guide for RSC201-H. Pretoria: University of South Africa.

Uzzel, D. 1995. Ethnographic and action research, in *Research methods in psychology,* edited by Breakwell, G.M., Hammond, S. & Fife-Schaw, C. London: Sage.

Van Eeden, R & Terre Blanche, M. 2000. *Research in the social sciences*. Only Study Guide for RSC201-H. Pretoria: University of South Africa.

WHO. See World Health Organization.

Wallis, Dr L. 2004. Personal communication 2004/2005. Telephone number: 082 524 9704. E-mail: leewaliis@bvr.co.za

Walsh, M. 1990. *Accident and emergency nursing* – a new approach. 2nd edition. Oxford: Butterworth Heineman.

Woolwich, C. 2000. *Accident and emergency*: theory into practice. London: Balliliere Tindall.

World Health Organization: Injuries and Violence Prevention Department; International Association for the Surgery of Trauma and Surgical Intensive Care. 2003. *Guidelines for essential trauma care*. (Draft document). Geneva: World Health Organization.

Annexure A

1. Copy of Letter to Hospital requesting permission for study

2. Letter of approval from Hospital

---

60 Strawberry Fields
Cedarwood Rd
Goedemoed
Durbanville
7550
21 March 2005

The Nursing Services Manager
…….. (hospital)
(address)

CC: Dr ….. (Hospital group Emergency unit co-ordinator)
Dr ….. (Emergency Unit doctor – partner)
Dr ….. (Emergency Unit doctor – partner)
Ms …. (Client Service Manager)

Dear Mrs ….

Request for permission: Research for MA Cur dissertation of limited scope (Unisa)

"AN INVESTIGATION INTO THE IMPLEMENTATION OF AN ACCIDENT AND EMERGENCY UNIT TRIAGE SYSTEM IN A SELECTED PRVIATE HOSPITAL"

I hereby wish to request permission to commence with the above research within our emergency unit.

As we know, the correct prioritisation of patients within the emergency unit has been a pressing need since my employment at our hospital and I would like to use the opportunity to investigate and assist in the implementation of a working solution with the triage system.

Implications for the hospital should only be positive in terms of external (patients) and internal (doctors) client service satisfaction.

I do not foresee any costly financial implications for the hospital. Part of the research will include the implementation of a one-paged supplementary triage document that will need to be printed/copied. May I request that our hospital may assist in the photocopying costs. No further costs are foreseen.

Attached is the (suggested) amended research proposal as approved by my supervisor. Dr S. Hattingh at Unisa. Please feel free to ask me for any further information.

Yours faithfully

Jean Augustyn
Unisa student: 3246-4428

[redacted]

2 August 2005

Mrs J Augustyn

REQUEST TO CONDUCT RESEARCH FOR MA CUR DISSERTATION

Permission is hereby granted as requested.

Please be advised that the company ([redacted]) policy specify that copyright be reserved on all publications/documents generated by employment during employment.

Please contact me should you require any further information.

Wishing you the best of luck with your studies.

.....

Mrs E S[redacted]
Nursing Manager

[redacted]

Annexure B

Letter to participants

---

27 Terrace du Ville
Steenbok Road
Uitzicht
Durbanville
7550
Date

Dear Colleague

I am a Masters student at the Department of Health Studies, University of South Africa (Unisa). You are invited to participate in this questionnaire, which is part of research study on:

"AN INVESTIGATION INTO THE IMPLEMENTATION OF AN EMERGENCY UNIT TRIAGE SYSTEM IN A SELECTED PRIVATE HOSPITAL"

By completing this questionnaire and returning it to me by (*date*), you will assist me in continuing to implement a formal triage system in our emergency unit to provide a more efficient and professional emergency healthcare service.

Permission for the study has been granted by the relevant authorities. Please note that participation is voluntary and results will be kept anonymous. Please read the accompanying information letter regarding the research. By completing and returning the questionnaire, informed consent is implied. Note that the identity of our hospital will also remain anonymous at all times. Finally, all information acquired during the research will be kept confidential and findings reported on in the dissertation and scientific journal will not identify you personally as a participant in the study.

Many thanks for your agreement in completing this questionnaire. Completed questionnaires can be returned to myself in the self-addressed attached envelope.

Please direct any questions or concerns to myself as soon as possible.

Yours faithfully

Jean Augustyn

INFORMATION LETTER TO PARTICIPANTS

January 2006

BY JEAN AUGUSYN, UNIT MANAGER, TELEPHONE NUMBER: 021 ….

You have been asked to complete the attached questionnaire on triage that has been implemented in out emergency unit. Please read the following information before signing consent to participate therein.

Title

An investigation into the implementation of an emergency unit triage system in a selected private hospital.

Introduction

You are invited to participate on a voluntary basis in this research project. The following information is to assist you in your decision as to whether to participate.

Before agreeing to participate, you should fully understand why the research is being done and what is involved.

What is an emergency nurse?

The emergency nurse is a term used synonymously with the term trauma and/or emergency nurse. This person has an additional qualification in one/more of the following:

- Medical and surgical nursing science: Critical care nursing (general surgery and trauma)
- Medical and surgical nursing science: Critical care nurse (trauma)
- Medical and surgical nursing science: Trauma and emergency nursing
- Medical and surgical nursing science: Trauma nursing
- Certificate: Traumatology

Who can participate in this research?

The following persons can participate in this project::

- Any person, working this emergency unit who is involved in prioritising patients on their arrival
- They can be a nurse or medical doctor

What is the purpose of this research project?

The main purpose is to implement a triage system in our emergency unit to provide a more efficient and professional emergency healthcare service. The following objectives have been formed and these objectives will hopefully be fulfilled:

- Determine the role of the nurse in the triage of patients in the emergency unit.
- Determine the core competencies of the nurse in the triage of the patient in the emergency unit.

- Explore and describe strengths and weakness of the newly implemented triage system
- To provide guidelines for the improvement of a triage system.

What is expected from you during this research project?

You need to complete the questionnaire that is handed to you. The questionnaire must then be placed in the self-addressed envelope provided to reach the researcher on the same day handed to you.

Has this research project received ethical approval?

The research proposal was submitted to the Research and Ethics Committee at the Department of Health Studies at the University of South Africa prior to commencement of the study. Permission was obtained from nursing manager of the private hospital to conduct the study.

What are your rights as participant in this research project?

Participation is voluntary and you may at any time refuse to participate or withdraw from the project without stating any reasons. You will also not suffer any consequences thereof. By completing and returning the questionnaire, informed consent is implied. Data that may be reported on in a scientific journal will not include any information that identifies you as a participant in the study. As all data is anonymous, you may not be able to recall your consent, as your questionnaire/information will not be traceable. All information obtained will remain confidential.

Are there any warnings or restrictions concerning my participation in this research?

Please do not mention any names where you or any other person or institution may be identified.

Confidentiality

All information obtained during this study will remain confidential. The hospital in which we practice will also remain anonymous during the study. Data that may be utilised in a scientific journal will not include any information that will identify you as a participant.

Additional information

If you have any additional questions while completing the questionnaire, please do not hesitate to approach the researcher.

Researcher: Jean Augustyn

Tel: ……

E-mail: ……

Annexure C

Questionnaire

Please complete the attached questionnaire on triage that has been implemented in out emergency unit. Ensure that you have read the attached information brochure and understand that results are completely anonymous.

Section A: Demographic information

Please tell us about you and your experience in emergency medicine / nursing.

a1 Indicate your **gender.** Mark only one item.

a1_1	Male	1
a1_2	Female	2

a2 Please indicate the **age group** in which you fall. Mark only one item.

a2_1	> 45 years	1
a2_2	40 - 45 years	2
a2_3	35 - 39 years	3
a2_4	30 - 34 years	4
a2_5	25 – 29 years	5
a2_6	< 25 years	6

(continued on next page)

a3 Please indicate your **professional status.** Mark only one item.

a3_1	Registered nurse	1
a3_2	Registered emergency trained nurse	2
a3_3	Enrolled nurse	3
a3_4	Enrolled nurse assistant	4
a3_5	Emergency unit doctor	5

a4 Indicate your **number of years experience in emergency medicine / nursing.** Mark only one item.

a4_1	< 2 years	1
a4_2	2 – 3 years	2
a4_3	4 – 5 years	3
a4_4	6 – 7 years	4
a4_5	8 – 9 years	5
a4_6	> 10 years	6

a5 Indicate your **additional training in emergency medicine/nursing**. Mark only one item.

a5_1	• Not applicable / nil	1
a5_2	• Emergency nursing certificate	2
a5_3	• Emergency nursing / medicine diploma	3
a5_4	• Advanced degree in emergency nursing / medicine	4
a5_5	• In-service / course training on triage	5
a5_6	• Other (please specify): _____	6

(continued on next page)

Section B: Previous triage experience

Please tell us about your previous experience in triage.

b1 In which **environment(s)** have your practiced/experienced triage before? You may mark more than one item.

b1_1	• Not applicable – never practiced / experienced triage before	1
b1_2	• Prehospital environment	2
b1_3	• Disaster triage	3
b1_4	• Telephonic triage	4
b1_5	• Tactical – battlefield	5
b1_6	• Multiple casualty incidents	6
b1_7	• Emergency unit triage	7
b1_8	• Other (please specify): _____	8

b2 In which **country/continent** did you experience/practice triage previously? Mark only one item.

b2_1	• Not applicable – never practiced / experienced triage before	1
b2_2	• South Africa	2
b2_3	• Remainder of Africa	3
b2_4	• United Kingdom (UK)	4
b2_5	• United States of America (USA)	5
b2_6	• Australia	6
b2_7	• United Arab Emirates (UAE)	7
b2_8	• Other (please specify): _____	8

(continued on next page)

b3 What **type of triage** was practiced where you experienced/practiced it before? You may mark more than one item.

b3_1	• Not applicable – never practiced / experienced triage before	1
b3_2	• Indirect triage via telephone	2
b3_3	• Non-professional triage: On the patient's arrival, he or she registers with the receptionist and has a seat to wait for the doctor. Only if the receptionist has a specific concern will she call a nurse to assist or evaluate	3
b3_4	• Basic triage. The patient is briefly assessed by the nurse on his/her arrival, the nurse assigns a priority rating and the patient is then allocated to the treatment area.	4
b3_5	• Intermediate triage: The nurse assesses and prioritises the patient on his or her arrival, and initiates some nursing interventions such vital signs, ECG, urinalysis and pregnancy testing. Written protocols may have been followed where patients may, for example, receive early analgesia or, have initial x-rays for certain injuries	5
b3_6	• Advanced triage: Here the most comprehensive care is rendered by the trained and highly experienced nurse where the patient is assessed and then suitable investigations are initiated such as x-rays, phlebotomy and a limited physical examination. The patient may even then be referred to an external service provider.	6
b3_7	• Other (please specify): _____	7

(continued on next page)

b4 Would you say that our **emergency unit had/has a problem with sorting and prioritising patients.** Mark only one item.

b4_1	• Not applicable – never practiced/experienced triage before	1
b4_2	• Yes	2
b4_3	• Sometimes	3
b4_4	• No	4
b4_5	• Other (please specify): _____	5

Section C: Problems experienced in the emergency unit regarding sorting of patient

Please identify problems experienced in our unit regarding the sorting of patient in other words, before triage was commenced.

c1 Identify **problems that were experienced** in our emergency unit **before triage was commenced.** You may mark more than one item.

c1_1	• Nurses and Doctors were unaware of patients' illnesses and injuries while patients were in the waiting room	1
c1_2	• Overcrowding in the waiting room	2
c1_3	• Long waiting times to see the doctor	3
c1_4	• Patients complain that they wait too long	4
c1_5	• Patient dissatisfaction	5
c1_6	• Lack of flow of patients through the department and wastage of time (where / history investigations could already have been completed)	6

c1_7	• Patients need to be seen by the doctor 'twice' if small investigations had been undertaken prior to their being seen by the doctor for the first time	7
c1_8	• Deterioration of already severely ill/injured patients	8
c1_9	• Patients are not rapidly attended by the doctor – in terms of the seriousness of their problems	9
c1_10	• Unbalanced workloads for nurses	10
c1_11	• Poor infection control, such as blood spills or patients with infectious diseases infecting others in the waiting room	11
c1_12	• Unsafe clinical environments for patients requiring additional assistance such as distressed/psychiatric patients	12
c1_13	• Incorrect decision-making by reception and administrative staff of who should sit and wait and who should be assisted by a nurse	13
c1_14	• Time is wasted where, more serious, patients could be assessed by the doctor and/or referred to a specialist sooner	14
c1_15	• Nurses 'wait' for the doctor, when they already know what procedures/investigations will follow, 'waste' more time.	15
c1_16	• No problems were experienced	16
c1_17	• Other (please specify): _____ _____ _____	17

(continued on next page)

Section D: Perception of the nurses' role during triage

Identify what you believe the nurse's role is during triage.

d1 Please indicate what you believe are the **nurses' roles during triage**. You may mark more than one item.

d1_1	• The nurse must be at the frontline of the unit, together with the reception/administrative staff, to alleviate non-medical staff's decision-making of who should be seen first and who is well enough to have his/her hospital file opened	1
d1_2	• Manage the waiting room, controlling overcrowding and getting a brief overview of each patient's problem (triage rounds)	2
d1_3	• Initiate contact with patients and family	3
d1_4	• Institute first aid measures where necessary	4
d1_5	• Keep patients and relatives informed of delays, expected time to be seen	5
d1_6	• Assessment (history taking) of patients	6
d1_7	• Focused physical examination and taking of vital signs	7
d1_8	• Brief investigations such as urinalysis, pregnancy test and haemoglucotest	8
d1_9	• Prioritisation of patients	9
d1_10	• Allocate patients appropriately to a specific nurse or to the doctor, evenly distributing workloads amongst staff	10
d1_11	• Documentation	11
d1_12	• Crisis intervention and ensuring patients' safety, assisting very distressed patients or relatives/friends	12

d1_13	• Manage patient flow through the unit, knowing where patients are on arrival	13
d1_14	• Infection control, for example preventing blood spills and referring patients with a potential infectious disease to an isolated area	14
d1_15	• Gauging potential admissions to hospital	15
d1_16	• Reduce reception/administrative staff's stress/tension	16
d1_17	• Reduce nurses' stress/tension	17
d1_18	• Reduce the emergency doctor's stress/tension	18
d1_19	• Inform the unit manager or senior nurse of unusual problems/occurrences	19
d1_20	• Function independently and directing others in stressful situations	20
d1_21	• Improve on patient/client relations, thereby improving patient satisfaction	21
d1_22	• Other (please specify)	22

d2 How do you, the **nurse, feel when you are placed to work in the triage area?** You may mark more than one item.

d2_1	• Not applicable, I am not a nurse	1
d2_2	• Frustrated	2
d2_3	• Indifferent	3
d2_4	• Satisfied	4
d2_5	• Empowered	5
d2_6	• Nervous	6
d2_7	• Very satisfied	7

(continued on next page)

d3 Please **indicate the factors which contribute to the feelings** expressed about the triage system implemented in our unit.

d3_1	I do not feel adequately trained	1
d3_2	I am trained but still inexperienced	2
d3_3	I feel this is not within my scope of practice	3
d3_4	The process is not flowing smoothly yet	4
d3_5	I feel I have more control in the unit	5
d3_6	My morale has improved	6
d3_7	I feel more responsible	7
d3_8	The unit is running more smoothly	8
d3_9	Other: _____	9

Section E: Perception of the nurses core competencies in triage

Identify what you believe the nurse's core competencies should be during triage.

e1 Please indicate what you believe are the **nurses' core competencies should be during triage.** You may mark more than one item.

e1_1	Good interpersonal skills: Crisis intervention in distressed patients / relatives	1
e1_2	Primary assessment (ABCs)	2
e1_3	Secondary assessment (head-to-toe)	3
e1_4	Taking of a good medical history: Good documentation skills	4
e1_5	Taking vital signs	5
e1_6	Determine level of consciousness	6
e1_7	Perform a urinalysis	7
e1_8	Utilize pulse oximetry	8

e1_9	Perform a blood glucose measurement	9
e1_10	Perform a blood hemoglobin measurement	10
e1_11	Perform a ECG	11
e1_12	Interpret a ECG	12
e1_13	Specific assessment: Plaster of Paris check	13
e1_14	Specific assessment: healing of sutured wound prior to removal of sutures	14
e1_15	Removal of sutures	15
e1_16	Basic life support procedures (such as basic CPR)	16
e1_17	Advanced life support procedures (such as defibrillation and administration of adrenaline)	17
e1_18	Medicolegal aspects management	18
e1_19	Other: Accurately prioritizing patients	19

Section F: Strengths and weaknesses of the triage system

Identify what you believe the success is of the implemented triage system as well as its strengths and weaknesses.

f1 Please rate the quality **of the triage that occurred in the unit prior to the implementation** of the Cape Triage Score.

f1_1	Poor	1
f1_2	Average	2
f1_3	Acceptable	3
f1_4	Good	4
f1_5	Excellent	5

(continued on next page)

f2 Please rate the **quality of the triage after the implementation** of the Cape Triage Score.

f2_1	Poor	1
f2_2	Average	2
f2_3	Acceptable	3
f2_4	Good	4
f2_5	Excellent	5

f3 What are the **strengths and weaknesses of the Cape Triage Score as implemented in our unit?** Please rate each factor as either a "strength", "weakness" or "not in place."

Please mark the appropriate box in each item.

		Strength	**Weakness**	**Not in place or not applicable**
f3_1	• It is scientifically calculated	1	1	1
f3_2	• It is easier to score compared to other triage systems	2	2	2
f3_3	• It is less subjective compared to other triage systems	3	3	3
f3_4	• The nurse is at the frontline of the unit, together with the reception/administrative staff, to alleviate non-medical staff's decision making of who should be seen first and who is well enough to have his/her hospital file	4	4	4

	opened			
f3_5	• The waiting room is managed, controlling overcrowding and a brief overview of each patient's problem (triage rounds) is obtained	5	5	5
f3_6	• Initiate contact with patients and family	6	6	6
f3-7	• Institute first aid measures where necessary	7	7	7
f3_8	• Keep patients and relatives informed of delays, expected time to be seen	8	8	8
f3_9	• Assessment (history taking) of patients is done on their arrival	9	9	9
f3_10	• Focused physical examination and taking of vital signs is done on their arrival	10	10	10
f3_11	• Brief investigations such as urinalysis, pregnancy test and haemoglucotest are done	11	11	11
f3_12	• Prioritisation of patients is done	12	12	12
f3_13	• Patients are appropriately allocated to a specific nurse or to the doctor, evenly distributing workloads amongst staff	13	13	13
f3_14	• Documentation is commenced	14	14	14
f3_15	• Crisis intervention and ensuring patients' safety, assisting very distressed patients or relatives/friends is implemented quickly	15	15	15
f3_16	• Patient flow through the unit is managed, knowing where patients are on arrival	16	16	16
f3_17	• Infection control, for example preventing blood spills and referring patients with a potential infectious disease to an isolated area, is implemented	17	17	17
f3_18	• Potential admissions to hospital are gauged	18	18	18
f3_19	• Reception/administrative staff's stress/tension	19	19	19

	is reduced			
f3_20	• Reduce nurses' stress/tension	20	20	20
f3_21	• The emergency doctor's stress/tension is reduced	21	21	21
f3_22	• Inform the unit manager or senior nurse of unusual problems/occurrences	22	22	22
f3_23	• Function independently and direct others in stressful situations	23	23	23
f3_24	• Relationships with administrative/reception staff have improved	24	24	24
f3_25	• Relationships with doctors have improved	25	25	25
f3_26	• Relationships with nurses have improved	26	26	26
f3_27	• Patient/client relations is improved upon, improving on patient satisfaction	27	27	27
f3_28	• The system is not fully functional 100% of the time	28	28	28
f3_29	• The new layout of the unit is conducive to triage	29	29	29
f3_30	• Other strengths/weaknesses/comments (please specify)	30	30	30

(continued on next page)

Section G: Recommendations to improve the triage system

Identify what you believe may assist in improving the implemented triage system.

g1 Please mark which items you believe are **recommendations for enhanced efficiency of the triage system implemented in the unit**. You may mark more than one item.

g1_1	No recommendations - the system should never have been implemented	1
g1_2	No recommendations suggested	2
g1_3	The system works 100% of the time	3
g1_4	We need additional nurses to have the system work 100% of the time	4
g1_5	Communication must improve between administrative/ reception staff and nurses	5
g1_6	Communication must improve between doctors and nursing staff	6
g1_7	Hospital management must buy-in into the system	7
g1_8	Other: _____	8

g2 Please **indicate whether you were adequately trained in the Cape Triage Score.** Mark one item only.

g2_1	Was unable to attend scheduled training	1
g2_2	No	2
g2_3	Yes	3
g2_4	Was not trained and did not require training.	4

(continued on next page)

g3 Please indicate your **future triage training needs**. You may mark more than one item.

g3_1	Not applicable - do not practice triage	1
g3_2	Not applicable - sufficiently trained	2
g3_3	I need more practice and mentorship (supervision)	3
g3_4	I still need to attend the triage training that was offered prior to implementation	4
g3_5	I need more training in triage - at least a day's workshop	5
g3_6	I need more training in triage - more than a day's workshop	6
g3_7	Other: _____	7

g4 Please add any other comments or suggestions that you wish to make regarding the triage system:

_____

_____

_____

_____

_____

Thank you very much for your participation in this study!

Annexure D

Letters written by patients

Van:

TEL:
FAKS:
E-pos:

Memorandum

Aan: Die Betuurder
Datum: 12 Januarie 2005
Re: Vertraging in Noodenheid

Geagte Heer

Op 13/10/04 is my man, mnr per ambulans na die noodeenheid van die hospitaal geneem nadat hy tuis 'n SVO gehad het.
Ek wil dit net graag onder u aandag bring dat hy vir meer as een en half uur by ongevalle gelê het, voordat die dokter aan diens hom gesien het. Met vele navrae oor die rede vir die vertraging het die verpleegpersoneel net gesê ons moet wag, hy is besig met sy pasiënte.
Soos u weet is die onmiddelike hantering na so 'n insident van kritiese belang aangesien dit die nagevolge van die insident tot 'n mate kan beperk indien behandeling vinnig toegepas word.
Die dokter aan diens het toe hy hom uiteindelik gesien het in elk geval dadelik 'n internis ontbied. Hy was baie gou daar en het met behandeling begin. Dit kon twee ure vroeër gedoen gewees het indien die hantering in die noodeenheid was soos was mens in hierdie omstandighede sou verwag. Die omvang van die breinskade kon moontlik beperk gewees het deur 'n onmiddelike ingreep en dit is wat mens redelik sou kon verwag by 'n privaatinstansie soos die [redacted]

Ek bring graag hierdie feite onder u aandag met die hoop dat dit in die toekoms vir ander pasiët meer voorsopoedig sal verloop

Groete

cc—

Jean follow up please
Mlaric

29

facsimile transmittal

To: Fax:

From: Date: 15/04/05

Re: Service Pages: 1

CC:

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

The treatment we received last week from this hospital was really not acceptable. My daughter had eight previous operations at Hospital and in future I will certainly consider going back there, even though it is further from home.

My daughter, fainted on the evening of 3 April 2005 and was taken to the GP. We came home and she fainted again. We called the GP and decided to take her to the casualty unit. We arrived just before 22h00 and finally saw the doctor on duty an hour and twenty minutes later. It was a very young doctor who was helping out for the first time at that ward and even the nurses admitted that things were not moving fast enough. She seemed overwhelmed by the amount of patients and she could not diagnose the problem. She prescribed BuscopanCo and had admitted to Ward I stayed with her till 02h00 Monday morning.

The next morning I arrived just before 07h00. She had just been discharged by the same young doctor. was on the toilet and fainted in my arms again. We then asked to see another doctor. More than an hour later from casualty came to see her. He ordered some tests and said maybe he should call a physician.

I was very relieved when walked in as I was a patient of his four years ago and have great respect for him. He arranged for a sonar and more blood tests. He called in who later explained that it could be appendicitis and that a laparoscopy would be done, etc.

This was at 14h00 and I was feeding the lunch which they brought her, but she was not supposed to eat because (unknown to me at that stage) she was scheduled for surgery. I had told the nurse who admitted her that she does not eat meat, but they brought her steak and kidney pie for lunch!!

There was no duvet inside the cover when she was admitted and when we left three days later there was still no duvet!

Annexure E

Cape Triage Score calculators – TEWS scores and Symptom Lists

(Source: Cape Triage Group 2005)

ADULT TRIAGE SCORE								
	3	2	1	0	1	2	3	
Mobility				Walking	With Help	Stretcher/ Immobile		Mobility
RR		less than 9		9-14	15-20	21-29	more than 29	RR
HR		less than 41	41-50	51-100	101-110	111-129	more than 129	HR
SBP	less than 71	71–80	81-100	101-199		more than 199		SBP
Temp		less than 35		35-38.4		38.5 or more		Temp
AVPU				Alert	Reacts to Voice	Reacts to Pain	Unresponsive	AVPU
Trauma				No	Yes			Trauma
over 12 years / taller than 150cm								

Colour	RED	ORANGE	YELLOW	GREEN	BLUE
TEWS	7 or more	5-6	3-4	0-2	DEAD
Target time to treat	Immediate	less than 10 mins	less than 60 mins	less than 240 mins	
Mechanism of injury		High energy transfer			
Presentation		Shortness of breath - acute		ALL OTHER PATIENTS	
		Coughing blood			
		Chest pain			
		Haemorrhage - uncontrolled	Haemorrhage - controlled		
	Seizure – current	Seizure - post ictal			
		Focal neurology - acute			
		Level of consciousness reduced			
		Psychosis / Aggression			
		Threatened limb			
		Dislocation - other joint	Dislocation - finger or toe		
		Fracture - compound	Fracture - closed		
	Burn – face / inhalation	Burn over 20%	Burn - other		
		Burn - electrical			
		Burn - circumferential			
		Burn - chemical			
		Poisoning / Overdose	Abdominal pain		
	Hypoglycaemia - glucose less than 3	Diabetic - glucose over 11 & ketonuria	Diabetic - glucose over 17 (no ketonuria)		
		Vomiting - fresh blood	Vomiting - persistent		
		Pregnancy & abdominal trauma or pain	Pregnancy & trauma		
			Pregnancy & PV bleed		
Pain		Severe	Moderate	Mild	
	Senior Healthcare Professional's Discretion				

CHILD TRIAGE SCORE								
	3	2	1	0	1	2	3	
Mobility				Walking	With Help	Stretcher/ Immobile		Mobility
RR	less than 15	15-16		17-21	22-26	27 or more		RR
HR	less than 60	60-79		80-99	100-129	130 or more		HR
SBP	less than 70	70-79		80-130	131-149	150 or more		SBP
Temp		less than35		35-38.4		38.5 or more		Temp
AVPU				Alert	Reacts to Voice	Reacts to Pain	Unresponsive	AVPU
Trauma				No	Yes			Trauma
3 to 12 years old / 96 to 150 cm tall								

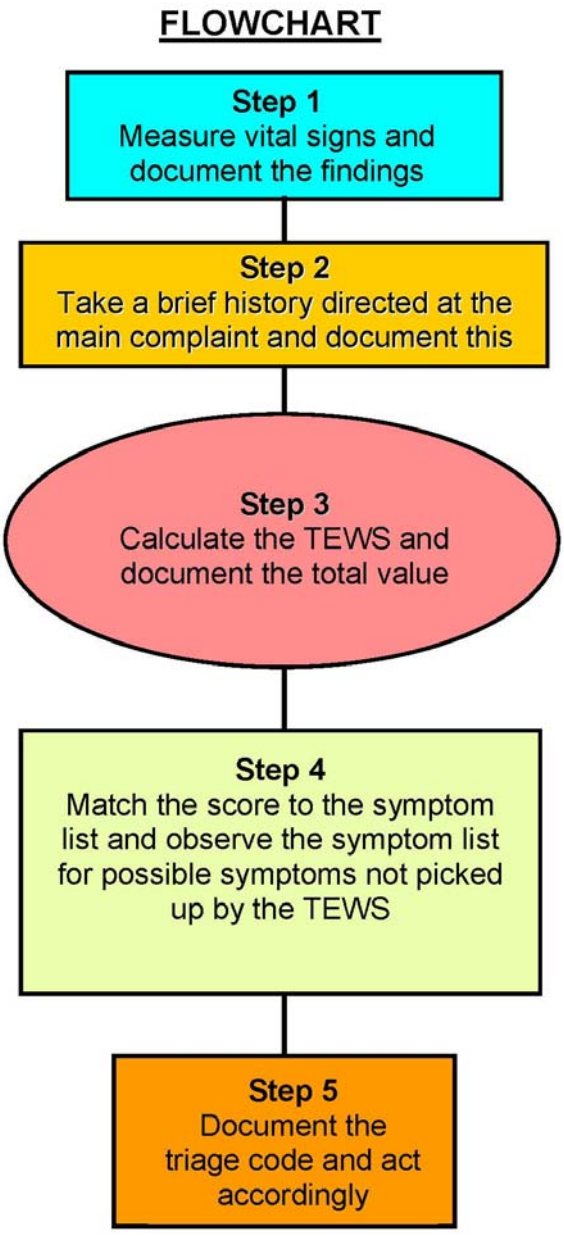
COLOUR	RED	ORANGE	YELLOW	GREEN	BLUE
TEWS	7 or more	5-6	3-4	0-2	DEAD
Target time to treat	Immediate	less than 10 mins	less than 60 mins	less than 240 mins	
Mechanism of injury		High energy transfer			
Presentation	Drooling	Shortness of breath		ALL OTHER PATIENTS	DEAD
		Stridor			
		Wheeze			
		Haemorrhage - uncontrolled	Haemorrhage - controlled		
	Seizure - current	Seizure - post ictal			
		Focal neurology - acute			
		Level of consciousness reduced			
		Exhaustion			
		Purpura			
		Dislocation - other joint	Dislocation - finger or toe		
		Fracture - compound	Fracture - closed		
	Burn – face / inhalation	Burn over 10%	Burn - other		
		Burn - electrical			
		Burn - circumferential			
		Burn - chemical			
		Poisoning / Overdose	Abdominal pain		
	Hypoglycaemia – glucose less than 3	Diabetic - glucose over 11 & ketonuria	Diabetic - glucose over 17 (no ketonuria)		
		PR bleeding	Vomiting - persistent		
			Inappropriate history		
Pain		Severe	Moderate	Mild	
	Senior Healthcare Professional's Discretion				

INFANT TRIAGE SCORE								
	3	2	1	0	1	2	3	
Mobility				Normal for age		Stretcher/ Immobile		Mobility
RR	less than 20	20-25		26-39		40-49	50 or more	RR
HR	less than 70	70-79		80-130		131-159	160 or more	HR
SBP	less than 60	60-69		70-110		111 or more		SBP
Temp		less than 35		35-38.4		38.5 or more		Temp
AVPU				Alert	Reacts to Voice	Reacts to Pain	Unresponsive	AVPU
Trauma				No	Yes			Trauma
younger than 3 years / smaller than 95cm								

COLOUR	RED	ORANGE	YELLOW	GREEN	BLUE
TEWS	7 or more	5-6	3-4	0-2	DEAD
Target time to treat	Immediate	less than 10 mins	less than 60 mins	less than 240 mins	
Mechanism of injury		High energy transfer			
Presentation	Drooling	Shortness of breath		ALL OTHER PATIENTS	DEAD
	Stridor	Wheeze			
		Haemorrhage - uncontrolled	Haemorrhage - controlled		
	Seizure - current	Seizure - post ictal			
		Focal neurology - acute			
		Level of consciousness reduced			
		Floppy infant			
		Purpura			
		Dislocation - other joint	Dislocation - finger or toe		
		Fracture - compound	Fracture - closed		
			Unable to weight bear		
	Burn – face / inhalation	Burn over 10%	Burn - other		
		Burn - electrical			
		Burn - circumferential			
		Burn - chemical			
		Poisoning / Overdose	Abdominal pain		
	Hypoglycaemia - glucose less than 3				
		PR bleeding	Vomiting - persistent		
			Not feeding		
			Not urinating		
			Inappropriate history		
			Prolonged or uninterrupted crying		
Pain		Severe	Moderate	Mild	
	Senior Healthcare Professional's Discretion				

Annexure F

Stepwise approach to the use of the Cape Triage Score



Source: Cape Traige Group 2005:9

Annexure G

Interventions to be carried out at triage as per Cape Triage Score

INTERVENTIONS TO BE CARRIED OUT AT TRIAGE

PROBLEM	COMPULSORY	OPTIONAL
Respiratory rate scores 1 point or more	1. Pulse oximetry (saturation) 2. Finger prick glucotest if patient is diabetic 3. Refer to anteroom and give oxygen	
Temperature 38.5° or more	1. Paracetamol 1g orally stat (document in the notes) (children – discuss with sister or doctor)	
Temperature 35° or less	1. Blankets	
Altered level of consciousness (AVPU score other than A)	1. Refer to anteroom and hand patient over to senior health care professional 2. Finger prick glucotest	
Unable to sit up/ need to lie down	1. Refer to anteroom and hand patient over to senior health care professional 2. Finger prick glucotest	
Chest pain	1. Immediate ECG and present to senior health care professional	
Active bleeding	1. Apply pressure to site of trauma with a dry dressing and take to anteroom	
Active seizure / fitting	1. Refer to anteroom and hand patient over to senior health care professional 2. Finger prick glucotest	
History of diabetes	1. Finger prick glucotest	
Diabetes and Hyperglycaemia (glucotest 11 or more)	1. Urine dipsticks to check for ketones	
Hypoglycaemia (glucotest 3 or less)	1. Refer to anteroom and hand patient over to senior health care professional	2. If the patient is alert, give food or drink orally
History of bleeding		1. Finger prick haemoglobin
Bleeding PR, PO or from a site of trauma		1. Finger prick haemoglobin
Abdominal pain or backache: male		1. Urine dipsticks
Abdominal pain or backache: female		1. Urine dipsticks 2. Urine pregnancy test
PV bleeding		1. Urine dipsticks 2. Urine pregnancy test 3. Finger prick haemoglobin

Source: Cape Traige Group 2005:17