QUALITY OF NURSING CARE RENDERED TO PATIENTS DIAGNOSED WITH CEREBROVASCULAR ACCIDENTS (CVA) ADMITTED AT A UNIVERSITY TEACHING HOSPITAL IN ZAMBIA

BY

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DECLARATION

I here by declare that the work presented in this study for the Masters degree in Medical-surgical Nursing Science (critical care), has not been presented either wholly or in part for any degree and is not being currently submitted for any other degree.

Signed: _____

Candidate

Approved by: _____

Supervisor Lecturer

STATEMENT

I hereby certify that this study is entirely the result of my own independent investigation. The various sources to which I am indebted are clearly indicated in the paper and in the references.

Signed _____

Candidate

DEDICATION

This study is dedicated to my beloved wife Gertrude, my Children Katongo, Kalumba and Mwamba and my mother who patiently accepted my frequent absence from home. I also would like to dedicate this study to my late father who died in May 2000.

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ABSTRACT

People who have a cerebrovascular accident (CVA) suffer from a variety of problems, depending on the site and severity of brain damage. High quality nursing care of CVA patients in hospital will help prevent complications, alleviate suffering and reduce mortality rates because medical and nursing interventions are aimed at limiting the extent of brain injury, promoting early reperfusion, preventing complications as a result of secondary injury or hazards of immobility.

The purpose of this study was to describe the quality of nursing care rendered to patients diagnosed with CVA admitted at University Teaching Hospital in Zambia.
A quantitative non-experimental descriptive survey method was used and data was gathered by means of a checklist through observations.

Nursing care on forty (40) patients admitted with CVA in the general medical wards, intensive care unit and high cost wards were observed and the study revealed that CVA patients received poor nursing care. It was recommended that all CVA patients be assessed for neurological status and be regarded as "at risk" patients unless otherwise stated. Furthermore, regular inservice education sessions should be provided for staff nursing these high risk patients.

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LIST OF ABBREVIATIONS

CVA	-	Cerebrovascular Accident
WHO	-	World Health Organisation
AFRO	-	African Region Office
AHA	-	American Heart Association
CODA	-	Collaborative Dysphagia
SSA	-	Staff Swallowing Assessment

CHAPTER 1

BACKGROUND TO THE PROBLEM

1.1 INTRODUCTION

Cerebrovascular accident (CVA) is the result of an interruption in the blood supply to certain areas of the brain and is characterized by the sudden development of focal neurological deficits that last for at least 24 hours. These deficits range from mild symptoms such as tingling, weakness, and slight speech impairment to more severe symptoms such as hemiplegia, aphasia, dysphagia, loss of portions of visual field, spatial-perceptual changes, altered cognitive function, and loss of consciousness (Ulrich, Canale and Wendel, 1998:230).

According to the American Stroke Association (2001), Cerebrovascular accident (CVA) affects about 4 out of 1000 people. It is the third leading cause of death in most developed countries, and the leading cause of disability in adults. The incidence of cerebrovascular accident (CVA) rises dramatically with age, with the risk doubling with 0each decade after 35. About 5% of people over age 65 years have had at least one stroke.

Cerebrovascular accident (CVA) occurs in men and women of all ages, classes and ethnic origins; age however is a key risk factor. For adults over age 65, the risk of death is seven times higher than that of the general population (American Stroke Association 2001).

In Zambia the statistics on CVA are not readily available because of the reporting system, which groups most diseases. CVA is grouped and reported under hypertension and neurological diseases. The University teaching Hospital however admitted a rough estimate of about 116 cases of CVA out of the total hospital admission of 86,335 in the year 2000. This signifies 0.13% of the total hospital yearly admission. This figure was roughly extracted from admission books of wards where CVA patients are admitted.

The Government of Zambia embarked on health reforms since 1992. The major objective of the reforms is " to ensure equity of access to cost effective, ***quality health care*** as close to the family as possible". This indicates that the government of the republic of Zambia attaches greater importance to improved quality of care rendered to patients.

Nurses therefore need to fully understand and participate in the health reform process since the bulk of the responsibility for improving service delivery and quality of care will continue to rest on nurses. Nurses are the main providers of health care at all levels (International Nursing Review, 1999:156).

Quality health care is also the desire of every Zambian. However there have been statements made frequently by concerned health care professionals and health care consumers regarding dissatisfaction with the quality of nursing care provided to patients including CVA patients in most Zambian hospitals.

WHO/AFRO (1999: 14) reported on a study conducted at Choma General Hospital in Zambia, which stated, " there are complaints about the deteriorating quality of clinical care in Zambia." The poor quality of care was attributed to lack of standards and to the utilisation of inappropriate methods of collecting clinical data.

Booyens and Ross (1994:22) in a literature review regarding patients' expectations about the rendering of nursing care revealed that:

- The nurse should be professionally competent with regard to technical skills and the ability to plan and carry out the individual nursing care regimen.
- The nurse should display empathy, good listening skills and be able to identify patient's mood changes and adapt care accordingly.
- The nurse should be able to inform the patient in comprehensible terms regarding the disease and the treatment.

Quality care has always been a need and aspiration of nurses. Despite all the changes and new technologies within the health milieu, the most important role and function of nurses today is still to render quality patient care. Patients have a right to be treated and cared for with due respect for their lives, uniqueness and dignity. Care should therefore be of such a quality that knowledgeable, competent, safe and ethically based nursing care is rendered (Barlow, 1996:1)

Fairchild (1996:33) states that " nursing must guarantee the quality of its service to the public, and these standards are a commitment and an assurance that the highest quality of care will be provided to all patients in all health-care settings, as guaranteed by the patients Bill of rights, American Hospital Association, 1985."
Wywialowski (1994:155) states also "quality care services that consistently produce desired results, is a universal concern in health care organisations".

1.2 STATEMENT OF THE PROBLEM

The problem under investigation in this study is the quality of nursing care rendered to patients diagnosed with CVA admitted at university teaching hospital in Zambia.

The quality of nursing care in our public hospitals including University Teaching Hospital, the biggest referral hospital in Zambia, has declined to such an extent that relatives have taken over some tasks of nurses. This has led to some members of the public producing statements in the media such as " nursing has gone to the dogs". For example relatives of CVA patients have raised complaints that their family members are not adequately taken care of by nurses during the period of admission.
Quality nursing care in patients admitted with CVA is very vital to prevent complications such as aspiration, malnutrition, pneumonia, deep vein thrombosis, pulmonary embolism, decubitus ulcers, contractures and joint abnormalities (Adams, et al 1994:1588).

The decision to describe the quality of care rendered to patients admitted with CVA at University Teaching Hospital is based on the following reasons:

- Medical practitioners often complain that nurses do not carry out some of their orders on admitted patients. According to Bruwer (1996:7) criticism from other health care professionals should be seen from a positive perspective. The nurses' patients are also patients of the other health care professionals. A healthy interest in nursing practice will be of advantage to the nursing profession, as well as to the consumers of health care.

- Relatives of CVA patients have raised complaints that their family members are not adequately taken care of by nurses during the period of hospitalisation, for example, bed baths and oral care are not done; to mention but a few problems.

- CVA patients are subject to primary and secondary insults. Primary insults include anoxia of the brain due to insufficient blood supply to the brain tissue and this leads to infarction and irreversible neuronal injury (Thelan et al, 1998:801). Once the primary "insults" have already occurred, it is irreversible and it is now the responsibility of the nurse to prevent any secondary insults of the disease, such us: cerebral oedema, increased intracranial pressure, seizures, vasospasm, aspiration, malnutrition, pneumonia, decubitus ulcers, contractures and joint abnormalities (Thelan et al 1998:808).

The problem seems that the nursing care being rendered to CVA patients is inadequate to save patients from these secondary insults. For instance:

- Patients with CVA are poorly immobilised in the acute stage and this leads to severe deformities after the illness.
- Patients with CVA are not observed critically and frequently in the acute phase of the disease and this leads to patients developing some complications and sudden death.

Brink (1990:38) holds the opinion that " to care for" implies something more than taking care of and being technically and clinically competent. It entreats us to be humane, compassionate and sensitive, which is to be caring. Although the greater majority of nurses do care, Harrison (in Brink, 1990:30) reminds us that often the ability to demonstrate care is lacking. This is evidenced by the tone of voice, the touch of hand and/or the expression on the face.

1.3 RESEARCH QUESTION

Patients, and relatives' complaints and literature review led to the following question that needs to be investigated:

* What is the quality of nursing care rendered to patients admitted with CVA at University Teaching Hospital?

1.4 PURPOSE OF THE STUDY

Based on the research question, the purpose of this study is to describe the quality of nursing care rendered to patients diagnosed with CVA admitted at University Teaching Hospital in Lusaka, Zambia.

1.5 OBJECTIVES

The objectives of the study are to:

- Do a literature study on the condition and nursing care of cerebrovascular accident patients.
- Develop checklists for measuring nursing care of patients diagnosed with CVA
- Describe the wards where CVA patients are nursed.
- Measure the nursing care of patients admitted with CVA at University Teaching Hospital in Zambia with data obtained through the structured observation method.

1.6 SIGNIFICANCE OF THE STUDY

The findings of this study will give nurse tutors and practitioners an insight on which points to emphasize in the nursing care of CVA patients during their teaching and practice. It will also provoke other research questions, which will need further investigations. It will also be helpful in identifying difficulties faced by nurse practitioners in the care of CVA patients.

1.7 DEFINITION OF CONCEPTS

- **Cerebrovascular accident** is the condition where cerebral vessels are occluded by an embolus, thrombus or cerebrovascular haemorrhage, resulting in ischemia of the area of the brain perfused by the damaged or occluded vessels (Thibodean and Patton, 1995).
- **Nursing**: This is assisting individuals (sick or well) with those activities contributing to health or its recovery (or to a peaceful death) that they perform unaided when they have the necessary strength, will or knowledge (Henderson and Nite, 1960).
- **Admission** is being hospitalised (Jonathan, C. 1995: 16).
- **Care** is looking after or helping cerebrovascular accident patients in their physical, emotional and spiritual needs. According to Leininger (1995), caring refers to those assistive, supportive, or facilitative acts towards or for another individual, in groups with evident or anticipated needs to ameliorate or improve a human condition or life ways.
- **Quality:** according to Roemer and Montoya (1988) "proper performance (according to standards) of intervention that are known to be safe that are affordable to the society in question, and that have the ability to produce an impact on mortality, morbidity, disability and malnutrition."
- **Patient:** Any individual or person admitted with CVA and is fourteen days or less in the ward.

- **University Teaching Hospital** is a major referral hospital in Zambia where all specialized management and care of patients with different diseases is carried out. It is also a large training centre for doctors, nurses and paramedical staff.
- **Primary "insult"** in this research stands for damage to the part of the brain or end results of insufficient blood supply to the part of the brain (Thelan et al, 1998:801).
- **Secondary "insults"** are the complications of the disease, such as cerebral oedema, increased intracranial pressure; seizures; vasospasm; aspiration; malnutrition; pneumonia; decubitus ulcers; contractures and joint abnormalities (Thelan et al, 1998:808).

1.8 CHAPTER ARRANGEMENTS

Chapter 1. Background to the problem

Chapter 2. Literature review and conceptual framework

Chapter 3. Methodology

Chapter 4. Data analysis and presentation of findings

Chapter 5. Conclusion, study limitations and recommendations

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1.9 SUMMARY

This chapter looked at the background to the problem and discussed the statement of the problem, research question, purpose of the study, study objectives, its significance and definition of concepts. Chapter two looks at literature review.

CHAPTER 2

LITERATURE REVIEW/ CONCEPTUAL FRAME WORK

2.1 INTRODUCTION

The literature review for this study focuses on the condition CVA and aspects of nursing care and the nursing process of CVA patients. The conceptual framework is also discussed as the frame of reference for this study.

2.2 NURSING CARE OF CEREBROVASCULAR ACCIDENT PATIENT

2.2.1 General Overview of Cerebrovascular Accident

Cerebrovascular accident, is an onset of neurological deficits related to decreased cerebral blood flow caused by occlusion or stenosis of blood vessels from embolism, thrombosis, or haemorrhage, resulting in ischaemia of the brain (Tucker et-al, 1996: 578).

A cerebrovascular accident, commonly called a stroke or, more recently, a brain attack, takes a form of pathophysiologic events that disrupt cerebral circulation. The cells at the site of the resulting infarction then releases chemicals that cause further damage and compromise blood flow, resulting in ischaemia in the surrounding area. If the ischemic damage continues, these cells also may die worsening the patient's cognitive and functional deficits (Holloway, 1999:127).

The most common causes of CVA include: thrombosis, embolism, and haemorrhage. Rare causes include arterial spasms and aneurysm rupture. (Black and Matassarin, 1997:784)

Cerebrovascular Accident can occur at any time during adult life but is uncommon in children. Thrombotic CVA is seen in the 60–90 year age group, and embolic and haemorrhagic CVA in the 25–60 year age group (Alexander et al, 2000:369).

According to Thelan and others (1998:800) there are two basic types of cerebrovascular accident: these are

- Ischemic CVA that results from low cerebral flow usually because of occlusion of a blood vessel caused by thrombus or embolus.

- Hemorrhagic CVA, which is divided into subarachnoid haemorrhage and intracerebral haemorrhage. Hemorrhagic CVA is usually caused by rupture of cerebral aneurysms, or arteriovenous malformation and hypertensive intracerebral haemorrhages.

Factors that increase the risk of CVA include, a history of transient ischemic attack atherosclerosis, hypertension, arrhythmias, electrocardiogram changes, rheumatic heart disease, diabetes mellitus, gout, postural hypertension, cardiac enlargement, high serum triglyceride levels, lack of exercises, use of contraceptives, smoking and a family history of cerebrovascular disease (Keithley, 1998:160).

According to American Stroke Association (2001:1,2), people who smoke cigarettes or who have hypertension, diabetes, hyperlipidemia or heart disease, have an increased risk of CVA. Rarely strokes may happen in women on birth control pills. The risk is increased if a woman also smokes and is older than 35. Pregnancy and the puerperium also put women at an increased risk of CVA. Other illnesses such as vasculitis lupus or high blood viscosity predispose to CVA.

Clinical manifestations vary with the location of interrupted blood supply in the brain. As with head injury, the specific function of the involved area of the brain is interrupted causing the symptoms (White and Duncan, 1998:700).

According to Healthatoz heart care forum (2000), the effects of CVA vary greatly from individual to individual and may include some, all, or none of the following:

- Weakness or paralysis, of either the whole side of the body or just an arm or leg.
- Problems with balance or coordination
- Problems using language, such as impaired speech, difficulty putting words together, or difficulty understanding words
- Pain, numbness, or odd sensations

- Problems with mental activities, such as memory, thinking, attention or learning.
- Being unaware of the effects of the stroke, making unsafe judgments about activities
- Difficulty swallowing
- Problems with bowel or bladder control
- Easily fatigued
- Emotional outbursts, such as laughing, crying or anger
- Depression. It is only natural for someone to feel sad about his or her new physical limitations. However, some people experience a major depression, which should be diagnosed and treated as soon as possible.

2.2.2 Nursing care of cerebrovascular accident

New developments in neuroscience challenge nurses to care skilfully for patients with cerebrovascular disease. Because CVA is the leading cause of brain damage in adults, professionals are urged to approach CVA with the same urgency as other medical emergencies. Understanding the physiologic early sequelae of brain damage is essential to appreciation of the newer therapeutic treatments under study. Cardiac and hemodynamic complications of cerebrovascular diseases emphasize the important role of nurses in the assessment and protection of CVA patients. Nursing implications include public education about CVA symptoms and the urgent evaluation and management of CVA (Weber, 1995:562). Therefore, it is important that nurses should follow the steps of the nursing process when caring for these patients. According to Wilkinson (1996:4), the nursing process provides the framework in which nurses use their knowledge and skills to express human caring and to help clients meet their actual and potential health problems.

2.2.2.1 Nursing process

According to Smeltzer and Bare (2000:28), the nursing process is a deliberate problem solving approach for meeting a person's health care and nursing needs. The

nursing process has five (5) steps that include the following: assessment, diagnosis, planning, implementing and evaluation.

Assessment is the systematic collection of data to determine the patients' health status and identify actual or potential health problems (Smeltzer and Bare, 2000:28). According to Reeves et al (1999:346), an accurate history is essential in nursing diagnosis of CVA. The information the nurse obtains can be vital in identifying the area of a CVA. The nurse should ask what the client was doing when the CVA began. Ischemic CVA tends to happens during sleep, where as hemorrhagic CVA happens during activity.

A complete history of the presenting problem as well as past medical and social history provides data about the aetiology of the CVA. For example a history of hypertension or cardiac valve disorders is commonly associated with a cerebrovascular accident (Black and Matassarin, 1997:797).

The nurse must perform a thorough neurological assessment, focusing on evidence of hemi paresis; sensory defects such as impaired vision, hearing, and touch; spatial and perceptual deficits; an altered level of consciousness; aphasia, amnesia, agraphia, ataxia, and dysphasia; choreoathetoid movements; headache; bruit; grasp and sucking reflex; confusion; and coma. The client may have dysfunction in a few or several areas, which provides clues about the type of stroke (Reeves et al, 1999:346).

According to Black and Matassarin (1997:797), initial assessment includes the following: level of consciousness, pupillary responses to light, movement to command or painful stimuli, changes in speech, sensory changes, reflexes, presence of headache, and vital signs. This data is often recorded and scored on the Glasgow coma scale. If intracranial pressure monitors are in place, baseline pressure waves and waveforms should be noted.

After conducting the neurological examination, examine the cardiovascular system to detect possible heart murmurs, dysrhythmias, and hypertension. Blood pressure on admission may be very high. Assess the clients reaction to his or her illness, identify any problems related to the disorder, and look for personality changes. Ascertain emotional lability, which may be demonstrated by inappropriate laughter or crying spells (Reeves et al, 1999:347)

Any patient with neurologic deficits needs a careful history and a complete physical and neurologic examination. Initial assessment will focus on the patient's ability to maintain a patent airway (due to loss of gag or cough reflexes and altered respiratory pattern), cardiovascular status (including blood pressure, cardiac rhythm and rate, carotid bruit), and gross neurologic losses (Smeltzer and Bare, 2000:1652).

During the acute phase, a neurologic flow sheet is maintained to reflect the following nursing assessment parameters:

- Change in the level of consciousness or responsiveness as evidenced by movement, resistance to changes of position, and response to stimulation, orientation to time, place and person.
- Presence or absence of voluntary or involuntary movements of the extremities; muscle tone; body posture, and position of the head.
- Stiffness or flaccidity of the neck.
- Eye opening, comparative size of pupils, papillary reactions to light, and ocular position.
- Colour of the face and extremities; temperature and moisture of the skin
- Quality and rates of pulse and respiration; arterial blood gas. Values as indicated, body temperature, and arterial pressure.
- Ability to speak.
- Volume of fluids ingested or administered; volume of urine output excreted each 24 hours.
- Presence of haemorrhage.

- Maintenance of blood pressure within the desired parameters. (Smeltzer and Bare 2000:1655-1656).

The nurse is perhaps the one person who, in the acute stages, is always present with the patient. In light of this, and virtue of their observational role, being expected to note and report changes in patients' status, nurses should be considered key players in screening for dysphagia in CVA patients (Davies S., 1999)

Diagnosis is the step that identifies the nursing diagnosis, which are the actual potential health problems that can be managed by independent nursing interventions and collaborative problems, which are certain physiological complications, that nurses monitor to detect onset or changes in status. Nurses manage collaborative problems using physician prescribed and nursing prescribed interventions to minimize the complications of the events (Carpenito, 1999:7)

According to Holloway (1999:132) the following are some of the priority major nursing diagnoses and collaborative problems:

- Risk for ineffective airway clearance related to hemiplegic effects of a CVA
- Risk for further cerebral injury related interrupted blood flow (embolus, thrombus, or haemorrhage)
- Impaired physical mobility related to damage to motor cortex or motor pathways
- Risk for sensory-perceptual alteration related to cerebral injury
- Risk for impaired verbal communication related to cerebral injury
- Risk for knowledge deficit (CVA management) related to lack of exposure to information on self-care

Planning is a deliberate, systematic phase of the nursing process that involves decision-making and problem solving. In planning, the nurse refers to the clients' assessment data and diagnostic statements for direction in formulating client goals and designing the nursing strategies required to prevent, reduce, or eliminate the

clients' health problems. The product of the planning phase is a client care plan (Kozier et al, 2000:308). The nursing care plan includes the nursing diagnoses, nursing priorities/goals, nursing interventions with rationales and patient outcome or evaluation. The nursing care plan according to Holloway (1999:132-140) has been adopted as follows: (see an example of the nursing care plan on page 21).

Implementation/Intervention **in** the nursing process is the phase in which the nurse puts the nursing care into action. The nurse performs or delegates the nursing orders that were developed in the planning step and then concludes the implementing step by recording nursing activities and the resulting client responses (Kozier et al, 2000:330).

According to American Heart Association (AHA) Scientific statement (1994), the goals of early supportive care after admission to the hospital are to:

- Observe changes in the patient's condition that might prompt different medical or surgical interventions.
- Facilitate medical and surgical measures aimed at improving outcome after CVA.
- Institute measures to prevent sub acute complications.
- Begin planning for chronic therapies to prevent recurrent CVA.
- Begin efforts to restore neurological function through rehabilitation or other therapies.

Many complications of CVA can be prevented by medical interventions and good supportive care (AHA Medical/Scientific Statement 1994). AHA Medical/Scientific Statement (1994) also stated that "approximately 25% of patients with CVA worsen during the first 24 to 48 hours after admission to the hospital, and it is often difficult to predict deterioration." Therefore, all patients should be considered at risk for neurological worsening.

In a study to find out how stroke patients conceived their life situation within the first week of the acute care phase as seen from the nurse's viewpoint, two main categories emerged from the results; the feeling of unreality and the awareness of a changed role in life, together with six subcategories feeling of changed perception of the body; feeling of being confused; loss of capability, awareness of confined life space; the importance of support and encouragement; and the will to look for new opportunity. The study concluded that the body changes resulting from a stroke leads to both physical and psychological trauma, in which the psychological crisis can be very deep and best described as a personal catastrophe. The patient's capability to receive and understand information becomes blocked, which influences both the nurses and the patient's next of kin with regard to their care of the patient. Conversations with the patient must be frequent so that the acute care can be evaluated and agreement reached between the patient's wishes and the nurse's objectives. The results indicate the significance of intervention programmes based on crisis theory within the first week of a CVA event (Backe et al 1996:285-294).

According to Fowler et al (1996:327-332), medical and nursing interventions are aimed at limiting the extent of brain injury, promoting early reperfusion, and preventing complications as a result of secondary injury or hazards of immobility. Medical-surgical nurses play a key role in facilitating collaborative rehabilitation in the acute care setting to achieve expected outcomes for the patient and family.

The patient's vital signs and neurological status should be frequently assessed during the first 24 hours. Most patients are first treated at bed rest. On occasions, patients may have worsening of neurological signs upon standing, sitting or elevating the head (Caplan 1993).

Observation of the patient's neurological condition and blood pressure should continue as mobilization begins. Early mobilization is favoured because it lessens the likelihood of major complications such as pneumonia, deep vein thrombosis, pulmonary embolism and decubitus ulcers.

Immobility can also lead to contractures, orthopaedic complications, and pressure palsies. Passive full- range- of- motion exercises for paralysed limbs can be started during the first 24 hours, frequent turning, the use of alternating pressure mattresses, and close surveillance of the skin helps prevent decubitus ulcers (AHA Medical/Scientific Statement 1994).

Careful nursing, which includes regular turning of a patient to avoid pressure sores; skin should be kept dry and clean. Care of airway by regular suctioning of secretions if the patient is unconscious should be done. Nasogastric feeding if patient cannot swallow should be encouraged. Bladder catheterisation if incontinent should be performed to prevent skin excoriation. Physiotherapy should start immediately to prevent joint contractions, to clear chest secretions; to promote recovery of strength and coordination. Speech and occupational therapy should start once acute stage is over to assess functional problems and to encourage recovery skills (Health Indiamart, 2001: 1).

According to Beadle et al (1995:37-39), people who have suffered a CVA suffer a variety of problems depending on the site and severity of brain damage. A particularly unpleasant and dangerous one is dysphagia, which if not properly assessed and managed, can prevent the patient receiving adequate nutrition to enable him or her to participate fully in a rigorous rehabilitation programme, or which may even cause his or her death through aspiration of food.

Dysphagia is a common and serious problem following CVA and may be considered life threatening because of the possibility that food and drink may penetrate into the lungs and lead to aspiration pneumonia (Smithard et al 1997).

Davies et al (2001:357-362), states that " surveys have shown that large numbers of patients with acute CVA have swallowing problems which are poorly managed during the critical early phase, not referred or missed altogether".

Davies (1999:49-54) also said, " nurses are well placed to perform a key role in detecting and managing dysphagia in acute CVA patients".

The Collaborative Dysphagia Audit (CODA) study recommended that all acute stroke patients should be screened for swallowing problems on admission or prior to any food or drink being given. It is suggested that a dysphagia-screening tool is used, such as the Staff Swallowing Assessment (SSA) (Ellul et, al 1997).

According to Ellul et, al (1997), if the patient is alert enough and can be helped to sit upright, the procedure to be followed when screening acute CVA patients for swallowing is as follows:

- Sit the patient up (never assess swallowing with the patient lying or slumped over)
- Give the first teaspoon of water and watch carefully for the signs such as coughing, breathlessness, wet/gurgly voice afterwards
- If three teaspoonfuls are swallowed without problems, ask the patient to drink 50mls of water from a cup for signs of difficulties in swallowing
- Should the patient experience problems, he or she should be placed nil by mouth and referred to the speech therapist
- If no problems are experienced, the patient may have a normal diet, and fluids. However the first meal should be observed to ensure that there are no problems once swallowing a normal diet.

Nutrients and fluids may need to be supplemented, especially if swallowing difficulties are present. This may include intravenous nutrients and fluids or feeding through a tube in the stomach (feeding tube or gastrostomy tube).
Sustaining nutrition is important because the malnutrition that can develop after CVA may interfere with recovery (Axelsson et al 1988). Many patients initially should not receive any food or fluids by mouth, and intravenous fluids are needed. Assessment of the ability to swallow is imperative because of the high risk of aspiration (Homer et al 1988).

It is essential that good oral hygiene is maintained and the mouth examined before and after every meal. Poor facial muscle tone may lead to patients pocketing food – this is retained in the oral cavity, which in addition to creating an environment for infection can later dislodge and be aspirated. Suctioning equipment should be readily available (Davies 1999:49-54).

Patients with infarctions in the brain stem, multiple CVA, large hemispheric lesions, or depressed consciousness are at greatest risk for aspiration. An abnormal gag reflex, impaired voluntary cough, dysphonia, or cranial nerve palsies should alert the physicians to this risk (Horner et al 1993). When necessary, a nasogastric or nasoduodenal tube can be inserted to provide feedings and to expedite administration of medications.

Pneumonia is an important cause of death after stroke (Weinberger J. 1993). It most often occurs in patients who are immobile or who are unable to cough (Bounds J. et al 1981). Development of fever after stroke should prompt a search for pneumonia; an appropriate antibiotic therapy should be administered early (Levin S.R. 1989).

The patient who has had a CVA may be at risk for skin and tissue breakdown because of altered sensation and inability to respond to pressure and discomfort by turning and moving. Therefore, preventing skin and tissue breakdown requires frequent assessment of the skin, with particular emphasis on bony areas and dependent parts of the body. A regular turning and positioning schedule must be followed to minimize pressure and prevent skin breakdown (Smeltzer and Bare, 2000:1660). Paralysis of the leg and immobility increase the risk of deep vein thrombosis (Landi G. et al 1992).

Urinary tract infections are common, and secondary septicaemia can develop in approximately 5% of patients (Brown and Glassenberg 1973:224).
An indwelling catheter is sometimes needed to treat incontinence or urinary retention, but if possible it should be avoided because of the risk of infection (Khan, et al 1988:

156- 158). Acidification of the urine or intermittent catheterisation can lessen the risk of infection and avoid the need for prophylactic antibiotics (Weinberger, 1993:655-672).

Speech impairment or loss can be a frightening experience for the patient and his family. Early referral to a speech therapist is important in order that an expert assessment can be performed and a strategy identified. It is crucial to ascertain the type and nature of the speech deficit e.g. whether the patient's difficulties are related to expression or to comprehension (Alexander, et al, 2000:372).

According to Smeltzer and Bare (2000:1656), correct positioning is important to prevent contractures; measures are used to relieve pressure, assist in maintaining good body alignment, and prevent compressive neuropathies, especially of the ulna and peroneal nerves.

Although nurses' role in rehabilitation has been generally ill defined and consistently undervalued of all professional groups, nurses working with CVA patients have potentially the greatest contribution to make. CVA patients are believed to benefit from good posture, yet they can spend long periods in inappropriate positions. In a study examining the position, handling and mobilizing of CVA patients in hospital, poor positioning was observed in 158 times during 380 patient hours of observation. The most frequent causes of positional improvement were activities whose primary intention was unrelated to position correction. The deliberate adjustment of patients' position by nurses was a rare event, which occupied a small part of nurses' time. The potential for a more considered and consistent nursing approach appears to be great (Dowswell et al 2000:286-291).

After the acute phase, the nurse assesses mental status (memory, attention span, perception, orientation, affect, speech/language), sensation/perception, (usually the patient has decreased awareness of pain and temperature), motor control (upper and lower extremity movement), swallowing ability, nutritional and hydration status, skin

integrity, activity tolerance, and bowel and bladder function. Ongoing nursing assessment continues to focus on the impairment of function in the patient's daily activities, because the quality of life after stroke is closely related to the patient's functional status (Smeltzer and Bare, 2000:1655-1656).

When a patient is no longer acutely ill after a CVA, the health care staffs turns towards maximizing the patient's functional abilities. The rehabilitation process can involve speech therapy to relearn talking and swallowing, occupational therapy for regaining dexterity of arms and hands, physical therapy for improving strength and walking, and family education to orient them in caring for their loved one at home. The goal is for the patient to resume as many, if not all of the pre-stroke activities and functions (Health Indiamart 2001:2).

Alexander et al (2000:372), states that, "a successful outcome is more likely when the optimum techniques and resources are utilized, encompassing every member of multidisciplinary team. The outcome can also be influenced by other factors such as recognising the need to start the rehabilitative process as soon as possible".

Evaluation is determination of the patient's responses to the nursing interventions and the extent to which the outcomes have been achieved (Smeltzer and Bare, 2000:29). It is the fifth and final phase of the nursing process. It may be defined as the appraisal of the clients' behavioural changes that are a result of the action of the nurse (Christensen & Kenney, 1990).

Although evaluation is considered to be the final phase, it frequently does not end the process. It may lead to reassessment, which in turn may result in the nursing process beginning all over again. The key to appropriate evaluation of nurse-clients' actions lies in the planning phase of the nursing process. When objectives are described in behavioural terms with clearly stated expected outcomes, it is easy to determine whether or not the nurse – client actions were successful. These objectives become the criteria for evaluating nurse-client actions (George, 1995:27).

The following is an example of a nursing care plan for a patient admitted with CVA.

Nursing diagnosis: Risk for ineffective airway clearance related to hemiplegic effects of CVA

Nursing priorities/goals: Maintain a patent airway and prevent pulmonary complications

Interventions	Rationales	Patient outcome/ evaluation
1.Position the patient with head turned to side, supporting the trunk with pillows as needed. Elevate the head of the bed slightly. Never leave the patient supine while unattended. Provide a call button within easy reach of the unaffected arm, or provide alternative means of signalling for help, as needed 2.If hemiplegia is present, position the patient on the affected side for shorter periods (less than 1 hour) than on the unaffected side (2 hours). Avoid positioning a patients affected arm over the abdomen. 3.Encourage coughing (except in the patient with a hemorrhagic CVA) and deep breathing every 2 hours while the patient is awake. Set up equipment for oral suctioning, and suction accumulated secretions as necessary. 4.Assess breath sounds at least every 4 hours while the patient is awake. Also note the adequacy of respiratory effort, the rate and characteristics of respirations and skin colour. Investigate restlessness promptly, especially in aphasic patient. Report any abnormalities. 5. Allow nothing by mouth until the patients' ability to swallow is evaluated. If the patient can swallow with minimum difficulty, assist with or observe the patient's eating, as needed. Place small portions of food in the unaffected side of the mouth	1.Hemiplegia, impaired cough reflex, or dysphagia may render the patient unable to clear the airway. If left supine while unattended the patient may aspirate; the supine position also increases the risk of airway obstruction from the tongue, especially if the patient is anaesthetised. Providing the means to call for help is essential when the airway may become compromised. 2. Lying on the affected side may cause pooling of secretions, which are ineffectively cleared because of hemiplegia. The weight of an arm over the abdomen may further reduce the adequacy of thoracic expansion. 3.Accumulated secretions may obstruct the airway or predispose the patient to atelectasis or pneumonia. Coughing should be avoided in hemorrhagic CVA to prevent increasing intracranial pressure, which can cause further bleeding. 4.Many CVA patients have preexisting hypertension or heart disease, which may predispose them to heart failure. Abnormal breath sounds may be the first indicators of complications related to hypoventilation. Increased respiratory effort, tarchypnoea, ashen or cyanotic colour, or restlessness may indicate hypoxemia. Early detection and reporting lead to prompt treatment. 5. Hemiplegia and associated dysphagia predispose the patient to aspiration. The patient may be better able to swallow if food is placed on the unaffected side. Small bites and thicker liquids decrease the risk of choking from aspiration.	Throughout the hospital stay, the patient will: - Maintain a clear airway - Cough and perform deep-breathing exercises every 2 hours while awake - Have clear breath sounds or prompt identification and treatment of pulmonary problems - Take food and fluids (as ordered) without aspirating or choking.

Adapted from Holloway's nursing care plan (1999:132)

Nursing diagnosis: **Risk for further cerebral injury related to blood flow**

Nursing priorities/goal: Improve cerebral tissue perfusion

Interventions	**Rationales**	**Patient outcome/ evaluation**
1.Assess neurologic status, checking level of consciousness, orientation, grip strength, leg strength, pupillary response, and vital signs every hour until neurologic status is stable; repeat assessment at least every 4 hours thereafter. Promptly report any abnormalities or changes especially decreasing alertness, progressing weakness, restlessness, unequal pupil size, widening pulse pressure, flexor or extensor posturing, seizures, severe headache, vertigo, syncope, or epistaxis.	1.When blood flow to and oxygenation of the decreased, cerebral vasodilatation and oedema occur as the body attempts to compensate for the deficiency. Increasing cerebral oedema causes increased intracranial pressure and may result in death if not treated promptly. Haemorrhage into enclosed intracranial spaces may also increase pressure. A decline in neurologic signs indicates progressive injury.	Within 2 days of admission, the patient will: - Show no further decrease in level of consciousness - Show stable or improving neurologic signs. Throughout the hospital stay, the patient will: - Maintain fluid balance - Maintain electrolyte levels within normal limits.
2.Elevate the head of the bed slightly and provide supplemental oxygen as ordered.	2.Elevating the head of the bed helps minimize cerebral oedema, which can contribute to increased ischaemia. The brain uses 20% of the oxygen normally available to body. When a CVA causes cerebral ischaemia, supplemental oxygen may prevent brain tissue death.	
3.Manage an occlusive CVA as follows: -Administer anticoagulants, as ordered. - Monitor appropriate laboratory findings and check current results before giving each dose. -Observe carefully for melena, petechiae, epistaxis, hematuria, ecchymosis, oozing from wounds, or unusual bleeding. -Observe for and report signs of intracranial bleeding (headache, irritability, weakness, decreased level of consciousness, or nuchal rigidity). -Administer antiplatelet aggregation medications, as ordered. Observe for gastric irritation. -Administer medications to control blood pressure, as ordered. Be alert for and immediately report signs of decreased cerebral perfusion. Check blood pressure at least 4 hours while the patient is awake.	3.An occlusive CVA requires proper management: Use of anticoagulants, although still somewhat controversial, can inhibit stroke progression and possibly reduce the number of thromboembolic events. Heparin inactivates thrombin, thus preventing fibrin clots. Therapeutic APTT should be one to one and half times the laboratory's normal value. Warfarin interferes with vitamin K production, thus decreasing synthesis of several clotting factors. Therapeutic PT should one and half to two and half times normal value. For all conditions that require anticoagulation therapy, the recommended range is 2 to 3. Anticoagulants predispose the patient to systemic bleeding and may also cause intracranial bleeding. -Drugs such as aspirin and ticlopidine (ticlid) inhibit platelet aggregation and thus reduce the risk of embolus formation. Adverse effects include GI upset and bleeding, so these drugs may not be used if the patient has preexisting	

4.Manage a hemorrhagic CVA as follows: -Maintain the patient on complete bed rest for the first 24 hours to 1 week, as ordered. Minimize stress and external stimulation as much as possible. -Administer stool softeners or laxatives, as ordered. -Administer medications to control blood pressure, as ordered. Be alert for signs of neurologic deterioration and immediately report any that occur. -Monitor the patient to maintain optimal fluid status, observing fluid restrictions as ordered. Administer osmotic diuretics such as mannitol, as ordered. Monitor intake and output carefully.	GI problems. -Right after a CVA, the brain is in a hyper metabolic state and requires more blood flow to maintain perfusion, so blood pressure is allowed to run higher than normal. However, severe hypertension sustained over 30 to 60 minutes is treated because it may decrease perfusion to other organs and increase the risk of cerebral haemorrhage. Blood pressure should be brought down slowly because a sudden drop in cerebral blood flow may cause cerebral vasoconstriction, resulting in further ischaemia. 4.A hemorrhagic CVA requires proper management by: - Minimizing activity and stimulation helps decrease the risk of further intracerebral haemorrhage. Stool softeners or laxatives prevent straining at stool, which can cause bleeding. -Patients with hemorrhagic CVA commonly have significant vasospasm; a systolic blood pressure greater than 160mmHg may increase the risk of rebleeding. - Fluid overload may cause fatal increases in intracranial pressure or recurrent haemorrhage. Osmotic diuretics reduce cerebral oedema by drawing fluids into the intravascular space and stimulating diuresis. They also reduce the volume of circulating cerebrospinal fluid. Patients with other preexisting conditions, such as cardiac or renal disease, may not tolerate the temporary intravascular volume increase. Careful patient monitoring, including an accurate fluid intake and output record, helps prevent such complications.	

Adapted from Holloway's nursing care plan (1999:133)

Nursing diagnosis: Impaired physical mobility related to damage to motor cortex or motor pathways

Nursing priority/goal: Minimize effects of immobility and prevent associated complications

Interventions	Rationales	Patient outcome/ evaluation
1.Maintain functional alignment in positioning the patient at rest, using a footboard, hand roll, or tronchanter roll as necessary. Support the affected arm when the patient is out of bed. 2.Provide passive range of motion exercise to all extremities at least four times a day, beginning at admission. Increase activity levels as permitted and tolerated, depending on the cause of the CVA. Collaborate with the physical therapist to plan a rehabilitation schedule with the patient and family. 3.When permitted, encourage the patient to perform as much self- care as possible. 4.Provide antiembolism stockings, as ordered. Assess the patient for signs of thromboembolic complications. Report immediately any chest pain, shortness of breath, calf pain, or redness or swelling in an extremity. 5.Turn the patient from side to side at least every 2 hours. Keep bedding clean and dry. Massage bony prominences. Watch for fragile, thin, or excoriated skin, which may tear during turning. Provide a special mattress or foam or other padding. Report any red or broken skin areas immediately. 6. Maintain adequate elimination. If the patient is catheterised, begin bladder retraining as soon as possible, following an established	1.A functional position prevents contractures and deformities that can further complicate recovery and can help reduce intracranial pressure. The weight of a supported arm may cause shoulder dislocation, joint inflammation, or both. 2.Even passive exercise helps maintain muscle tone and establish new impulse pathways and neuron regeneration. Adjacent brain cells may take up the function of damaged cells, new nerve cell fibres may develop collaterally, or alternative nerve pathways may take over. Learning and repetition appear to be key factors in the development of new neuronal connections. Establishing a schedule helps the patient set goals, maintain a sense of control, and measure progress. 3.Independence in self-care helps maintain self-respect and may improve motivation to increase mobility. 4.Antiembolism stockings promote venous return, thus decreasing the risk of thrombus formation from immobility and venous stasis. The signs and symptoms listed may indicate pulmonary embolus or thrombophlebitis. 5.Impeccable skin care can prevent skin breakdown in the immobilized patient. Moisture promotes bacterial growth and increases skin friability. Turning and massage help prevent pressure sores from developing and promote circulation. An older patient is likely to have delicate skin, particularly if debilitated. If help did not arrive quickly after the CVA, the patient's skin may already be excoriated from the effects of urine, pressure, and dehydration. A special mattress or padding can help redistribute pressure. Prompt intervention can prevent serious skin problems that can interfere with recovery. 6. The interruption of neurosensory pathways that results from CVA may cause limited or altered sphincter control, either from actual brain damage or from	Within 24 hours of admission, the patient will: - Begin passive range of motion exercises. - Have clean and dry skin - Have a patent urinary catheter or use a bedpan every 2 hours while awake with minimal incontinence. Throughout the hospital stay, the patient will: - Maintain functional alignment - Perform as much self-care as possible - Maintain intact skin - Maintain adequate bowel and bladder elimination, with no signs of infection - Show no thrombo-embolic complica-tions.

protocol or medical order. If the patient is not catheterised, offer a bedpan every 2 hours. Report cloudiness, excessive sediment, or the presence of white blood cells in the patient's urine. Provide stool softeners and laxatives, as ordered, and monitor the frequency and characteristics of bowel and bladder control usually returns as rehabilitation progresses.	CVA-related memory and inhibitory lapses. Incontinence and urinary stasis predispose the patient to infection. Bladder and bowel retraining re-establishes patterns and bolsters the patient's confidence in resuming activities as permitted. Reassurance that incontinence is usually temporary helps decrease anxiety, embarrassment, and a sense of helplessness.	

Adapted from Holloway's nursing care plan (1999:133)

Nursing Diagnosis: Risk for sensory perceptual alteration related to cerebral injury

Nursing Priority/Goal: Minimize the effects of deficits in perception and prevent related Complications

Interventions	**Rationales**	**Patient outcome/ evaluation**
1.Use a calm and reassuring manner, eye contact, and touch to establish a relationship with the patient. Use the patient's preferred name, and approach the unaffected side.	1.Sensory perceptual and communication deficits may contribute to profound isolation for the patient who has suffered a CVA. Use of nonverbal communication establishes contact and helps decrease anxiety. The patient may be unable to see or feel on the affected side of the body.	Throughout the hospital stay, the patient will: - Look at and touch the affected side of the body. - Establish protective behaviour for affected limbs. - Demonstrate use of techniques to compensate for sensory loss.
2.Protect the patient from injury to the affected side. Give regular reminders to look at and touch the affected side	2.Hemiplegia may be accompanied by full or partial hemianesthesia, making the patient unaware of actual or impending injury. Relearning awareness and acceptance of affected side by using that side helps move the patient toward functional recovery.	
3. If the patient has a visual field deficit, suggest frequent head turning to widen the visual field. Make sure that food and other objects at the bedside are placed well within the patient's visual field.	3. Visual field deficits may prevent the patient from observing the visual cues needed to prevent injury. Placing food and other objects in the patient's visual field helps prevent accidents and ensure adequate nutrition.	

Adapted from Holloway's nursing care plan (1999:136)

Nursing Diagnosis: Risk for impaired verbal communication related to cerebral injury

Nursing Priority/Goal: Establish effective means of communication

Interventions	Rationales	Patient outcome/ evaluation
1.Assess communication ability. Explain to the patient that the CVA may have affected speech. Ask simple questions that evaluate the patient's ability to repeat words, interpret, follow directions, and express feelings. Allow ample time for responses.	1. Identifying speech problems (such as expressive or receptive aphasia) is the first step in planning rehabilitation. A patient with receptive aphasia may still be able to process information but is slower to interpret stimuli and form a response.	Within one hour of admission, the conscious patient will establish some form of verbal or non-verbal communication.
2.Speak slowly and clearly, using short sentences; never shout. Use simple explanations and gestures. Always include the patient in conversation when others are present. Avoid answering for the patient. Never use baby talk. Provide an alternative means of communication (such as a word board or pencil and paper) if needed.	2. Rapid or complex explanations may cause neurosensory overload, adding to the patient's frustration. Hearing is usually not impaired, and shouting adds to the patient's distress over deficits. Answering for the patient, talking around the patient, and using baby talk are demeaning and contribute to the patient's sense of helplessness. Alternative means of communication may be needed while the patient relearns verbal skills.	
3.If significant speech deficits are present, arrange a referral to a speech therapist for more comprehensive evaluation and rehabilitation services.	3. A speech therapist can pinpoint and treat specific speech problems.	
4. Reassure the patient that functional recovery is possible with patience and consistent rehabilitation. Help the patient with repetition of verbal and physical exercises. Involve family members in the patient's exercises. If the patient uses inappropriate profanity, counsel the family.	4. A patient with severe deficits may despair of resuming normal activities; maintaining hope is vital for the fullest recovery. Over time, the brain can develop new pathways for functions: Repetition aids this process. Family support helps maintain morale. Family members may be shocked by inappropriate profanity; advise them that this is typical in a patient whose speech has been affected by CVA.	

Adapted from Holloway's nursing care plan (1999:137)

Nursing Diagnosis: Risk for knowledge deficit (CVA management) related to lack of exposure to information on self-care

Nursing Priority/Goal: Provide thorough patient and family teaching.

Interventions	Rationales	Patient outcome/ evaluation
1.Explain to the family that some emotional lability is typically associated with cerebral injury but that such behaviour usually decreases over time. Teach the family how to gently guide the patient back to appropriate emotional and physical responses Encourage patience, affection, and the use of humour. 2.Maintain an attitude of acceptance and understanding. Do not exacerbate emotional outbursts by reacting personally to them. Encourage normal expression of feelings related to lost abilities. 3.Instruct the patient and family about all medications to be taken at home, including antihypertensive drugs, anticoagulants, and antiplatelet aggregation medication. 4. If the patient will be receiving anticoagulant therapy at home, provide thorough instructions about: - The action, dosage, schedule of the medication - The need for frequent follow-up laboratory testing to determine dosage requirements. - Signs of bleeding problems (melena, petechiae, easy bruising, hematuria, epistaxis) and the need to report them - Measures to control bleeding - Dietary considerations - The need to avoid aspirin and other over-the-counter medications unless specifically approved by the doctor - The need to avoid trauma	1. Family members may be confused and distressed by unexpected emotional outbursts, and they may be reassured to know that physiologic factors are at least partially responsible. The family may help the patient re-establish appropriate responses through supportive, gentle reminders. Family understanding and patience, with humour at appropriate moments may defuse potentially volatile emotional outbursts. 2.A patient who has suffered a CVA typically exhibits excessive or inappropriate emotions as a result of brain injury. The profound alteration such deficits as aphasia cause in the patient's relationship with the environment can also cause widely varied emotional reactions, ranging from rage to grief; expression of such feelings is part of coping. The patient may be unable to control emotional responses, and strong reactions on the part of family members or caregivers may add to the patient's isolation and distress. 3. Understanding and complying with the drug regimen decreases the risk of a CVA recurring. 4. Because anticoagulant use may cause life –threatening bleeding, the patient and family must understand the regimen completely. Anticoagulants should be taken on a regular schedule in the prescribed dosage for maximum effectiveness. Tests determine the need for dosage adjustment. Excessive bleeding may indicate the need for a dosage adjustment, a therapeutic antidote, or both. Uncontrolled haemorrhage can be fatal. Vitamin K intake affect dosage requirements. Some drugs can augment the effects of anticoagulants. Even minimal trauma may cause serious injury because of the effects of anticoagulants. Other health care providers must be aware of the patient's medication regimen so that they can adjust their care to	By the time of discharge, the patient or family will: - Express understanding of what has happened - Name risk factors associated with a potential recurrence of CVA - List and discuss all medications for use at home. - List signs of CVA. - Demonstrate understanding of the activity regimen and perform activities - Use mobility aids appropriately, if needed - Name measures to protect the affected side - Verbalize understanding of bowel and bladder control program - Express understanding of food and fluid intake recommendations - Tolerate frustration over speech deficits and use alternative measure to communicate - Understand the plan for ongoing rehabilitation Express understanding of emotional responses.

- The importance of wearing a medical alert tag and of notifying other health professionals (such as the dentist or optometrist) of anticoagulant therapy.	prevent injury.	
5. Teach the importance of lifestyle modifications to minimize the risk of CVA recurrence, including blood pressure control, weight control, cholesterol management, exercise, smoking cessation, diabetes control, diet modifications, and stress reduction.	5. These lifestyle modifications may decrease the risk of CVA recurring.	
6. Teach the patient and family to recognize and seek help for signs and symptoms associated with CVA s: vertigo, vision disturbances, sudden weakness or falls without loss of consciousness (drop attacks) paresthesia of the face or extremities, speech disturbances, lateralized temporary weakness, or sudden, severe unexplained headache.	6.Recognizing the signs and symptoms of a CVA quickly seeking medical help allows for medical interventions that can decrease the extent of brain tissue damage.	
7. Teach the patient and family about rehabilitation plans, and arrange for home care follow up or in-home assistance, as needed. Also teach the patient specific, individualized information on activities, safety measures, and proper positioning. Show how to use mobility aids (slings, brace, walkers), and demonstrate airway maintenance and feeding techniques. Go over the patients bowel and bladder control program. Reinforce the signs and symptoms of complications (decreasing neurologic status, infection, bleeding, or thromboembolic events). Make sure the patient and family understand food and fluid intake recommendations, skin care measures communication techniques, and how to cope with emotional lability.	7. The rehabilitation level at discharge varies from patient to patient and may also depend on the availability of home care resources. Most CVA patients require some assistance at home after discharge, either from motivated and well –taught family members or from professional caregivers. Discharge planning should always address ongoing rehabilitation.	
8. Discuss with the family the advisability of learning cardiopulmonary resuscitation techniques.	8. Many risk factors for CVA – such as hypertension and atherosclerosis – are also risk factors for myocardial infarction and cardiac arrest. Cardiac arrest also can cause further CVA from ischaemia.	

Adapted from Holloway's nursing care plan (1999:139)

2.3 THEORETICAL FRAMEWORK

For the purpose of this study, Orem's general theory of nursing is used.

According to Orem, "nursing has as its special concern the individual's need for self-care action and the provision and management of it on a continuous basis in order to sustain life and health, recover from disease or injury, and cope with their effects" (Orem, 1985:54).

Orem divided the general theory of nursing into three related parts. These parts are: *(1) self-care, (2) self-care deficit, and (3) nursing systems (George, 1990:92)*

In Slevin and Basford (1995:219) Orem describes self-care as personally acquired and goal oriented behaviour that focuses on the individuals own capacity to regulate himself and the environment in such a way that he stays alive, enjoys health and well-being, and contributes to his own development.

The theory of self-care includes self-care, self-care agency, and therapeutic self-care demand as well as self-care requisites (George, 1990:92).

Self-care is those learned actions directed toward oneself or environmental features to control factors that promote or interfere with ongoing regulation of function or development in order to contribute to continuance of life, self-maintenance, and personal health and well being (Orem, 1991).

Self-care agency is a human ability, which is "the ability for engaging in self-care (Orem 1985:106).

Therapeutic self-care demand is the "totality of self-care actions to be performed for some duration in order to meet self-care requisites by using valid methods and related sets of operations and actions (Orem, 1985:88).

The aim of self-care is to provide a range of needs, which are divided into three categories.

a. Universal self-care requisites, which are needs that, are essential for health and well-being. These include: air, water, food, elimination, activity and rest, solitude and social intervention, prevention of hazards, and promotion of normality.

b. Developmental self-care requisites, which are the specialized expressions of universal self-care requisites that have been particularized for developmental processes. Example, Nutrition and rest are universal, but they may also be specifically related to bodily growth and development.

c. Health deviation self-care requisites. These requisites arise when an individual is ill, injured, have any form of disability or is undergoing diagnosis or treatment. (Slevin and Basford, 1995:466)

The theory of self-care deficit is the core of Orem's general theory of nursing because it delineates when nursing is needed. Nursing is required when an adult, parent or guardian is incapable or limited in the provision of continuous effective self-care (George, 1990:93-94).

According to Orem in Slevin and Basford (1995:220-222), self-care deficiency refers to the deficitary relation between a person's self-care abilities and the self-care that is therapeutically required. So an individual is insufficiently capable of caring for himself with regard to his health, he suffers from a self-care deficit. A self-care deficit may therefore be the result of:

a. Insufficient ability to determine the quantity and type of therapeutically required self-care. This relates to self-care capacity

b. Insufficient ability to carry out the adequately determined quantity and type of therapeutically required self-care.

Self-care deficit theory teaches that people benefit from nursing because they have health – related limitations in providing self-care. Limitations may result from illness, injury, or from the effects of medical tests or treatments. Two variables affect these

deficits: self-care agency (ability) and therapeutic self-care demands (the measure of care required to meet existing requisites). Self-care deficit results when self-care agency is not adequate to meet the known self-care demand (Kozier. et. al., 1998).

The theory of nursing systems aim to explain the theoretical relationship between the actions and roles of both the patient and the nurse respectively in terms of what nurses do when they nurse a patient and what the net effect is of their nursing practice (Orem, 1991).

Nursing system theory postulates that nursing systems form when nurses prescribe, design, and provide nursing that relates the individual's self-care capabilities and meets therapeutic self-care requirements. Three types of nursing systems are identified:

1. Wholly compensatory systems are required for individuals unable to control and monitor their environment and process information.
2. Partially compensatory systems are designed for individuals who are unable to perform some (but not all) self-care activities.
3. Supportive-educative (developmental) systems are designed for persons who need to learn to perform self-care measures and need assistance to do so (Kozier. et. al., 1998).

(See Figure 2.1)

Figure 2.1 Basic nursing systems: WHOLLY COMPENSATORY SYSTEM

Nurse's actions while patients actions are limited

Accomplishes patient's therapeutic self-care

Nurse's action

Compensates for patient's inability to engage in self-care
Supports and protects patient

PARTLY COMPENSATORY SYSTEM

Nurse's actions

Performs some self-care measures for patient
Compensates for self-care limitations of patient
Assists patient as required

Patient action

Performs some self-care measures
Regulates self-care agency
Accepts care and assistance from nurse

Nurse and Patient action

Regulates self-care agency

SUPPORTIVE-EDUCATIVE SYSTEM

Patient action

Accomplishes self-care

Nurse and patient action

Regulates the exercise and development of self-care agency

Basic nursing system adapted from George (1990:96)

2.4 OREM'S THEORY AND THE NURSING PROCESS

Orem's approach to the nursing process presents a method to determine the self-care deficits and then to define the roles of the person or nurse to meet the self-care demands. The steps of Orem's nursing process may be summarized as follows (Orem 1985:224):

Step 1. The initial and continuing determination of why a person should be under nursing care.

Step 2. The designing of a system of nursing and planning for the delivery of nursing according to the designed system.

Step 3. The initiation, conduction, and control of assisting actions to: (1) compensate for the patient's self-care limitations, (2) overcome when possible self-care limitations and (3) foster and protect the patient's self-care abilities.

These three steps are considered by Orem to be the technical component of the nursing process. Orem emphasizes that the technological component must be coordinated with interpersonal and social process within nursing situation (Orem, 1985:224).

Table 2.1 Comparison of Orem's nursing process and the nursing process

Nursing Process		*Orem's Nursing Process*
1. 2.	Assessment Nursing diagnosis	Step 1. Diagnosis and prescription; Determine why nursing is needed. Analyse and interpret, make judgements regarding care
3.	Plans with scientific rationale	Step 2. Design of a nursing system and plan for delivery of care
4. 5.	Implementation Evaluation	Step 3. Production and management of nursing systems.

Adapted from George (1990:100)

The researcher chose this theoretical framework as the most suitable because it easily fits the type of nursing care CVA patients receive. This theory assumes that nursing is a deliberate action and is performed by some members of a social group to bring about events and results that benefit others (Fawcett, 1995).

In Orem's theory, nursing is defined as, giving of direct assistance to a person because of specific inabilities for self-care. She also assumes that nursing is a helping service and a human service (Orem, 1991).

Orem offers a framework for assisting the nurse in prescribing appropriate nursing interventions. The model asserts that the aim of nursing practice is to meet self –care needs by restoring balance between the demands for self-care and either dependent or individual self-care ability (Slevin and Basford, 1995:466).

In nursing systems, action systems utilizes nursing agency to meet self-care needs until the individual is able to meet needs by his/herself. The three systems which nurses use can be applied in the care of CVA patients as follows:

- Wholly compensatory were all needs must be met by nursing; In the acute stage, most CVA patients may be prescribed with wholly compensatory nursing system because some patients may be unconscious or under strict bed rest because of severe hypertension. According to Orem in Slevin and Basford (1995:222) asserts that nursing intervention is legitimate when a patient has a self-care deficit and is therefore insufficiently capable of providing the therapeutically required self-care. The term nursing ability refers to the nurse who is able to provide care in a structured way, and is capable of:
  a. Diagnosing self-care deficits
  b. Planning action in the field of nursing
  c. Implementing planned action in the field of nursing.
- Partly compensatory nursing system where an individual or patient with CVA is able to meet some needs, but still requires assistance of nursing. A

conscious CVA patient in the acute stage will require this type of nursing especially if their condition is stable.

- Supportive/Educative were an individual is able to perform self-care measures but requires some nursing intervention, usually in the form of decision-making or education. A CVA patient during rehabilitation needs this system of nursing. Orem (1991) states that in order for a person to maintain self-care they must meet certain goals. One of these goals is the ability to acquire technical knowledge and self-care from authoritative sources, to or health units have a mission to provide nursing to persons served by the institution. These three systems exist within this professional nursing practice model (Orem's self-care model) (Mayo, 1997).

According to Baier (1997) in the philosophy of the Delaware technical and community college, "Nursing is a professional helping service, an interpersonal – caring process, a technological entity (scientific methods and techniques) and a scientific process (nursing process) which demands specific actions. The scientific process of nursing involves the application of theoretical knowledge to the assessment of self-care needs, the planning, and implementation of nursing actions and the evaluation of nursing actions and client outcomes as well as the evaluation of self as a therapeutic helper. Nursing actions involve acting or doing for another, guiding and supporting another, providing a developmental environment and teaching another. These actions are directed toward enhancing client and family system self-care ability. The goals of nursing are directed towards the promotion, restoration, and maintenance of an optimal well state of health as well as recognizing death with dignity. Nursing goals are directed in assisting the individual, family, and social system in meeting self-care needs, promoting need satisfaction of universal self-care requisites, regulating therapeutic self-care demands, and maintaining the healthy health state".

2.5 SUMMARY

In this chapter the literature review focussed on nursing care of CVA patient, the nursing process and general nursing care was discussed. The disease with its cause and effects was also discussed.

The broad framework for the study was discussed and for the purpose of this study, the Orem's self-care theory is used as the guideline for the study. The next chapter discusses research design and methodology.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

In this chapter the research design and methodology is described. For purpose of clarity, the research objectives are quoted:

- To do a literature review on the condition and care of patients diagnosed with CVA.
- To develop a checklist for measuring nursing care of patients diagnosed with CVA.
- To describe the ward environment where CVA patients are nursed.
- To measure the nursing care of patients admitted with CVA at University Teaching Hospital in Lusaka, Zambia with data obtained through the structured observation method.

3.2 RESEARCH DESIGN

According to Burns and Groove (1993:26), the research design provides a framework within which the study could be conducted to achieve the objectives.

A quantitative non-experimental descriptive survey method was used in this study. The motivation for this type of design is based on how these strategies were perceived by the researcher. The strategies were:

- *Quantitative*
- *Non-experimental*
- *Descriptive*
- *Survey*

3.2.1 Quantitative

A quantitative study is a formal, objective and systematic process whereby numerical data is obtained in order to gain information about the world (Burns and

Grove, 1993:15). A quantitative study is also measured in numbers and is statistically analysed (Creswell, 1994:2)

In this study, the quality of nursing care was measured numerically and statistical analyses were utilised.

3.2.2 Non-experimental

A non-experimental approach/strategy implies that there has been no manipulation of the independent variable, nor control of the setting (Brink, 2000:108). Polit and Hungler (1995:647) state, "these are studies in which the researcher collects data without introducing any new treatments or changes."

In this study the dependent variable, namely the quality of nursing care, had been measured with no manipulation of any variables.

3.2.3 Descriptive

Polit and Hungler (1995:178) state, "The purpose of descriptive study is to observe, describe and document aspects of a situation as it naturally occurs".

The researcher implemented a descriptive approach to measure (observe and describe) the quality of nursing care as it occurs. The rationale for using the descriptive approach is because the current quality of nursing care of CVA patient has to be described.

3.2.4 Survey

According to Brink (2000:109), in simple descriptive surveys, the researcher merely searches for accurate information about the characteristics of particular subjects, groups, institutions or situations or about the frequency of a phenomenon's occurrence.

The instrument used to survey and gather data on the quality of care rendered to CVA patients was the checklist. The checklist was organised in such a way that it captures most of the expected nursing activities that are implemented on the hospitalised CVA patient especially in the acute and sub acute stage.

3.3 RESEARCH SETTING

The study was conducted at University Teaching Hospital's General Medical wards, High cost ward and Intensive Care Unit.

- General Medical wards are wards where all patients suffering from medical conditions are admitted at a highly subsidised fee.
- High cost ward is a ward where patients who can afford an extra fee above the ordinary fee to get more nursing and medical attention are admitted.
- Intensive care unit is a ward where patients in a critical condition and with life threatening condition are admitted.

University Teaching Hospital is the biggest referral centre in Zambia where most other Zambian hospitals refer their patients for specialised medical attention and care. This hospital also is a major training centre for doctors' nurses and other paramedical staff.

3.4 RESEARCH METHOD

The research method refers to the two (2) phases of the research, which included:

- Phase one: Development of a checklist
- Phase two: Measuring the quality of nursing care

3.4.1 Phase one: Development of a checklist

It was necessary that a checklist be developed to measure the quality of nursing care that patients, diagnosed with Cerebrovascular accident receive. According to Polit and Hungler (1995:227) checklists are items that encompass several questions on topics and require the same response format.

The development of the checklist will be discussed under the following headings:

- Introduction to the developmental phase of the checklist
- Selection of observation items
- Testing for validity and reliability
- Pilot testing

3.4.1.1 Introduction to the developmental phase of the checklist

The literature study was used to determine which aspect of nursing care should be considered in the checklist. The main format of the checklist was based on a nursing care plan of cerebrovascular accident formulated by Holloway (1999:132-140). (See annexure 1).

Orem's theory of self-care deficit was also considered during development of the checklist. Most of the nursing activities included in the checklist requires the nurse to help the patient to meet the universal self-care requisites. Orem (1991) identifies the following five methods of helping:

- Acting for or doing for another
- Guiding and directing
- Providing physical or psychological support
- Providing and maintaining an environment that supports personal development
- Teaching.

This care plan was chosen as the most suitable by the researcher because it highlights the most critical care aspects of cerebrovascular accident patients. The construct is based on the nursing process, patient's needs and provision of support services. It specifically looked at the nursing priorities and their respective nursing interventions. Aspects of general and admission information to capture information on the nursing environment and patients' particulars and condition were also considered.

3.4.1.2 Selection of observation items

The items in the auditing tool were composed of basic nursing interventions that were provided to cerebrovascular accident patients. The items were divided into:

- **Part A:** General and admission information
- **Part B:** Patient care during Hospitalisation and before day 14

Part A. General and admission information

General information

This part of the checklist analysed the type of environment the patients were admitted to. Patients might have been admitted to wards with different levels of acquit. The possible areas/wards of admission were:

a. General Medical wards
b. High cost ward
c. Intensive care units

This item was necessary because it meant that more specialist nursing care might be available in the intensive care unit than in a general medical ward.

Admission information

Biographical data was documented in this part and the condition of the patient on admission was also documented. This inclusion was necessary for the comparison with what was revealed in literature study about the incidence of CVA.

Part B Patient care during Hospitalisation up to day fourteen (14)

This phase incorporated a preventative orientation on the part of the nurse. This is the period when secondary insults/complications occur. Nursing interventions during this phase should include actions to prevent these complications. This was the main part with items to measure the quality of care rendered to CVA patients.

3.4.1.3 Testing for validity and reliability

a. Validity

Validity is defined as the degree to which an instrument measures what it is intended to measure (Polit and Hungler, 1995:656).

The fact that a data collection instrument appears to measure what it is supposed to measure, establishes the validity of the instrument (Brink and Wood, 1994:174).

The following sub-divisions of validity will be addressed:

- Face validity
- Content related validity

Face validity

An instrument has face validity when it is measuring what it is supposed to measure (Brink and Wood, 1994:175).

To evaluate this aspect of the checklist, it was presented to the director of nursing, the hospital where this tool was to be administered. She submitted certain recommendations, which were accommodated, and also acknowledge the face validity.

The area matrons and ward managers also scrutinized the checklist, and accepted it, based on its face validity. This group consisted of one area matron for six (6) medical wards, six (6) ward managers for general medical wards, One (1) intensive care unit manager, two high cost ward managers and one (1) nursing officer in-charge of intensive care unit and theatre.

Content related validity

Incorporating and using the literature review ensured content validity. This was also ensured through consulting experts in the nursing field (Brink and Wood, 1994:176). The items of the checklist were constructed to cover the known content represented in literature as well as the input from nursing experts.

b. Reliability

Reliability represents the consistency of measures obtained. The question is whether a particular technique that is applied repeatedly to the same object, will yield the same result each time (Babbie and Mouton, 2001:119).

During the pilot study, which will be discussed next, two patients, called patient A and patient B were each evaluated with the newly constructed checklist. They were

each evaluated by two nurses, after which the two nurses compared their results. Both the nurses obtained identical results for patient A and identical results for patient B.

3.4.1.4 Pilot study

The purpose of a pilot study is to identify unforeseen problems, like items that are ambiguous. These problems may be detected beforehand and corrections could be made to improve the study (Brink, 2000:60).

For this study a pilot study on two admitted patients with cerebrovascular accident was done. The results of this study helped with the determination of the reliability as discussed previously. It also helped to identify unforeseen problems.
The checklist was revised and processed for the initiation of phase two

3.4.2 Phase two: Measuring the quality of nursing care

This phase consisted of the following activities:

- Identification of the target population
- The sampling method and sample
- Obtaining of consent
- Collection of data
- Data analysis

3.4.2.1 Identification of the target population

The population is the entire aggregation of cases that meet a designed set of criteria (Babbie and Mouton, 2001:100).
In this study the target population consisted of all the patients admitted with a diagnosis of cerebrovascular accident within the period of December 2001 to 31st May 2002 at the University Teaching Hospital in Lusaka, Zambia. During 2001 a total of 116 CVA patients were admitted.

3.4.2.2 Sampling method and sample

Sampling is the process of selecting a portion of an aggregate (people, groups or elements) to represent the entire population (Brink, 1996:109, Burns and Grove 1997:293). A sample consists of a subset of units that compose the population (Polit and Hungler 1995:1790).

For this study a simple random sampling method was used. According to Brink (2000:136) the main features or characteristics of a sample random are that:

- It involves a one stage selection process
- Each subject or object has an equal and independent chance of being drawn into the sample
- The study or accessible population can be identified and listed

Initially the months from December to May were written on a piece of paper and thrown in a basket. One piece of paper was randomly drawn for collection of data. The month of May was selected and every patient who was admitted was included in the study. A total of 40 patients were assessed.

3.5 DATA COLLECTION

Data collection was done in one month because the researcher was alone during the period of data collection. Data was collected by informed conscious observation of nurse's activities on CVA patients as nurses implemented the nursing care. The researcher did this with the use of a checklist. This method of data collection allowed the researcher to observe the performance of the professional nurses directly.

Data was collected as follows: The registered nurses in-charge of the wards/units where CVA patients are admitted were informed of the intentions of the researcher to observe the nursing care being rendered to CVA patients. This information was communicated to all nursing staff in these wards/units. Observation of nursing care was done as follows:

Due to the total population of 116 (patients admitted during 2001) and the method of observation that was used to gather data it was decided to select one month, to observe all patients admitted to the different wards (ICU, high cost wards and general medical wards). (Refer to sampling and sample section).

During the period of study, each day was allocated a minimum time of 6 hours for observation and this was divided into three shifts. Each shift was allocated a minimum of 2 hours for observation (Morning shift, afternoon shift and night shift). This gave enough time for the researcher to observe what has been done, what is to be done during and what is being done in each shift. Nursing activities being done on each patient was recorded as they were observed and as they were recorded. Each patient was allocated a serial number for easy identification and for anonymity. Each patient was observed at least three (3) times in a day using the same checklist. The minimum days of observation was one (1) and the maximum was 14 days. Most patient's length of stay in the ward ranged between one (1) to four (4) days.
See table 3.1 for patient length of stay.

Table 3.1 Length of stay by patients admitted with CVA in the wards/unit during the period of study

Days in range	Frequency	Percentage (%)
1 to 4 days	19	48%
5 to 8 days	12	30%
9 to 12 days	05	12%
13 + days	04	10%
Total	**40**	**100%**

Review of patient's records was also done. This was helpful in identifying nursing activities done in the absence of the researcher. Records were checked and observed to see any nursing activity that was done and recorded.
Activities were only regarded as being done when they were found to be done on each observation.

3.6 ETHICAL CONSIDERATION

Request for permission to conduct this study at University Teaching Hospital was written and sent to University of Zambia ethical committee for consideration. The University of Zambia Ethical committee approved this study to be conducted. (See Annexure 3). Written permission was also obtained from the Managing director of University Teaching Hospital. (See Annexure 2). Permission from nursing managers and ward in charges was obtained verbally since the Managing director of the hospital had already granted formal permission. Verbal permission from individual patients was also obtained. The purpose of the research was explained and anonymity was ensured by use of serial number on the instrument used on each patient. Participation in this study was voluntary.

3.7 DATA ANALYSIS AND DATA PROCESSING

The computer using the Statistical package for social science and a Scientific calculator with the help of a statistician was used to process and analyse data. Descriptive statistics and graphs were used to indicate the findings.

3.8 SUMMARY

In chapter three the research design and methodology has been explained, beginning with the introduction of study objectives. The research design has been explained and strategies defined. The research method has been discussed in two phases, which included development of a checklist in phase one and measuring quality of nursing care in phase two. Validity and reliability were included in phase one and sampling method, sample, collection of data, identification of target population and data analysis were discussed in phase two. Ethical considerations were also highlighted.

In the next chapter the analysis and presentation of the data will be discussed.

CHAPTER 4

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 INTRODUCTION

The previous chapter dealt with the research design and methodology that was followed to accomplish the study purpose and objectives. This chapter focuses on the data analysis and presentation of findings.

All data was analysed using a calculator and by means of a statistical package for social sciences (a computer program). Data was first edited for completeness after collection and then the checklist was numbered and coded, then put on a code sheet. This was done to avoid losses and minimize mixing up of data. Frequencies are arranged in tables and pie charts for easy presentation and understanding.

4.2 PRESENTATION OF FINDINGS

The purpose of this study was to describe the quality of nursing care rendered to patients diagnosed with CVA admitted at University Teaching Hospital in Lusaka Zambia.

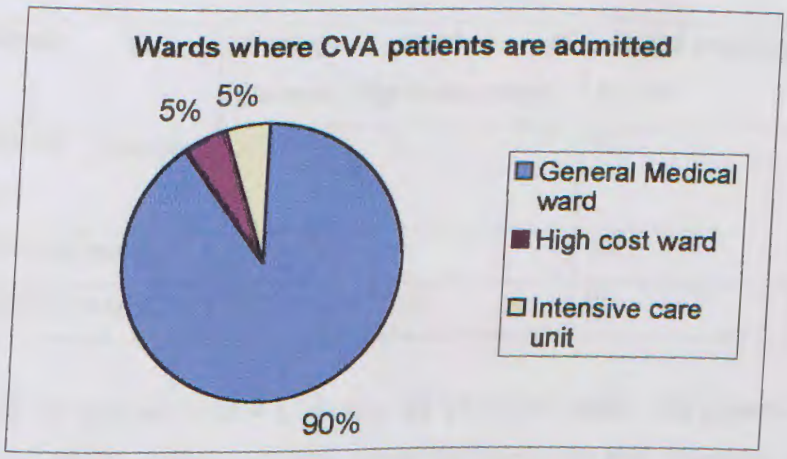
The findings have been presented in tables and pie charts for easy understanding of the author's intentions in the study. The total numbers of Cerebrovascular accident patients observed were 40. Some nursing care activities were observed in some patients and in other patients these activities were not applicable. It is for this reason that the researcher has only calculated the percentages from the applicable figures and has ignored not those applicable. The discussion will follow the items as they appeared on the checklist.

4.3 PART A: GENERAL AND ADMISSION INFORMATION

This part dealt with the biographical data, condition of the patient on admission and type of environment where CVA patients were admitted.

4.3.1 Wards where CVA patients are admitted

Figure 4.1 Wards where CVA patients are admitted



As depicted in figure 4.1 above, 36 (90%) out of 40 patients observed with CVA were admitted in the general medical wards and only 2(5%) each were admitted in intensive care unit and high cost ward. The degree of seriousness of the patients' condition varies. Patients with life threatening conditions were admitted in the Intensive Care Unit.

Admission to a unit that is dedicated to the care of CVA patients helps to reduce mortality and morbidity (Langhorne et al 1993). There are no strict definitions of what constitutes such a unit, but at a minimum it should be staffed to allow the close monitoring of vital and neurological signs. Nursing and other personnel working in the unit should be trained to carefully observe patients so that fluctuations in neurological status can be promptly recognised. Regular communication among physicians, nurses and rehabilitation personnel will improve coordination of care and may result in better outcome (Langhorne et al, 1993). The intensity of care in a general ward is also less than the care in an intensive care unit.

4.3.2 Staffing in relation to average number of patients per day in each ward

Table 4.1 Staffing in relation to average number of patients per day in each ward

Wards	Average number of patients/ day in the ward	Actual staffing levels	Acceptable staffing levels
General medical ward	50	02	04
High cost ward	08	02	03
Intensive care unit	08	05	08

As can be seen in table 4.1, during the period of study, the general medical wards usually had 50 patients per day while the high cost and intensive care unit had 8 patients admitted per day in each ward.

Actual staffing levels were, 2 (50%) staff per shift in the general ward as compared to the acceptable figure of 4 staff per shift. This information was obtained from those in charge for the wards where CVA patients are admitted.

Actual staffing in high cost per shift was 2 (67%) staff per shift as compared to the acceptable figure of 3 staff per shift.

For intensive care unit the actual staffing levels per shift at the time of the project was 5 (63%) staff per shift as compared to 8 per shift.

According to Marquis and Huston (1994:219), the formula to determine staffing needs can be:

Patient Census divided by Patient/Nurse ratio

In case of intensive care unit, British Association of Critical Care Nurses position statement (2000:41) state "Unconscious/ventilated patients should have a minimum of one –to-one nurse-patient ratio". And the nurse-patient ratio within any critical care area should not be go below one nurse to two patients (British Association of Critical Care Nurses/Position Statement, 2000:41).

4.3.3 Ages of CVA Patients

Table 4.2 Ages of CVA patients

AGE GROUP	FREQUENCY	PERCENTAGE %
20 to 40 years	10	25%
41 to 60years	15	37.5%
61 to 80years	15	37.5%
Total	**40**	**100%**

Table 4.2 above shows age range of CVA patients. Ages of CVA patients ranged from 22 to 76 years. Age range of 41 to 60 years and 61 to 80 years were the most affected age groups, 15(37.5%) each. Patients within age range of 20 to 40 were 10(25%). The average age of admitted CVA patients during the study was 52 years.

According to Alexander et al (2000:369) CVA can occur at any time during adult life, but is uncommon in children. Usually thrombotic CVA is seen in the 60 to 90 year age group, and embolic and hemorrhagic CVA in the 25 to 60 year age group.
The incidence of CVA rises dramatically with age, with the risk doubling with each decade after age 35 (American Stroke Association, 2001).

4.3.4 Gender of Cerebrovascular Accident Patients

Figure 4.2 Gender of CVA patients

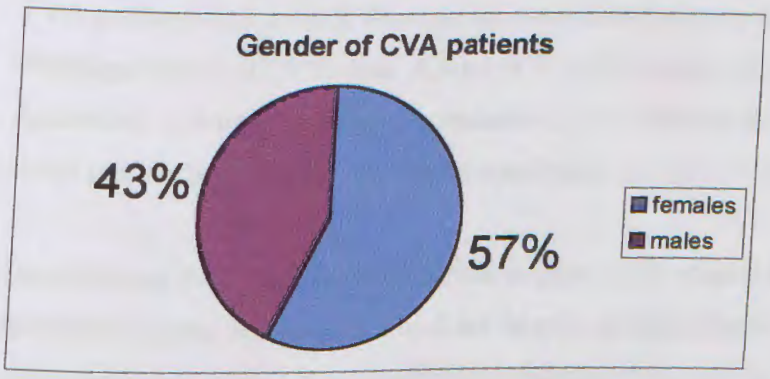


Figure 4.2 indicates the sex of CVA patients admitted during the study period.

Out of the 40 patients observed, 23(57%) were females and 17(43%) were male patients.

This does not tally with what was indicated by the American Stroke Association (2001), who said "stroke disorders occur in men more often than women".

4.3.5 State of condition during admission in relation to condition after observation

Table 4.3 State of condition during admission in relation to condition after observation

	Condition during admission			
Condition after observation/on completion of research	Unconscious	Semi-conscious	Conscious	**Total**
Improved and was discharged	02 (5%)	01(2.5%)	23(57.5%)	**26(65%)**
Died	02(5%)	04(10%)	07(17.5%)	**13(32.5%)**
Remained in the ward	00	00	01(2.5%)	**1(2.5%)**
Total	**4(10%)**	**5(12.5%)**	**31(77.5%)**	**40(100%)**

According to table 4.3 above, slightly more than three quarters of the patients were admitted in the conscious state 31(77.5%), and a total 13(32.5%) of the admitted CVA patients died. Out of 31 conscious admitted patients, 23 (57.5%) patients were discharged and 7 (17.5%) died. A total of 26 (65%) improved and were discharged. According to American Stroke Association (2001) one fourth of the sufferers die as a result of the complications, and about one-fourth recover most of all functions.

Death during the first week after stroke is commonly caused by brain edema and an elevated intracranial pressure, which are largely, complications of occlusions of major intracranial arteries and large multilobar infarctions (White et al 1979:743).

Semi-consciousness in this study meant; a patient who was partially awake with a Glasgow coma scale of 9 and above.
Unconsciousness in this study meant; a patient who was in deep coma with a Glasgow coma scale of less than 6.

4.4 PART B. PATIENT CARE DURING HOSPITALISATION

This part dealt with observations done on the nursing care rendered to cerebrovascular accident patients from time of admission to day 14 or up to the day of discharge or death if this happened before day fourteen (14). Some nursing activities were observed in some patients and in other patients these activities were not applicable. Calculation of percentages was conducted using the applicable figures, which were represented by a sum of done and not done figures.

Note/Reminder
Not applicable data was not used for statistical calculations

4.4.1 Nursing care to maintain a clear airway

Table 4.4 Nursing care to maintain a clear airway

NURSING ACTIVITIES	DONE F %	NOT DONE F %	N/A	TOTAL N=
Position patient appropriately	12 (86%)	02 (14%)	26	40
Elevate head of bed slightly	22 (55%)	18 (45%)	00	40
Never leave patient supine while unattended to, if unconscious.	13 (93%)	01 (7%)	26	40
If hemiplegic, position patient on affected side for shorter periods. Not more than one hour.	10 (44%)	13 (56%)	17	40

Table 4.4 above shows the nursing activities to maintain a clear airway. Out of 14 patients, 12 (86%) patients were positioned appropriately and 2 (14%) were not. Twenty six were not applicable because most patients' were in a stable condition, awake and able to position themselves appropriately. Twenty two (55%) patients had their head of bed elevated slightly and 18(45%) were not.
Thirteen (93%) patients were not left in supine position while unattended to and 13 (56%) patients were positioned on the affected side for more than one hour.

According to Orem (1991), maintenance of a sufficient intake of air is a Universal self-care requisite and since some patients are unable to maintain this on their own due to self- care deficit, the nurses can act for and provide physical and psychological support to these patients. In this case they would employ wholly or partly compensatory nursing system. For patients who were stable and mobile, supportive-educative nursing system will be used.

Holloway (1999:132) states "the patient may be positioned with the head turned to the side, supporting the trunk with pillows as needed. This is because patients may be

hemiplegic, and may have impaired cough reflex or dysphagia and this may render the patient unable to clear the airway. If left in supine while unattended to, patient may aspirate. The supine position also increases the risk of airway obstruction from the tongue." Lying on the patient on the affected side may cause pooling of secretions, which are ineffectively cleared because of hemiplegia.

4.4.2 Nursing care to prevent pulmonary complications

Table 4.5 Nursing care to prevent pulmonary complications

Nursing activities	Done F %	Not done F %	Not Applicable	Total N=
Encourage coughing and deep breathing every 2 hours while patient is awake (except in patients with hemorrhagic CVA)	00	35 (100%)	05	40
Set up equipment for oral suctioning, and suction accumulated secretions as necessary	04 (10%)	36 (90%)	00	40
Assess breath sounds at least every 4 hours while patient is awake	05 (12%)	35 (88%)	00	40
Note the adequacy of respiration, effort, the rate and characteristics of respiration hourly	16 (40%)	24 (60%)	00	40
Allow nothing by mouth until the patients' ability to swallow is evaluated	13 (100%)	00	27	40
If patient can swallow with minimum difficulty assist with or observe the patient's eating as needed	07 (44%)	9 (56%)	24	40

As can be seen in table 4.5, on page 55, all 35 (100%) patients were not encouraged to do coughing and deep breathing exercises every 2 hours while patient was awake. Oral suctioning equipment was not readily available for most patients 36(90%), it was only readily available to 4 (10%) patients. Thirty Five (88%) of patients did not have their breath sounds assessed. Adequacy of respiration effort, the rate and

characteristics of respirations was not observed on 24 (60%) patients. However all 13 (100%) patients were allowed nothing by mouth until patients swallowing ability was evaluated. Nine (56%) out of 16 patients were not assisted with or observed during their meals.

Orem (1991) points out that prevention of hazards to human life, human functioning and human well being, is a universal self-care requisite, and nurses can act for and direct patients to assist in preventing pulmonary complications.

According to Reeves et al (1999:349) clients who have had a stroke may have impaired swallowing which can lead to many problems. The goals are for the client to eat and drink without aspirating fluid or food and to maintain an ideal or usual body weight. Always assess the clients' ability to swallow before giving food and be alert to facial drooping.

4.4.3 Assessment of neurological status of CVA patients

Table 4.6 Assessment of neurological status of CVA patients

Nursing activities	Done	Not done	Total N=
Check level of consciousness	03(8%)	37(92%)	40
Check orientation	03(8%)	37(92%)	40
Grip strength, leg strength	03(8%)	37(92%)	40
Check papillary response	03(8%)	37(92%)	40
Check vital signs every hour until neurologic status is stable	14(35%)	26(65%)	40

As depicted in table 4.6, only 3(8%) patients each had their level of consciousness, orientation, grip strength, leg strength and papillary responses assessed. The rest 37 (92%) patients each were not assessed. Vital signs observation was frequently done in 14 (35%) and not in the rest of 26 (65%) patients.

Vigilant assessment of neurological status will help to identify secondary complication such as increased intracranial pressure and brain oedema. Orem's in George (1995:101) universal self-care requisite of prevention of hazards to human life, human functioning and human well-being may suit this type of nursing care.

4.4.4 Nursing care to improve cerebral tissue perfusion

Table 4.7 Nursing care to improve cerebral tissue perfusion

Nursing activities	Done F T	Not done F %	Not Applicable	Total N=
Elevate the head of the bed slightly and provide supplemental oxygen as ordered	22 (55%)	18 (45%)	00	40
Administer medication to control blood pressure as ordered	14 (100%)	00	26	40
Maintain patient on complete bed rest for the first 24 hours to one week as ordered	28 (97%)	01 (3%)	11	40
Minimize stress and external stimulation	11 (38%)	18 (62%)	11	40
Monitor the patient to maintain optimal fluid status, observing fluid restrictions as ordered	09 (35%)	17 (65%)	14	40
Administer osmotic diuretic such as mannitol as ordered	11 (100%)	00	29	40

As shown in table 4.7 above, it was observed that, administration of medication to control blood pressure and osmotic diuretics was done 100%. Twenty six were not applicable for blood pressure medication as it was not prescribed. Twenty nine were also not applicable because diuretics were not prescribed for them. Elevation of head of bed slightly and providing supplemental oxygen as ordered was done in 22 (55%) patients. 28 (97%) patients were maintained on complete bed rest for 24 hours to one week as ordered. However 17 (65%) patients were not monitored to maintain optimal fluid status and 18 (62%) patients did not have their stress and external stimuli minimized.

Most of the nursing activities to improve cerebral tissue perfusion cover a large number of universal self-care requisites described by Orem in George (1995:101). These include:

- Maintenance of a sufficient intake of air
- Maintenance of a sufficient intake of water
- Maintenance of a balance between activity and rest
- Prevention of hazards to human life

Nurses in most of these activities need to act for and direct patients in these nursing activities. Failure to act correctly in the abovementioned items, could lead to secondary insults like increased intracranial pressure.

4.4.5 Nursing care to minimize effects of immobility and prevent associated complications

Table 4.8 Nursing care to minimize effects of immobility and prevent associated complications

Nursing activities	Done F %	Not done F %	Not applicable	Total N=
Maintain functional alignment in the patient at rest, using footboard, hand roll or trochanter roll if necessary	01 (4%)	23 (96%)	16	40
Support the affected arm when the patient is out of bed	06 (50%)	06 (50%)	28	40
Provide passive (and active, if appropriate) range of motion exercise to all extremities at least four times a day, beginning at admission	02 (5%)	38 (95%)	00	40
Turn bed ridden patient from side to side at least every two hours	05 (18%)	22 (82%)	13	40
Keep bedding clean and dry	13 (32%)	27 (68%)	00	40
Massage bony prominences	06 (17%)	29 (83%)	05	40
Watch for fragile, thin or excoriated skin	06 (21%)	22 (79%)	12	40
Bath the patient at least once a day.	08 (20%)	32 (80%)	00	40

As depicted in Table 4.8 above, twenty three (96%) patients did not have their functional alignment maintained while at rest. Sixteen were not applicable because they were mobile in bed.

Thirty eight (95%) patients did not have passive range of motion exercise to all extremities done and only two (5%) were done. Twenty two (82%) were not turned from side to side two hourly. 13 were not applicable because they were mobile in bed. Twenty seven (68%) did not have their beddings clean and dry. Twenty nine (83%) patients did not have their bony prominences massaged and twenty two (79%) patients were not watched for fragile, thin and or skin excoriation. Thirty two (80%) patients were not bathed daily

These nursing activities to minimize effects of immobility and prevent associated complications in CVA patients will help in maintaining the following universal self-care requisites according to Orem (1991):

- Maintenance of a balance between activity and rest
- Prevention of hazards to human life and
- Promotion of human functioning and development within social groups in accord with human potential, known human limitation and the human desire to be normal.

Nurses therefore need to act for, direct or provide physical and psychological support to assist patient.

According to Smeltzer & Bare (2000:1656) correct positioning is important to prevent contractures; measures to relieve pressure, assist in maintaining good body alignment, and prevent compression neuropathies especially ulna and peroneal nerves should be implemented. They further said, "patients who has had a CVA may be at risk for skin and tissue breakdown because of altered sensation and inability to respond to pressure and discomfort by turning and moving. Therefore preventing skin and tissue breakdown requires frequent assessment of the skin, with particular emphasis on bony areas and dependent parts of the body. A regular turning schedule must be followed to minimize pressure and prevent skin breakdown".

This result corresponds with the result found in a study to examine the position handling and mobilization of stroke patients in hospital. Dowswell et al (2000:286-291) reported that, "poor positioning was observed to end 158 times in 380 patients' hours of observation". The most frequent causes of positional improvement were activities whose primary intention was not related to position correction. The deliberate adjustment of patient's position by nurses was a rare event, which occupied a small part of nurses' time.

4.4.6 Nursing activities to maintain adequate elimination

Table 4.9 Nursing activities to maintain adequate elimination

Nursing activities	Done F %	Not done F %	Not applicable	Total N=
Bladder catheterisation as soon as possible	09 (47%)	10 (53%)	21	40
Beginning bladder retraining as early as possible following an established protocol or medical order	00	21(100%)	19	40
If patient is not catheterised, offer a bed pan every two hours	3 (16%)	16 (84%)	21	40
Reassure the patient that bowel and bladder control usually returns as rehabilitation progresses	00	25 (100%)	15	40

Data as reflected in Table 4.9 depicts that 10 (53%) out of 19 patients were not catheterised as soon as possible. 21 (100%) did not undergo bladder retraining as early as possible following an established protocol or medical order. For patients not on catheter, 16 (84%) were not offered bedpan every 2 hours and there was no reassurance to 25 (100%) patients on bladder and bowel control.
These nursing activities are important in helping the provision of care associated with elimination processes and excrements.

Due to self-care deficits in the patients, nurses can provide a partially compensatory type of nursing system.

Holloway' (1999:136) state "...bladder and bowel retraining re-establishes patterns and bolsters the patients' confidence in resuming activities as permitted. Reassurance that incontinence is usually temporary helps decrease anxiety, embarrassment and a sense of helplessness."

Reeves et al (1999:350) also states, "nurses must have time and patience to plan and implement a bowel and bladder retraining program."

4.4.7 Nursing activities to assess communication ability and establish effective communication

Table 4.10 Nursing activities to assess communication ability and establish effective communication

Nursing activities	Done F %	Not Done F %	Not applicable	Total N=
Ask simple questions to evaluate the patients ability to repeat words, interpret, follow directions, and express feelings	05 (28%)	13 (72%)	22	40
Allow ample time for responses from the patient	05 (28%)	13 (72%)	22	40
Speak slowly and clearly, using short sentences and never shout	04 (22%)	14 (78%)	22	40
Use an alternative means of communication such as a word board or pencil and paper if needed	02 (11%)	16 (89%)	22	40
If significant speech deficits are present arrange a referral to speech therapist for more comprehensive evaluation and rehabilitation services	06 (33%)	12 (67%)	22	40
Reassure the patient that functional recovery is possible with patience and consistent rehabilitation	01 (5%)	17 (95%)	22	40
Help the patient with repetition of verbal and physical exercises	02 (11%)	16 (89%)	22	40

As can be seen in Table 4.10, 13 (72%) out of 18 patients with communication problem where not assessed by asking simple questions to evaluate patients' ability to

repeat words, interpret, follow directions, and express feelings. Twenty two were not applicable because they did not have speech problems. Thirteen (72%) were not given ample time for response, fourteen (78%) patients were not spoken to slowly and clearly. Sixteen (89%) out of 20 patients were not provided with alternative means of communication.

12 (67%) patients with significant speech deficits were not referred to speech therapist. Only 1 (5%) patient out of 18 was reassured that functional recovery was possible and the rest were not. Two (11%) patients out of 18 were helped with repetition of verbal and physical exercises the rest were not. Nursing activities to assess communication ability and establish effective communication are essential in helping patient achieve and maintain a balance between solitude and social interaction and also help promote human functioning and development within social accord with human potential, known human limitations, and the human desire to be normal. Nurses can use supportive – educative system of nursing to assist patient.

Reeves et al (1999:349) urges that, "clients with impaired verbal communication require assistance in developing alternative ways to communicate. Aphasia results from cerebral hemisphere damage; dysarthria is a consequence of motor function loss in the tongue, or speech muscle resulting in slurred speech. Nursing intervention for this problem should be planned in collaboration with speech therapists".

4.4.8 Provision of thorough patient and family teaching by nurses

Table 4.11 Provision of thorough patient and family teaching by nurses

Nurses activities (Patient and family teaching)	Done F %	Not done F %	Not applicable	Total N=
Explain to the family that some emotional liability is typically associated with cerebral injury but that such behaviour usually decreases over time	00	35 (100%)	05	40
Teach the family how to gently guide the patient back to appropriate emotional and physical responses	00	35 (100%)	05	40
Encourage patience, affection, and the use of humour	00	40 (100%)	00	40
Instruct the patient and family about all medications, the action, dosage and schedule of the medication	04(10%)	36 (90%)	00	40
Teach the importance of life style modifications to minimize the risk of CVA recurrence, including blood pressure control, cholesterol management, exercises, smoking cessation, diabetes control, diet modifications and stress reduction.	00	40 (100%)	00	40
Teach the patient and family to recognize and seek help for signs and symptoms associated with stroke	00	35 (100%)	05	40
Teach the patient and family about rehabilitation plans, and arrange for home care follow-up or in home assistance, as needed	09(26%)	26 (74%)	05	40

As can be seen Table 4.11 on page 64, health education on emotional liability was not done to 35 (100%) patients and families. Five were not applicable because patients were unconscious and the situation did not allow for health education. Health education on gently guiding the patient back to appropriate emotional and physical responses was not done to 35 (100%) patients' relatives. Only 4 (10%) out of 40 patients and relatives were instructed on medications, side effects, actions, dosage and schedule of medication. The rest, 36 (90%) were not instructed. Health education on importance of life style modification to minimize risk of CVA recurrence was not

given to 40 (100%) patients. None of the relatives were encouraged to be patient and to have affection and use humour when dealing with their family members. Thirty Five (100%) patients and family members were not taught on how to recognize and seek help for signs and symptoms associated with CVA. Only 9 (26%) patients and families were taught about rehabilitation plans and arrangement for follow up and home assistance was arranged. The rest of the patients 26 (74%) did not receive education on rehabilitation plans and arrangements for follow up at home. This finding is similar to the findings of Nolan, Nolan & Botha (2000:163) in a study to develop the nurses' role in patient education. It was found that although the literature identifies considerable potential for nurses to take a leading role in patient education, this was rarely achieved in practice.

The supportive educative nursing system suitably applies at this stage. According to Orem (1991:291), a person is able to perform or can and should learn to perform required measures of external or internal orientated therapeutic self-care but can not do so without assistance. Nurses may help CVA patients by teaching them about the condition and how to adjust to their new life style modifications.

4.4.9 Documentation of nursing activities

Table 4.12 Documentation of nursing activities

Information documented	Documented F %	Not documented F %	NA	Total N=
Clinical status on admission	05 (12%)	35 (88%)	00	**40**
Significant changes in status	12 (30%)	28 (70%)	00	**40**
Neurological assessments	03 (8%)	37 (92%)	00	**40**
Medication therapy	40 (100%)	00	00	**40**
Activity and positioning	08 (20%)	32 (80%)	00	**40**
Food intake	10 (26%)	28 (74%)	02	**40**
Fluid intake and output	08 (24%)	25 (76%)	07	**40**
Bowel and bladder control measures	04 (12%)	29 (88%)	07	**40**
Communication measures	00	30 (100%)	10	**40**
Patient and family teaching	00	39 (100%)	01	**40**
Discharge planning	26(100%)	00	14	**40**

According to Table 4.12 above, clinical status on admission was not documented on 35 (88%) patients and only on 5 (12%) patients was it documented. Thus it might have been difficulty to notice any immediate changes in the patients' condition.

Twenty eight (70%) patients had the significant changes in their condition and status not documented while on 12 (30%) patients this was documented.

On neurological assessments, only 3 (8%) patients had their neurological assessment documented and the rest 37 (92%) patients, this was not documented.

All the 40 (100%) patients had their medication therapy documented.

Only 8 (20%) patients had the activities and positioning documented while the rest of the 32 (80%) patients did not have these documented.

Food intake was documented on 10 (26%) patients only and the rest 28 (74%) patients did not have the food intake documented.

Fluid balance chart (intake output) was only well documented on 8 (24%) patients and this was not done on 25 (76%) patients.

Documentation on bowel and bladder control measure was done only on 4 (12%) patients and on the rest 29 (88%) this was not done.

Communication measures and patient and family teaching were not done on 30 (100%), and 39 (100%) patients respectively.

However discharge planning was documented on 26 (100%) patients who were discharged.

Information documentation is important for continuation of care and for evaluation of care that has been rendered. The documentation also addresses legal aspects of health care.

4.6 SUMMARY

The presentation of findings has been discussed with the help of tables and pie charts. The information was divided into two main parts, which are: part A for general and admission information and part B for nursing care during hospitalisation. The next chapter will discuss the conclusion, study limitations and recommendations.

CHAPTER 5

CONCLUSION, STUDY LIMITATIONS AND RECOMMENDATION

5.1 INTRODUCTION

The previous chapter dealt with data analysis and presentation of findings. Frequency distributions were produced after processing data to come out with results of the checklist administered.

This chapter will focus on conclusions drawn from the study, limitations encountered during the study and recommendations.

5.2 PURPOSE OF THE STUDY

As mentioned in chapter 1, the purpose of the study is to describe the quality of nursing care rendered to patients diagnosed with CVA admitted at University Teaching Hospital
in Lusaka, Zambia.

5.3 CONCLUSION

Conclusions were drawn according to the research objectives of the study as cited below:

- To complete a literature study on the condition and nursing care of Cerebrovascular accident patients.
- To develop a checklist for measuring nursing care of CVA patients
- To describe the ward environment where CVA patients are nursed
- To measure the nursing care of patients admitted with CVA at University Teaching Hospital in Lusaka, Zambia with data obtained through the structured observation method.

5.3.1. OBJECTIVE 1: To complete a literature study on the condition and nursing care of Cerebrovascular accident patients.

A literature study on CVA was done with regard to the overview of the condition, the nursing care of CVA patients and the conceptual framework of the study.

According to literature search, the common definition of cerebrovascular accident was that, it is a neurological disorder caused by an interruption of blood flow to the parts of the brain due to mainly occlusion or stenosis of blood vessels from embolism, thrombosis or haemorrhage. It is common in adults of age 40 and above.

Literature study also identified the main features or effects of CVA as: weakness or paralysis, problems with language, difficulties in swallowing, complications with bowel or bladder control and emotional out burst to mention but a few.

According to literature reviewed on the nursing care of CVA patients, nurses have been challenged to skilfully care for patients with CVA because this disease causes brain damage in adults. Professionals are urged to approach CVA with the same urgency as other medical emergencies.

It was also discovered in the literature review that, it is the duty of nurses to thoroughly assess CVA patients for neurological problems and other physical problems and thereafter make nursing diagnosis, plan for care, implement planned care and continue evaluating the progress of the patients' condition. Nurses are also expected to institute measures to prevent sub acute complications and begin efforts to restore neurological function through rehabilitation or other therapies. It was also cited that nurses have potentially the greatest contribution to make in rehabilitation and health education given due to the fact that nurses spend longer hours with these patients than any other health professionals.

For the purpose of this study Orem's general theory of nursing was used. Orem divided the general theory of nursing into three related parts. These parts were: *Self-care, self-care deficit, and nursing system* (George, 1995:100). The theory of self-

care deficit is the core of Orem's general theory of nursing because it delineates when nursing is needed.

Nursing system theory postulates that nursing systems form when nurses prescribe, design, and provide nursing that relates the individual's self –care capabilities and meets therapeutic self-care requirements. Three types of nursing systems were applied: *Wholly compensatory, Partially compensatory* and *Supportive –educative systems.* (Kozier, et al, 1998).

5.3.2 OBJECTIVE 2: Develop a checklist for measuring nursing care of CVA patients.

The checklist was developed with the assistance of the literature study that helped to determine which important aspects of nursing care was to be considered in the instrument. The main format of the checklist was based on a nursing care plan of cerebrovascular accident formulated by Holloway (1999:132-140). (See Annexure 1). Orem's theory of self-care deficit was also considered during development of the checklist. Most of the nursing activities included in the checklist requires the nurse to help the patient to meet the universal self-care requisites.

Conclusion

Nurse experts checked the instrument for face and content validity and it was found to be valid. Conducting a pilot study ensured reliability.

5.3.3 OBJECTIVE 3: Describe the ward environment where cerebrovascular accident patients were nursed.

This objective was covered by part A of the checklist. The study was conducted in general medical wards, high cost ward and intensive care unit of University Teaching Hospital in Lusaka, Zambia. It was discovered that, 36 (90%) of patients observed were admitted in the general medical wards and on 2 (5%) each were admitted in both high cost wards and intensive care unit.

The general medical wards had the average number of 50 patients per day although the ward bed capacity was 25 to 30 patients per day at the time of the study.

The actual average staffing levels in these wards at the time of the study was 2 nurses per shift although the acceptable staffing levels were 4 per shift. This indicated a 50% staffing levels during the period of study (source of information on staffing was from ward in charges). During the period of data collection, intensive care unit had the average number of 8 patients per day admitted in the unit and the actual average staffing levels of 5 nurses per shift. The acceptable staffing levels are 8 nurses per shift. This indicates a 62.5% staffing levels.

For the high cost wards, the average number of patients in the wards per day was 8 and the actual average staffing levels at the time of the study was 2 nurses per shift. The acceptable staffing levels are 3 per shift and this indicates a 66.7% staffing level at the time of the study.

Conclusion

According to the above finding, the ward environment where CVA patients were nursed was mainly the general medical ward, which was congested with other patients with insufficient nursing personnel. Early detecting of secondary insults may have been missed. This possibility might have been worsened by inadequate staffing levels.

5.3.4 OBJECTIVE 4: Measuring the nursing care of patients admitted with cerebrovascular accident at University Teaching Hospital in Lusaka, Zambia.

This objective was covered by part B of the checklist under nine categories. Each category will be discussed separately and a conclusion is drawn. A final conclusion will be stated at the end of the last category.

Indicator of quality nursing care

To enable the researcher to measure the quality of nursing care rendered to CVA patients whether poor or excellent, the following calculations were made:

The formula used to estimate the percentage for the nursing activities presented by tables and pie charts in chapter four was as follows:

Step one:

Nursing activities that are performed, not done were divided by the total number of performed and not done activities and then multiplied by hundred (100) to obtain the percentage of each activity.

Eg. Performed activities/total number of done and not done activities x 100

Step two

The done or not done activities on the checklist were calculated for the estimation of the percentage to indicate the level of the quality of nursing care as presented on the scale below:

0 - 50%	POOR NURSING CARE - PATIENT IS AT RISK
51% -69%	INADEQUATE NURSING CARE – THERE IS NEED FOR IMPROVEMENT
70% - 80%	GOOD QUALITY NURSING CARE
81% - 90%	VERY GOOD QUALITY NURSING CARE
91% - 100%	EXCELLENT NURSING CARE

In the absence of a standard scale for the level of quality nursing care rendered to patients with CVA, the researcher adopted the scale developed by Lacko (1985) which was a Dutch instrument used to measure the process aspects of quality of care (nursing practice). This scale was regarded as being more efficient because it made it possible to evaluate the nursing activities. Information was collected by analysing the nursing records, by interviewing nurses and patients and by observation of specific aspects of care. The scores on Lacko's scale only gave an indication of the quality of care and these were not to be considered as absolute scores. The scale used measurements such as:

- 50% and below indicated poor quality of care,
- 70% and above indicated good quality care.

However the researcher acknowledged that this was not the best method but it could be the starting point for comparing mean score of different groups or different measuring moments and for evaluation of effects of interventions.

The following are the categories in part B of the checklist:

- Nursing care to maintain a clear airway.
- Nursing care to prevent pulmonary complications (coughing and gag reflex)
- Assessment of neurological status of CVA patients
- Nursing care to improve cerebral tissue perfusion
- Nursing care to minimize effects of immobility and prevent associated complications
- Nursing care to maintain adequate elimination
- Nursing care to assess communication ability and establish effective communication
- Provision of thorough patient/family teaching by nurses
- Documentation of nursing activities

A conclusion one each of these categories will be stated next.

5.3.4.1 CATEGORY 1: Nursing care to maintain a clear airway

On nursing care to maintain a clear a clear airway, 12 (86%) of patients were positioned appropriately and only 2 (14%) were not. Thirteen 93% of patients were never left in supine position while unattended to. In both above cases this was very good and excellent nursing care rendered respectively.

According to Holloway (1999:132) the patient with CVA may be positioned with head turned to the side, supporting the trunk with pillows as needed. This is because patient is hemiplegic, and may have impaired cough reflex or dysphagia and this may render the patient unable to clear the airway. If left supine while unattended to, patient may aspirate. The supine position also increases the risk of airway obstruction from the tongue.

Twenty two (55%) of patients had their head of bed slightly elevated. This was inadequate nursing care, which needs improvement. Reeves, et al (1999:348), urge that, "keep the head of the bed elevated to enhance venous cerebral drainage and avoid activities that increase the intracranial pressure".

Out of 23 patients, 10 (44%) patients were positioned on the affected side for not more than one hour and 13 (56%) were positioned for more than one hour. This was poor nursing care, which also puts a patient at risk of developing secondary insults. According to Holloway (1999:132), lying on the affected side may cause pooling of secretions, which are ineffectively cleared because of hemiplegia.

Conclusion

The mean nursing care for this category was 70%. This was good quality of care especially given the fact that most CVA patients were nursed in general medical wards where staff were overloaded with work.

5.3.4.2 CATEGORY 2: Nursing care to prevent pulmonary complications

In this category the nursing care to prevent pulmonary complications were measured. Out of all the 35 (100%) patients observed, none were encouraged to do coughing and deep breathing exercises. This was poor nursing care and it puts the patient at risk of developing pulmonary complications such as atelectasis or pneumonia as stated by Holloway (1999:133).

It was also observed that only in 4 (10%) and 5 (12%) patients had equipment for suctioning set and had the breath sounds assessed at least hourly while patient was awake respectively. Adequacy of respiratory effort, rate and characteristics of respiration was assessed in 16 (40%) of patients and not in the rest. This signifies poor nursing care and patients were at risk. Holloway (1999:133) is particular about the observation of breath sounds and respiratory rate because, many patients have preexisting hypertension or heart disease, which may predispose them to heart failure.

Abnormal breath sounds (crackles, gurgles) may be the first indicators of complications related to hypoventilation. Increased respiratory effort, tarchypnoea, ashen or cyanotic colour, or restlessness may indicate hypoxemia. Early detection and reporting lead to prompt treatment (Holloway, 1999:133).
Assisting or observation of patients during meals was only done in 7 (44%) of patients.

This also showed poor nursing care, which put the patient at risk during meals eating/drinking. Reeves et al (1999:349) states "clients who have had a stroke may have impaired swallowing, which can lead to many problems, the goals are for the client to eat and drink without aspirating fluid or food and to maintain an ideal or usual body weight. Always assess the clients ability to swallow before giving food and be alert to facial drooping".

Holloway (1999:133) also said " Hemiplegia and associated dysphagia predisposes the patient to aspiration. The patient may be better able to swallow if food is placed on the unaffected side. Small bites and thicker liquids decrease the risk of choking from aspiration".

However 13 (100%) of patients were allowed nothing by mouth until patients swallowing ability was evaluated. This was excellent nursing care.

Conclusion

The mean nursing care to prevent pulmonary complications was 36%. This was an indication of poor nursing care and patient were put at risk of developing secondary insults.

5.3.4.3 CATEGORY 3: Assessment of neurological status of CVA patients

Category 3 deals with assessment of neurological status of CVA patients and it was observed that only 3(8%) patients each in each of the following were assessed for:

level of consciousness, orientation, grip strength, leg strength, and papillary responses. The rest 37 (92%) of patients were not assessed.

Vital sign observations were only frequently observed in 14 (35%) patients. This signified poor nursing care which highly risked patients life. Reeves et al (1999:348), states " the major goals of nursing interventions include maintenance or improvement of the level of consciousness and prevention of additional neurological problems resulting from CVA". They also further urged, " For clients with altered cerebral tissue perfusion, the nurse must monitor for increased intracranial pressure and perform a complete neurological examination at least once every 8 hours. Use the Glasgow coma scale and other tools available for assessing the client once per shift or more often as indicated".

Conclusion

The mean of nursing care to assess neurological status of CVA patient was only 13%. This was an indication of poor nursing care, which puts a patient at risk. This is especially troublesome seeing that the neurological assessment is the only means to prevent and/or detect secondary complications.

5.3.4.4 CATEGORY 4: Nursing care to improve cerebral tissue perfusion

Category 4 dealt with measuring of nursing care to improve cerebral tissue perfusion. It was observed that administration of medication to control blood pressure and osmotic diuretics were 100%(14 &11 respectively) done. Maintaining patients on complete bed rest in the first 24 hours to one week as ordered was done in 28 (97%) patients. This was excellent nursing care.

Elevating the head of the bed slightly and provision of supplemental oxygen was done in 22 (55%) patients. This was inadequate nursing care, which needed improvement.

Monitoring of patient to maintain optimal fluid status and observing fluid restrictions was done only in 9 (35%) patients. Stress and external stimulation minimization was also only done in 11 (38%) patients. This was poor nursing care, which exposed patients to secondary insults.

Conclusion

Nursing care to improve cerebral tissue perfusion was good except for monitoring of fluid restrictions and minimizing stress and external stimulation. The mean nursing care was 71%, which is regarded as good care. Fowler et al, (1996:327-332) states, " medical and nursing interventions are aimed at limiting the extent of brain injury, promoting early reperfusion and preventing complications as a result of secondary injury or hazards of immobility".

5.3.4.5 CATEGORY 5: *Nursing to minimize effects of immobility and prevent associated complications*

This category measured the nursing activities to minimize effects of immobility and prevention of associated complications. Maintaining functional alignment in the patient at rest, supporting the affected arm when patient is out of bed, providing passive range of motion exercise to extremities, turning bed ridden patients from side to side, keeping bedding clean and dry, massaging bony prominences, watching for fragile thin excoriation skin and bathing of patient at least once a day was only done in 1 (4%), 6 (50%). 0, 5 (18%), 13 (32%), 6 (17%), 6 (21%) and 8 (20%) of patients respectively. This was poor nursing care and patients were at risk of developing complications of immobility.

According to Smeltzer and Bare (2000:1656), correct positioning is important to prevent contractures; measures are used to relieve pressure, assist in maintaining good body alignment, and prevent compression neuropathies especially of the ulna and peroneal nerves. Because flexor muscles are stronger than extensor muscles, a posterior splint applied at night to the affected extremity may prevent flexion and maintain correct positioning during sleep. They further said "patients who has had a CVA may be at risk for skin and tissue breakdown because of altered sensation and inability to respond to pressure discomfort by turning and moving. Therefore preventing skin and tissue breakdown requires frequent assessment of the skin, with particular emphasis on bony areas and dependent parts of the body. A regular turning

and positioning schedule must be followed to minimize pressure and prevent skin breakdown.

Conclusion

This result indicated poor nursing care generally. The mean nursing care to minimize effects of immobility and prevent associated complications was 20%. The principles of early rehabilitation was not implemented.

5.3.4.6 CATEGORY 6: Nursing activities to maintain adequate elimination

This category measured the nursing activities to maintain adequate elimination. Bladder catheterisation as soon as possible was done in 9 (47%) patients and offering of bedpan every two hours if patient was not catheterised was done in 3(16%) patients only. It was also observed that no patients were started on bladder retraining as early as possible neither was any patient reassured about bowel and bladder control.

Conclusion

The mean nursing care was 15.8%. This was poor nursing care generally, and patients were at risk to develop secondary complications such as incontinence, urinary stasis and infection. Holloway (1999:136) said " bladder and bowel retraining re-establishes patterns and bolsters the patients confidence in resuming activities as permitted. Reassurance that incontinence is usually temporary helps decrease anxiety, embarrassment and a sense of helplessness."

Reeves et al (1999:350) also urge that, nurses must have time and patience to plan and implement a bowel and bladder-retraining program.

5.3.4.7 CATEGORY 7: Nursing activities to assess communication ability and establish effective communication

This category measured the nursing activities to assess communication ability and establish effective communication. It was observed that evaluation of patients' ability to repeat words, allowing ample time for response, speaking slowly, and using alternative means of communication was done poorly. It was also observed that, only

6 (33%) patients were referred to speech therapist and those who were reassured of functional recovery was only 1 (5%). Helping patients with repetition of verbal and physical exercises was also just done in 2 (11%) of patients.

Conclusion

The mean nursing care was 19%. This was poor nursing care and patients were at risk.

Reeves et al (1999:349) urge nurses that "clients with impaired verbal communication require assistance in developing alternative ways to communicate."

5.3.4.8 CATEGORY 8: Provision of thorough patient/family teaching by nurses

This category dealt with measuring of patient/family teaching by nurses. It was observed that health education to family members on emotional liability, how to gently guide the patient back to appropriate emotional and physical responses, encouraging patience, affection and use of humour and health education to patients on life style modifications and recognition of signs and symptoms of CVA was not done at all by nurses. Instruction to patient and family about all medications and health teaching on rehabilitation was only done to 4(10%) and 9(26%) patients respectively.

Conclusion

The mean nursing care was 5%. This was also poor nursing care and this type of nursing care denies patients and relatives of their rights to know about their condition and what is happening to them and their family member. In a study conducted to explore the needs of stroke patients' relatives during the hospitalisation period by Van der smagt-Duijnstee (2001:307-315), the study revealed that the needs of relatives of stroke patients were: information, counselling (a combination of communication and support) and accessibility.

5.3.4.9. CATEGORY 9: Documentation of nursing activities

This category measured and analysed the nursing documents for their completeness.

It was observed that clinical status on admission was not documented on 35 (88%) patients and only on 5(12%) patients was it documented.

Twenty eight (70%) patients had the significant changes in their condition and status not documented while on 12 (30%) patients this was documented.

On neurological assessments, only 3 (8%) patients had their neurological assessment documented and on the rest 37 (92%), this was not documented.

All the 40 (100%) patients had their medication therapy documented.

Only 8 (20%) patients had the activities and positioning documented while the rest of the 32 (80%) patients did not have these documented.

Food intake was documented on 10 (26%) patients only and on the rest 28 (74%) patients did not have the food intake documented.

Fluid balance chart (intake output) was only well documented on 8 (24%) patients and this was not done on 25 (76%) patients.

Documentation on bowel and bladder control measure was done on only 4 (12%) patients and on the rest 29 (88%) this was not done.

Communication measures and patient and family teaching were not done on 30 (100%), and 39 (100%) patients respectively.

However discharge planning was documented on 26 (100%) patients who were discharged.

Conclusion

The mean rate for documentation of nursing care was 30 (2%). Documentation of nursing care was poorly done. Documentation is a legal requirement in nursing.

5.4 FINAL CONCLUSION

Research findings have been discussed and conclusions were drawn according to research objectives. Quality of nursing care has been measured using the formulae given in pages 69 and 70.

The study revealed that nursing care of CVA patients during hospitalisation was poor and this puts CVA patients at risk because the rate of nursing care was very low (mean rate of nursing care in general was found to be 31%). See table 5.1 below.

5.4.1 Average total nursing care of CVA patients

This was calculated by adding all the mean nursing care of each category and then dividing by the total number of all categories, which were nine. Table 5.1 below indicates the mean percentages of nursing care of each category.

Table 5.1 Average total nursing care of CVA patients

Nursing Activities	**Average nursing care in percentage per category**
1. Nursing care to maintain clear airway	70%
2. Nursing care to prevent pulmonary complications	36%
3. Assessment of neurological status of CVA patients	13.4%
4. Nursing care to improve cerebral tissue perfusion	71%
5. Nursing care to minimize effects of immobility and prevent complications	20%
6. Nursing care to maintain adequate elimination	15.8%
7. Nursing activities to assess communication ability and establish effective communication	18.7%
8. Provision of thorough patient and family teaching by nurses	5%
9. Documentations of nursing information	30.2%
Average total nursing care of CVA patients	**31%**

The study also showed that 13 (32%) of the admitted CVA patients died during the period of data collection. This mortality rate may rise tremendously if poor nursing care continues at the rate it is reflected.

The results of this study reflects shortcomings to an extent that seriously influences the quality of nursing care of CVA patients admitted at University Teaching Hospital. The study revealed that, documentation of nursing care of CVA patients leaves much to be desired. This was poorly done and this made auditing of nursing difficult in most instances.

It is also worth noting that the poor nursing care reflected in this study could be attributed to poor staffing levels as indicated in table 4.1. This however may not be the sole reason for poor nursing care.

It is the vision of the researcher that the result of this study will not be taken as a criticism but as an indication of areas where all of us in the field of nursing practice, education and management have to put in more effort to improve the quality of nursing care rendered to CVA patient. We should always remember that, nurse professionals are obliged to provide quality-nursing care to all our clients.

5.5 RECOMMENDATIONS

The recommendations, based on the conclusions, are directed to both managerial and educational perspectives/issues. Further research undertakings is another point for recommendations.

5.5.1 Recommendations related to managerial perspectives

As these patients require specialized nursing care, it would be feasible to group them together in a ward, specifically aimed at neurological disorders. Nurses could then "informally" specialize in neurological/neurosurgical nursing and may develop a certain expertise.

Quality care is only possible if there are a suitable number of well qualified nurses available. The researcher is aware of the financial implications that additional personnel may have, but in the general wards where the majority of

these patients were cared for, the number of registered nurses were inadequate.

- Documentation of nursing care on all admitted patients should be improved, starting with admission notes, intravenous infusion charts and Glasgow coma scale especially neurological disorders such as CVA. Sisters in charge should see to it that their wards develop appropriate policies that encourage proper documentation of nursing care.

- With the alarming rise in CVA cases in Zambia, it is important to seperate records of CVA diagnoses from neurological disorders like is the case with meningitis. The health information manager and the doctors involved in diagnosing conditions should agree and start keeping information on CVA diagnosis separate and not grouped under neurological disorders. This will help health workers including nurses to appreciate the seriousness of the disease and may also draw nurses' attention to seriously consider provision of specialised quality nursing care.

5.5.2 Recommendations related to the educational perspectives

- In-service education targeting on the CVA patient should be conducted by the in-service coordinator at the University Teaching Hospital. This could take the form of:

  - Ward rounds
  - Discussion groups
  - Auditing of records

- Interested nurses should be recruited to enrol in post-basic courses in:

  - Neurosurgical nursing
  - Critical Care Nursing

- The possibility of mentors should be investigated. Nurses with extensive experience could guide novice nurses.

5.5.3 Further research

This study should be followed up in due time. The author could conduct a similar study if sponsorship would be available from government or non-governmental organisations. This study will include other big hospitals such as Ndola and Kitwe Central Hospital, in order to see if similar results will be found, also to evaluate the progress made with regard to the care of these patients in the target hospital.

Another survey should be conducted by the area Nursing officers with registered nurses in charge from University Teaching Hospital to identify the real cause of poor nursing care of CVA patients so that tangible measures to improve the quality of nursing care of CVA patients are put in place.

5.6 STUDY LIMITATIONS

- Limited time and financial constraints led to the study being conducted at a smaller scale.
- The time when data was being collected at University Teaching Hospital, was when major renovations of the general medical wards were taking place and this caused congestion of patients in the wards.
- Due to poor documentation of nursing care, it was difficult to audit nursing records.
- Statistics on CVA patients is not well maintained and so it was difficult for the researcher to get actual figures from the information and statistics officer.

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ANNEXURE 1

CHECKLIST

CHECKLIST OF QUALITY OF NURSING CARE RENDERED TO CVA PATIENTS AT UNIVERSITY TEACHING HOSPITAL IN ZAMBIA

A. General and admission information

* Serial no.
* Ward
* Average number of patients per day in the ward
* Acceptable staffing levels per day
* Average actual staffing levels per day
* Age of patient
* Sex of patient

- Condition during admission:
  Unconscious,
  Semiconscious
  Conscious
  Others, specify,
- Length of stay –date of admission:
  Date of discharge:

B. Patient care during Hospitalisation

	NURSING PRIORITIES	3	2	1
1.	Maintain patient airway Maintain a clear airway by: - Positioning patient with the head turned to the side supporting the trunk with pillows as needed. - Elevate the head of the bed slightly - Never leave the patient supine while unattended to - If hemiplegic, position patient on the affected side for shorter periods (less than one hour) than on the unaffected sides (every after two hours)			
2.	Prevent Pulmonary complications - Encourage coughing (except in patients with hemorrhagic stroke) and deep breathing every two hours while patient is awake - Set up equipment for oral suctioning, and suction accumulated secretions as necessary - Assess breath sounds at least every 4 hours while the patient is awake - Note the adequacy of respiratory effort the rate and characteristics of respiration hourly - Allow nothing by mouth until the patients' ability to swallow is evaluated - If patient can swallow with minimum difficulty assist with or observe the patient's eating as needed			

NURSING PRIORITIES	3	2	1
3. Assess neurological status of patient by: - Checking level of consciousness - Checking orientation - Grip strength, leg strength, - Pupillary response - Check vital signs every hour until neurologic status is stable - Promptly report any abnormalities or changes especially change in level of consciousness, unequal pupil size, widening pulse pressure, flexor or extensor posturing, seizures, severe headache, syncope or epistaxis. 4. Improve tissue perfusion by: - Elevate the head of the bed slightly and provide supplemental oxygen asordered - Administer anticoagulants as prescribed - Administer medication to control bloodpressure as ordered Manage a hemorrhagic cerebral vascular accident as follows: - Maintain patient on complete bed rest for first 24 hours to one week as ordered - Minimize stress and external stimulation - Monitor the patient to maintain optimal fluid status, observing fluid restriction as ordered - Administer osmotic diuretic such as Mannitol as ordered			
5. Minimize effects of immobility and prevent associated complications by: - Maintaining functional alignment in the patient at rest, using footboard, hand roll, or trochanter roll as necessary - Support the affected arm when the patient is out of bed - Provide passive (and active, if appropriate) Range of motion exercise to all extremities at least four times a day, beginning at admission - Turn bed ridden patient from side to side at least every two hours - Keep bedding clean and dry - Massage bony prominences - Watch for fragile thin, or excoriated skin. - Bathing of patient at least once a day			

NURSING PRIORITIES	3	2	1
6. Establish effective means of communication by: a. Assess communication ability by : i. Asking simple questions that evaluate the patients ability to repeat words, interpret, follow directions, and express feelings ii. Allow ample time for responses b. Do Nurses do the following: i. Speak slowly and clearly, using short sentences and never shout ii. Use an alternative means of communication Such as a word board or pencil and paper if needed iii. If significant speech deficits are present arrange a referral to a speech therapist for more comprehensive evaluation and rehabilitation services iv. Reassure the patient that functional recovery is possible with patience and consistent rehabilitation v. Help the patient with repetition of verbal and physical exercises			
7. Provide thorough patient and family teaching i. Explain to the family that some emotional lability is typically associated with cerebral injury but that such behaviour usually decrease over time ii. Teach the family how to gently guide the patient back to appropriate emotional and physical responses iii. Encourage patience, affection, and the use of humour iv. Instruct the patient and family about all medications, the action, dosage, and schedule of the medication v. Teach the importance of lifestyle modifications to minimize the risk of stroke recurrence, including blood pressure control, cholesterol management, exercise, smoking cessation, diabetes control, diet modifications, and stress reduction vi. Teach the patient and family to recognize and seek help for signs and symptoms associated with stroke vii. Teach the patient and family about rehabilitation plans, and arrange for home care follow-up or in – home assistance, as needed			

NURSING PRIORITIES	3	2	1
8. Documentation checklist Is the following information documented: i. Clinical status on admission ii. Significant changes in status iii. Neurological assessments iv. Medication therapy v. Activity and positioning vi. Food intake vii. Fluid intake and output viii. Bowel and bladder control measures ix. Communication measures x. Patient and family teaching xi. Discharge planning			
Key for Quality of care 1. Not applicable 2. Not done 3. Done			

ANNEXURE 2

LETTER OF APPROVAL FROM THE ETHICAL COMMITTEE

ANNEXURE 3

THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE
RESEARCH ETHICS COMMITTEE

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

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

Assurance No. FWA00000338
IRB00001131 of IOR G0000774

February 20, 2002

Our ref. 006/01/02

Mr David Katongo Ntetema
UTH
LUSAKA

Dear Mr Ntetema

RE: SUBMITTED RESEARCH PROPOSAL

The following research proposal was presented to the Research Ethics Committee on 30th January 2002 and was approved. Congratulations!

Title of proposal: **Standard of Nursing care rendered to acute stroke patients admitted at the University Teaching Hospital in Lusaka, Zambia.**

Please note that it is mandatory that you submit a final report of your study to this Committee.

Yours sincerely

Prof J T Karashani
CHAIRMAN
RESEARCH ETHICS COMMITTEE

ANNEXURE 3

LETTER OF PERMISSION FROM THE MANAGING DIRECTOR TO CONDUCT RESEARCH AT THE UNIVERSITY TEACHING HOSPITAL

University Teaching Hospital

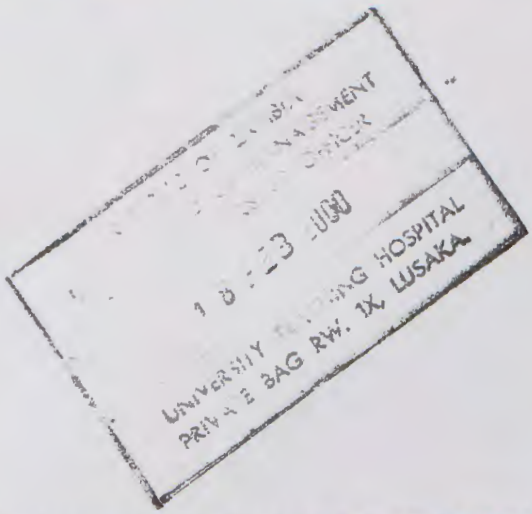
(Board of Management)

P/Bag RW 1
Lusaka - Zambia
Tel: 253947 (Switch Board)
250305 (Direct)
Fax: 250305
Telex: ZA 40299

OFFICE OF THE MANAGING DIRECTOR

Our Ref:

Your Ref:



18th February 2002

David K Ntetema
Macha Mission Hospital
Box 630340
CHOMA

Dear Sir

REF: **PERMISSION TO CONDUCT RESEARCH ON STANDARDS OF NURSING CARE OF PATIENTS ADMITTED WITH STROKE AT UNIVERSITY TEACHING HOSPITAL**

Reference is made to your application letter dated 7th January 2002 concerning the above mentioned request.

Management is pleased to grant you permission on the same and we look forward to the results.

Thank you.

Yours faithfully
UTH BOARD OF MANAGEMENT

Mrs M M Mbewe
Director of Nursing
For/ **A/ MANAGING DIRECTOR**