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A STAFF DEVELOPMENT MODEL
FOR NURSES WORKING IN INTENSIVE CARE UNITS IN
PRIVATE HOSPITALS

by

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SUMMARY

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There appears to be a shortage of educational facilities for nursing staff in the private sector.

Since it is assumed that education increases competence and thus the quality of care, the researcher believed that nurses needed to be up-dated and trained to fulfil their role.

The purpose of this study was to develop a model for staff development for nurses working in intensive care units in private institutions.

A situation analysis was carried out to determine what activities were performed in the units, and a questionnaire, which assessed the level of competence was completed by the nursing staff in these units.

Almost 30 percent of the activities performed in the units required intensive care trained nurses, however, 67 percent of the staff were intensive care trained.

Relatively few of these nurses rated themselves as fully competent in all of the activities.

A model for staff development based on the principles of adult education was then devised to overcome the deficiencies which had emerged.

OPSOMMING

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Dit blyk as of daar 'n tekort aan opvoedkundige fasiliteite is, vir die verpleegkundiges in die privaatsektor.

Omdat daar aangeneem kan word dat opleiding die bevoegdheid van 'n persoon vermeerder, sal dus ook die gehalte van die verpleegsorg verbeter.

Die navorser glo dat die verpleegkundiges 'n behoefde het aan opleiding om op-datum te kom en te bly, om sodoende hul role te kan vervul.

Die doel van hierdie studie is dus om 'n model vir personeelontwikkeling vir die verpleegkundiges in die intensiewesorg eenhede in die privaatsektor te ontwerp.

'n Situasie analiese is gedoen om te bepaal watter aktiwiteite in die eenhede verrig word en 'n vraelys om hul bekwaamheid te bepaal, is deur die personeel ingevul.

Amper 30 persent van die aktiwiteite wat verrig is, het die vaardigheid van 'n intensief opgeleide persoon nodig, maar 67 persent van die persone in die intensiewesorg eenhede is wel in intensiewe verpleegkunde opgelei.

Relatief min verpleegkundiges het hulself as volledig bekwaam beskou met betrekking tot die aktiwiteite.

'n Model vir personeelontwikkeling gebaseer op die beginsels van volwasseonderrig, was ontwerp om die leemtes wat ontstaan het te verminder.

CHAPTER ONE

=====

ORIENTATION

=====

1.1. Introduction.

=====

There is a concerted move in the Republic of South Africa towards a more balanced approach to health care delivery. This is highlighted in the preamble to the Health Care Act No 63 of 1977 which focusses on a comprehensive health care system.

The overemphasis on curative care appears to have decreased and preventive and promotive services have come to the fore.

The fact that there has been a shift of emphasis is very relevant to the South African situation which does have many of the characteristics of underdeveloped countries. Preventive and promotive services have therefore taken their rightful place in the health care system, especially if South Africa is to meet the World Health Organisations aim of 'Health for all by 2000'.

However since South Africa also displays many of the characteristics of developed countries, one also needs to look at the health care requirements of developed areas.

Degenerative and long term disease will place an ever escalating burden on the health care services in the Republic of South Africa, especially with the development of an aging population.

This will lead to an increase in the need for curative and possibly hospital care facilities.

There will also be increased demands in the acute and intensive care areas.

Mostert [1976] indicated that South Africa has one of the highest road accident rates in the world. Violence in many forms is also on the increase. Both these two forms of trauma require highly specialised services.

Coronary artery disease has also reached epidemic proportions in the Republic of South Africa [Department of Health, 1977 : 6]. Rapid advances in technology however have enabled people suffering from this disease to lead a relatively normal lifestyle provided that the specialised facilities are available for care during the acute stages of their illness, as they need to be

carefully monitored and if necessary undergo coronary artery bypass surgery.

Other advances in medical technology have also led to a better quality of life for some people, for example the perfection of techniques for organ transplantation, separation of conjoined twins, and micro-surgery. None of these techniques however would have been possible without the backing of excellent intensive care facilities.

These and other factors all increase the need for high care and intensive care facilities which means that more and more intensive care units will have to be made available in the future. King [1984 : 4] supports this by stating that intensive care with its high technology will be enlarging its role in the care of the critically ill patient.

The increased need for intensive care units puts a high demand on nursing care.

Nurses however should not work in these specialised areas without the necessary preparation. There is a definite need for improved skills and expansion of knowledge. There is thus an increased demand on education, not only to prepare the nurses for the field, but also to keep them up to date with new trends, new technology and new demands.

Nursing care is only as good as the quality of the education.

The public demands quality care, as they are paying high fees for hospital care, especially in the high care and intensive care areas.

Preparation for working in these areas may be of various types. It may only consist of informal education such as in-service education or it may be in the form of formal education such as a post-registration course in intensive care nursing science at post-basic or graduate level [EDNA, 1983 : 87; Lahiff, 1984 : 27].

In South Africa there is a well established Diploma in Intensive Nursing Science. This course is offered at various state institutions and is examined by the South African Nursing Council.

This course was established in 1964 and by 1967 there were five (5) registered nurses with this additional qualification. This number had increased to forty-five (45) by 1969, to hundred-and-sixteen (116) by 1971 and to three-hundred-and-thirty-two (332) by 1974 [South African Nursing Association, 1974 : 66, 76, 84 + 93].

In 1983 the total number of nurses who had registered Intensive Nursing Science as an additional qualification was one-thousand-three-hundred-and-forty (1340) [South African Nursing Association, 1983 : 52]. Thus in 1983, 2.19 percent of the sixty-thousand-nine-hundred-and-

forty-one (60941) registered nurses in the Republic of South Africa were trained in intensive care nursing.

The number of registered nurses trained in intensive care nursing had increased to one-thousand-six-hundred-and-sixty-five (1665) by the end of 1987, an increase of 2.4 percent over three (3) years [South African Nursing Council, 1987 :87].

One can thus see that the numbers have increased quite remarkably over the last five (5) years. This indicates that there is a definite need for this category of nurse.

Short courses have also been introduced by the State from time to time. These were introduced to meet the specific needs of the State hospitals, but at the same time, staff was trained for other institutions.

In the private sector, there are however very few formal courses.

The "Report of Enquiry into Private Hospitals and Operating Theatres" [De Villiers, 1974 : 17], states that the private institutions do have the facilities to train intensive care nurses but that these facilities are not being utilized.

Other South African authors have also emphasised that hospitals which do not offer staff development programs for the staff provide care which is below standard [Bergman, 1978 : 50; Vermaak, 1982 : 8; Searle, 1986 : 136].

The research report by De Villiers [1974 : 17] has shown that training hospitals have a higher standard of patient care than non-training hospitals. Staff development programs are therefore essential to achieve and to maintain a high level of quality care [Stevens, 1980 : 329]. Because of this, staff must be released to further their education.

This indicates that there is an urgent need for in-service education or staff development programs for the staff in the intensive care units in the private sector.

Staff development means providing programs for the orientation of staff, for the introduction of new practices or techniques, for upgrading job skills, for remedial learning and for professional development [Rowland, + Rowland, 1980 : 164; EDNA, 1983 : 5].

Staff development programs occur as response to maintain or improve the standard of care [Stevens, 1980 : 329; Sovie, 1980 : 38].

Suitable education programs help staff to relate theory to practice, to focus on total patient care and to learn

forty-one (60941) registered nurses in the Republic of South Africa were trained in intensive care nursing.

The number of registered nurses trained in intensive care nursing had increased to one-thousand-six-hundred-and-sixty-five (1665) by the end of 1987, an increase of 2.4 percent over three (3) years [South African Nursing Council, 1987 :87].

One can thus see that the numbers have increased quite remarkably over the last five (5) years. This indicates that there is a definite need for this category of nurse.

Short courses have also been introduced by the State from time to time. These were introduced to meet the specific needs of the State hospitals, but at the same time, staff was trained for other institutions.

In the private sector, there are however very few formal courses.

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Suitable education programs help staff to relate theory to practice, to focus on total patient care and to learn

to nurse in the framework of the nursing process [Levar, + Molland, 1985 : 56]. Knowledge also increases competence, productivity and improves self-confidence [Lazinski, Bode, Johnston, Lang, McShane, + Mitchell, 1982 : 36].

This results in improved patient care.

Although a number of in-service education programs have been introduced into state hospitals, it does not appear to be a priority in the private hospitals. This is confirmed by the 'Report on Nursing Education in the Republic of South Africa and the Territory of South-West Africa [1975 : 20].

Pera [1985 : 13] confirms that the private sector country-wide has neglected the aspect of staff development in their institutions.

Over the last two (2) decades however there has been a rapid increase in the number of private hospitals providing a wide range of hospital services for the private patient.

A high proportion of these private hospitals provide acute and high care facilities. A preliminary survey showed that there are forty-two (42) private institutions with intensive care units or specialist facilities in the Republic of South Africa. The majority of these units are found on the Witwatersrand, where there are sixteen (16) private hospitals with intensive care units or specialist facilities. The sizes of the hospitals varied from seventy-nine (79) to two-hundred-and-ninety-eight (298) beds [Engelhardt, Ed. 1985 : 85].

An interesting point is, that of the one-thousand-nine-hundred-and-fifty-six (1956) registered nurses in the private hospitals, one-thousand-one-hundred-and-forty-three (1143) are employed in the Johannesburg-Randburg area.

This correlates with the analysis of the distribution of hospital beds as given in the 1985 Hospital and Nursing Yearbook for Southern Africa [Engelhardt, Ed. 1985 : 53]. There were one-thousand-and-thirty-three (1033) hospital beds in the private institutions in the Cape Province, Natal and Orange Free State, while there were 9971 private beds in the Transvaal.

Pera [1985 : 40] in her study, found that of the three-thousand-one-hundred-and-forty (3140) registered nurses who worked outside the public sector, one-thousand-nine-hundred-and-fifty-six (1956) registered nurses worked in private institutions or hospitals. This means that 5.12 percent of registered nurses work in private hospitals in the Republic of South Africa.

According to Searle [1982 : 5], 75 percent of all the nurses in the Republic of South Africa in 1981 are employed by the State, in hospitals or clinics, where traditionally staff development programs are available. These nurses therefore have continuing education facilities available to them. The other 25 percent of the nurses are employed in the health services elsewhere, where staff development programs are not always readily available. This again stresses the need for staff development programs in the private sector.

There is also a move toward privatisation of health care facilities in the Republic of South Africa. Spier says because of the increasing demand for health services the State can no longer provide all the services required or accommodate the increasing cost of providing adequate health services in the Republic of South Africa [Spier, 1982 : vii; Health Strategy Association, 1985 : 3 + 10].

Recent political and economic statements in the Republic of South Africa, have emphasised the need for an increased contribution from the private sector [Roux, 1984 : 17; van Huyssteen, 1984 : 10; South African Nursing Association, 1983 : 3; Thomson, 1984 : 17; Spier, 1982 : vii].

This means, functions must be transferred from the public sector to the private sector, private initiative must be promoted and effective co-operation between the two sectors must be developed. This movement towards privatisation in the Republic of South Africa, includes the health services.

The chairman of the Health Strategy Association, Dr Snyckers in the "Presentation to the Standing Committee for Health and Welfare" [1985 : 14], further emphasised the need for privatisation when he stated that health care is not a right but a privilege and that individuals must pay for the health services they require. This implies that the medical schemes will have to play a larger role.

This has already become evident, in 1980, 77 percent of the White population and 4 percent of Non-white population in the Republic of South Africa, were covered by a medical aid or medical insurance scheme [Health Strategy Association, 1985 : 8]. This number is increasing and the projected figures for 1990 are that 80 percent of Whites and 30 percent of Non-whites will belong to a medical scheme.

The Commission of Inquiry into Health Services [South African Nursing Association, 1980 : 1 + 3], disclosed that as a result of the introduction of medical schemes, many patients would go to private hospitals.

All these statements imply that there will be a shift in the nursing employment areas, as private institutions increase in number and size. Furthermore, the provincial hospitals will actually be depleted of clinical teaching material, which is essential for training students, while the private hospitals already have some and will get more clinical teaching facilities and could offer education and training to their staff.

X One can thus see that there is an urgent need for the institution of staff development programs in the private institutions. The private sector must take the initiative and start training and educating their staff. This is particularly important in the high density areas such as the Transvaal. Folscher [1983 : 88] highlighted this in her study, when she compared population distribution with the distribution of training facilities. She stated that the population in the Transvaal comprised 43.9 percent of the total population of the Republic of South Africa, but only 28.6 percent of the facilities for training intensive care nurses were located in the Transvaal. There is thus an imbalance between demand for health care by the population in this region and the supply of intensive care trained nurses. The private sector could help correct this imbalance by introducing educational facilities into their institutions.

1.2. Statement of the problem.

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In the Republic of South Africa the nursing profession is faced with the rapid privatisation of the health services.

The question can therefore be asked whether the private sector will give adequate staff development programs for the nurses working in these hospitals and especially in the intensive care units, to provide a quality nursing service.

It is therefore necessary to establish the exact need for staff development and to then devise ways and means to provide staff development in a cost-effective way, which will be acceptable to the private sector.

WHAT IS THE NEED FOR STAFF DEVELOPMENT PROGRAMS IN THE PRIVATE INSTITUTIONS FOR THE NURSES WORKING IN THE INTENSIVE CARE UNITS ?

This problem has been confirmed by many reports and references in the literature, both local and overseas [De Villiers, 1974 : 17]. According to Mellish [1982 : 47], the problem must be investigated fully so that corrective measures can be instituted.

1.3. Statement of the aim of this study.

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With the problem in mind, the researcher aims to identify the need for staff development and to develop a staff development model for the nursing staff in the intensive care units in the private hospitals.

In order to reach this aim, the objectives are to :

- carry out a baseline situation analysis of the activities performed in intensive care unit in a group of private hospitals;
- determine the educational needs of the nursing staff working in these units;
- develop, implement and evaluate a section of the staff development program; and
- develop a staff development model for private hospitals.

1.4. Research design.

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The research is descriptive (a situational analysis), explanatory (explaining the effectiveness of patient care in terms of education need of the staff), exploratory (exploring the possibilities of implementing courses) and predictive (the model can be used in other settings) [Polit, + Hungler, 1978 : 23; Seaman, + Verhonick, 1982 : 151].

The research design takes the form of the systems approach, where the input is the level of education of the staff (staff ignorance, lack of skills), the throughput is an educational program (orientation, programs) and the output is improved knowledge (knowledge, skills, attitudes) [Stevens, 1980 : 277 + 283].

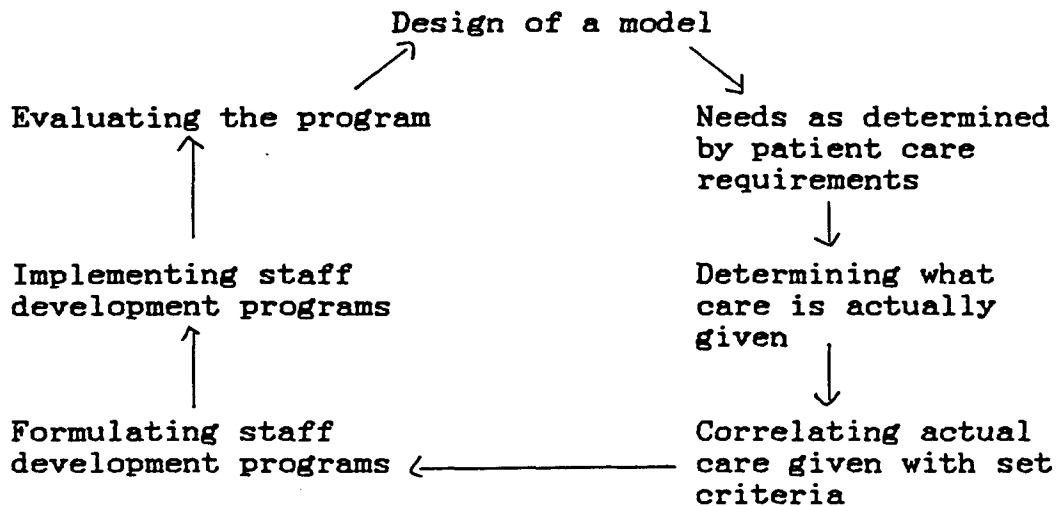


FIGURE 1.1. Proposed research design

This research was confined to the patient population in the intensive care units in the private institutions on the Witwatersrand.

The emphasis of this study was on the nursing care activities in the intensive care units. In order to determine the actual type of patient care given, data was collected by means of a task analysis questionnaire of the daily nursing care activities.

The second aspect of the research was determining the education needs of the staff, by giving a questionnaire to all the nursing personnel, asking them to express what they considered their level of competence to be. The correlation between nursing care activities and perceived competence determined the type of educational program which needed to be instituted.

A proposal for effective corrective action was formulated and a section of the proposed staff development model was implemented.

1.5. Description of terms.

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- Professional nurse = any nurse who is registered under the Nursing Act No 50 of 1978, as amended.
- Registered nurse = the equivalent of a professional nurse, that is a nurse registered under the Nursing Act No 50 of 1978, as amended.
- Nursing staff = all categories of nurses, registered or enrolled.
- Intensive care nurse = registered nurse with an additional qualification in intensive care nursing.
- Sub-professional nurse = nurses enrolled with the South African Nursing Council.
- Hospital = any institution where patients are treated for any number of diseases.
- Institution = used interchangeably with hospital.

1.6. Overview of chapters.

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Introduction

Chapter one - A broad overview of the entire study, highlighting the problem and the objectives, as well as giving a brief outline of the research method.

Literature survey

Chapter two - In chapter 2 the term 'standards' is explained as an important basis to quality assurance, and then gives an overview of the quality assurance process.

Chapter three - Chapter three is a description of the general objectives and the process involved in planning and implementing a staff development program.

Research

Chapter four - In chapter four, the research design is described.

Chapter five - In this chapter, the data collected from the various instruments is analysed and the results represented in tables or graphs.

Summary of findings

Chapter six - In chapter six, the findings from the data are highlighted and then they are interpreted in order for recommendations to be made.

Proposed model

Chapter seven - Chapter seven describes the proposed model.



LITERATURE SURVEY

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CHAPTER TWO

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INTRODUCTION TO QUALITY ASSURANCE IN NURSING

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The main part of this research is directed at staff development. Staff development is however the remedial aspect of the implementation of the quality assurance process. It is therefore useful to start the literature survey very briefly, with the background of the theory and method of quality assurance and then to concentrate on staff development in all its facets (assessment, planning, implementation and evaluation).

It is on the basis of aspects outlined in the study that the model which the researcher will propose will be built.

2.1. Introduction.

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In a study dealing with teaching the practice of nursing, the concepts of nursing must be defined before the didactic relations to it can be discussed [Mellish, 1982 :1].

Nursing has existed throughout the ages, people have always looked after and helped their fellow men when they have been sick. This was a voluntary and unselfish service, usually rendered to family members. Most of the nursing history is interwoven with general history. Due to social, political and economic changes, the need arose for an organised service that met the basic needs of the sick. It was during the Crimean War of 1854 that the functions and responsibilities of a nurse were specified and this then gave rise to the training and education of nurses [DeYoung, 1985 : 3].

Due to the advances in medicine, technology and science, the concept of nursing has changed and broadened. At

present we have a profession practising the art and science of total patient care (body, mind and spirit), the promotion of health, the prevention and curing of disease and the rehabilitation of the patient [Feisel, 1963 : 37].

The nursing profession needs to advance and adjust in order to fulfil it's function in present-day society. There is thus a constant need for analysis and evaluation of both service and education, in order to bring about the necessary changes.

Changes in the health care field include the demand for better patient care by nurse and doctor and this has resulted in a need for continuous surveillance of the very ill patient.

The concept of progressive patient care brought about the planning of special care areas. The advances in medical science and evolving complex technology helped to advance surgical procedures and intricate life-support measures and this also necessitated special care areas for the patient [Simon, 1980 : 2].

Intensive care units developed from the first special care areas and the first official intensive care unit was opened in 1953 at the Manchester Memorial Hospital [Stevens, 1980 : 1 + 2].

In South Africa intensive care units emerged in the 1960's.

The development of specialised units, such as intensive care units, required the establishment of standards for quality care, performance appraisal and staff development programs to remedy any shortcomings.

2.2. Nursing science.

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2.2.1. Definition of nursing.

As the nursing profession has developed, so the definition of nursing has changed. In 1957, Kreuter gave the nurse the role of mother surrogate [Yura, + Walsh, 1973 : 11].

Henderson [1966 : 6], says the nurse herself must define her work and aims by using her intellectual, interpersonal and technical skills.

The all encompassing definition by Yura and Walsh [1973 : 14] deserves quoting : "Nursing is an encounter with a client and his family in which the nurse observes, supports, communicates, ministers and teaches; she contributes to the maintenance of optimum health, and provides care during illness until the client is able to assume responsibility for the fulfillment of his own basic needs; when necessary, she provides compassionate assistance with the dying".

For the purpose of this study the South African Nursing Council's definition will be used as it provides excellent guidelines : "Nursing science is a human clinical health science that constitutes the body of knowledge for the practice of persons, registered or enrolled under the Nursing Act as nurses or midwives. Within the parameters of nursing philosophy and ethics, it is concerned with the development of knowledge for nursing diagnosis, treatment and personalised health care of persons exposed to, suffering, or recovering from physical, or mental ill-health. It encompasses the knowledge of preventive, promotive, curative and rehabilitative health care for individuals, families, groups, and communities and covers man's lifespan from before birth" [Searle, 1986 : 56].

2.2.2. Philosophy.



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There are four philosophical periods in nursing history. Asceticism existed from the inception of nursing till about 1920. Asceticism is a way of life that centres on self-denial and thus early nurses devoted themselves through the holy orders. From 1920 to 1940, romanticism was in the forefront, where facts were elaborated beyond reality into fancy. To the romantics, the nurse is the physician's helper. After the Second World War, 1939 - 1945, there was the pragmatic period, where value was placed on the practical use and consequences. It was during this period that intensive care units arose. From 1960 onwards, humanistic existentialism became popular. This view holds that humans are unique, thinking beings, who need to be treated as a whole [Bevis, 1978 : 33].

The core concepts in a nursing philosophy which every nurse practitioner should cherish according to Searle [1986 : 57] are the following :

- Man is entitled to the safety of his person, his property and his name in any situation in life.
- All men have a relationship with God or equivalent Being.

- Man, irrespective of race, nationality, colour, political status, creed, moral values, occupation, culture, social class, social situation, or personal achievement, has the inalienable right to have his human dignity respected and to exercise his responsibilities, rights and privileges.
- Man, as a social being functions more effectively within a group such as the family, the work and recreation group, or the church and the state.
- All men have a need for justice, affection and high regard.
- All men have the need for moral principles and nursing has a duty to support the moral values that society requires for stable citizenship.
- Man is the focus of nursing practice.
- Man is a unique, complex psycho-social-cultural-biological-spiritual and moral being whose health is vulnerable and who makes his own choices.
- The nurse makes her own choices as to how she implements her practice, but is totally accountable for her acts and omissions.
- When nursing is stripped of all its scientific knowledge and technology, a central concept which constitutes the essence of nursing remains.
- The core of nursing is concern, care, cure, competence, comprehensiveness and co-ordination.

The philosophy of nursing used in this study includes the above core concepts.

2.2.3. Theory.

As with many other disciplines, nursing can be fitted into different theoretical frameworks. Nursing fits into the general systems theory, in so much as the nurse and patient interact in a milieu of internal and external factors, resulting in a combination and sequence of behaviour.

The information and communication theory applies to nursing, because nurses are involved in communication systems (source, transmitter, channel, receiver and destination) in every nursing action.

The decision theory means problem-solving and this is the essence of nursing, as nursing activities are directed at changing a situation (illness of the patient) into a more acceptable one (health).

The perception theory is also applicable, because patients must perceive themselves and the medical team and then react to the situation as they have perceived it.

To sum up then, nursing with a background of theory is the interaction between nurse and patient involving perception on both sides, two-way communication and decision-making in their striving towards the goal of health [Yura, + Walsh, 1973 : 35].

The development of a scientific knowledge base on which to establish practice has been the goal of the profession for a long time according to Johnson [1978 : 205] and as a result, nurses have developed their own theory about nursing or a theory of nursing.

A theory-in-nursing is a practice theory, based on aspects drawn together from other sciences [Klein, 1978 : 225].

A theory-about-nursing adapts concepts and theoretical constructs to make predictions about nursing as a phenomenon [Chaska, 1978 : 226; Kim, 1983 : 2].

Florence Nightingale was the first nursing theorist. She emphasised the role of the environment, where the nurse should manipulate the physical environment to facilitate the healing process [Marriner, 1986 : 67; George, 1985 : 35].

Henderson was one of the humanists emphasising the understanding of the patient and assisting him in what he could not do for himself [Marriner, 1986 : 82; George, 1985 : 74].

Orem, on the other hand, used three constructs (self-care, self-care deficits and nursing systems) to develop a self-care model which is one of the general theories [Marriner, 1986 : 119].

Another example is King's theory of goal-attainment, which stresses the interpersonal relations and interactions [Marriner, 1986 : 235].

A behavioural system model was proposed by Johnson where nursing is an external force acting to preserve the organisation of the patient's behaviour [Marriner, 1986 : 286; George, 1985 : 195].

Rogers explains a unitary field model, where hypothetical generalisations are developed and predictions are made based on principles of intergrality, resonancy and helicy. Nursing is directed towards promoting symphonic interactions between patient and environment [George, 1985 : 216; Marriner, 1986 : 166].

From the summary of some of the approaches of nurse theorists, it can be seen that there is no universally accepted nursing theory at present. These theories are however of great value to the nursing profession and can be utilised in nursing education, administration and nursing practice.

The researcher takes an eclectic approach with regards to nursing theory.

2.2.4. Nursing care.

It is on the definition of nursing, the philosophy and theory of nursing, as referred to in the previous paragraphs, that nursing care is founded.

Nursing care involves the initiation of an inter-relationship between patient and health care resources, with maximal utilisation of the resources for the benefit of the patient. Nursing care means ensuring maximal safety for the patient and meeting the patient's need of freedom from pain and discomfort. The nurse must respond to the patient's need for orientation, security, dignity and identity and ensure maximum communication. Nursing actions are aimed at providing more efficient, safe and quick means of getting to the goal, by determining which action should come first for maximal therapeutic effects [Kraegel, Mousseau, Goldsmith, + Arora, 1972 : 17; Bower, 1972 : 93].

Phaneuf [1976 : 60] summarises the seven functions of a professional nurse as :

- application and execution of physicians' legal orders;
- observations of signs and symptoms and reactions;
- supervision of the patient;
- supervision of those participating in care (except doctors);
- reporting and recording;
- application and execution of nursing procedures and techniques; and
- promotion of physical and emotional health by direction and teaching.

Nursing care revolves around satisfying the basic human needs. Problems arise from unmet needs and they are the basis for the nursing diagnoses and care planning [Ellis, + Nowlis, 1981 : 42].

The needs of man, as put forward by Maslow, are placed in a hierarchy, where the basic needs must be satisfied first, before the higher needs can be satisfied [Ellis, + Nowlis, 1981 : 36 + 40].

The human needs are the focus of the nursing theories, whether it is Florence Nightingale's theory emphasising the environment [George, 1985 : 35] or Travelbee's interpersonal relationship theory [Marriner, 1986 : 197]

or even Henderson's fourteen components of basic nursing care [George, 1985 : 326].

The human needs as covered by the various nursing theories, emphasise caring, not curing and cover the full range of care from physical, psychological, social and spiritual need fulfilment [Ellis, + Nowlis, 1981 : 5].

In analysing the nursing care activities in the majority of settings, there is always a large component of direct care activities.

Hearn [1977 : 66] spoke about direct care which is patient orientated, indirect care which is ward orientated and routine care which referred to policy orientated actions.

Brownlee [1983 : 18] described direct care as activities such as maintenance of hygiene, monitoring and wound care, while indirect care included ward rounds, recording and reporting.

In the general wards in academic hospitals in the Republic of South Africa, the registered nurses spent 13.08 percent of their time on direct care and 53.81 percent of their time was spent on indirect care [Brownlee, 1983 : 72].

In order to carry out nursing care to the optimum benefit of the patient, the objectives of nursing practice are to establish and maintain standards of nursing practice, to develop formal and informal education programs, to promote effective relations within the health team, to evaluate nursing practice, and develop research programs [Ingels, 1966 : 8].

2.2.5. Intensive nursing care.

Intensive care nursing is the care of the acutely ill patient, who requires highly skilled nursing care and medical care.

The patients in the intensive care units are critically ill, and therefore the nursing care of these patients includes skilled observations, technical aspects, such as the use of complicated apparatus, delicate interpersonal skills and as the critically ill patients also have basic human needs, basic nursing care is applied universally.

The nursing staff in the intensive care units at a provincial hospital spent 38.8 percent of their time on direct patient care and 11.3 percent of their time was

spent on indirect care activities [Dannenfeldt, 1986c : 2].

The intensive care nurse is responsible for ensuring the delivery of quality nursing care for a designed group of patients in accordance with the individual needs, physicians' prescriptions, hospital policy and standards of nursing practice.

The requirements for the practice of intensive care nursing are clearly laid down by Ellis, + Hartley, [1984 : 122]. It is expected of the intensive care nurse to :

- exercise professional prerogatives based on clinical judgement;
- promote the patient's ability to cope with immediate long range, or potential health-related change;
- help maintain the patient's comfort and normal body functions;
- take precautionary and preventive measures in giving patient care;
- check, compare, verify, monitor, and follow up medication and treatment processes;
- interpret symptoms and intervene appropriately;
- respond to emergencies;
- obtain, record, and exchange information on behalf of the patient;
- utilize patient care planning; and
- teach and supervise other staff.

The intensive care nurse acts as a provider of care, a manager of care, a communicator, as well as an educator, and as a professional, concerned with education and the future of critical care nursing [Burns, Chubinski, + Freiburger, 1983 : 48].

Adler [1976 : 54] states, that in order to carry out her tasks effectively and efficiently, the intensive care nurse should :

- have a broad, scientific base of requisite knowledge;
- be able to assess, intervene, and evaluate the critically ill and their response to care;
- be able to work with the technology of the space and computer age;
- develop skills that demonstrate a high degree of integrated head to hand function;
- be a compassionate practitioner who fully realises that people are more than a sum of parts;
- have a well developed sense of humour;
- expect the unexpected;
- develop skills of crisis intervention for use with patient, family and colleagues; and
- enjoy working as part of a team dedicated to the delivery of excellent patient care.

Care of the critically ill person therefore demands the attention of educated, dedicated and highly motivated professionals [Rodger Kinney, Dear, Roger Packa, + Nagelhout Voorman, 1981 : 3; Adler, 1976 : 54].

2.2.6. Quality care in intensive care units.

Nursing is a service profession. The services rendered by nurses are essential to the life and welfare of their patients.

Therefore, the profession as a whole should be accountable for the quality of care delivered by individual practitioners.

Each registered nurse is accountable for her actions and for the way in which she executes her responsibilities, that is, she must answer for and justify her actions. She should develop standards of care which can be used to judge nursing competencies and control the quality of nursing practice, in order to safeguard the patient, the profession, the organisation and the individual [Gillies, 1982 : 98; Searle, 1986 : 147].

Gillies [1982 : 97] states that quality assurance is the process of establishing desirable standards of nursing practice and planning and providing care that satisfies those standards.

In South Africa, quality assurance is a relatively new concept. There are only a few formal quality assurance programs in action, although many hospitals are busy developing such programs.

Informal or loose standing quality assurance committees such as infection control committees or staff selection committees do exist, but they are not part of a hospital wide quality assurance program.

Standards are descriptive statements of the desired level of performance against which the quality provided or outcome can be judged [Gillies, 1982 :97].

The South African Nursing Council sets the Regulations Relating to the Scope of Practice of Persons who are Registered or Enrolled under the Nursing Act, 1978 (no. 2598 of November 1984, as amended) [See Annexure A], but in South Africa, the employers generally do not set standards of practice.

Searle [1986 : 147] also states that guidelines such as policy manuals and written standards are not available in private hospitals or private practice settings.

It is imperative that standards for care be an integral part of every nurse's care delivery system [Gooch, 1986 : 31; Searle, 1986 : 147], because it is a nurse's duty is to take due care, so as to ensure safe practice.

The nursing profession needs something to measure it's service against, and one of the functions of the nursing profession is to monitor the activities of it's members, so as to protect the public's interests.



2.3. The quality assurance process.

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2.3.1. Introduction.

Quality assurance is the process of establishing desirable standards of nursing practice, and then planning and providing care that can satisfy those set standards [Gillies, 1982 :97].

Quality assurance is the purposeful structure of an entire organisational system to initiate or apply standards, laws, policies, procedures and individual commitment to assure the delivery of services that are consistent with anticipated outcomes.

This includes the identification of the standards of excellence, evaluating the care against these standards and then taking action to correct the deficiency and thus achieving the standards.

Rowland + Rowland [1980 : 360] believe, that in order to assure quality, the nursing care must be assessed in terms of outcome, content, process, resources and efficiency.

The quality assurance process, like any other process consists of assessment, planning, implementation and evaluation.

The model of the American Nursing Association on quality control is very useful to explain the quality assurance process [Douglass, 1984 : 97].

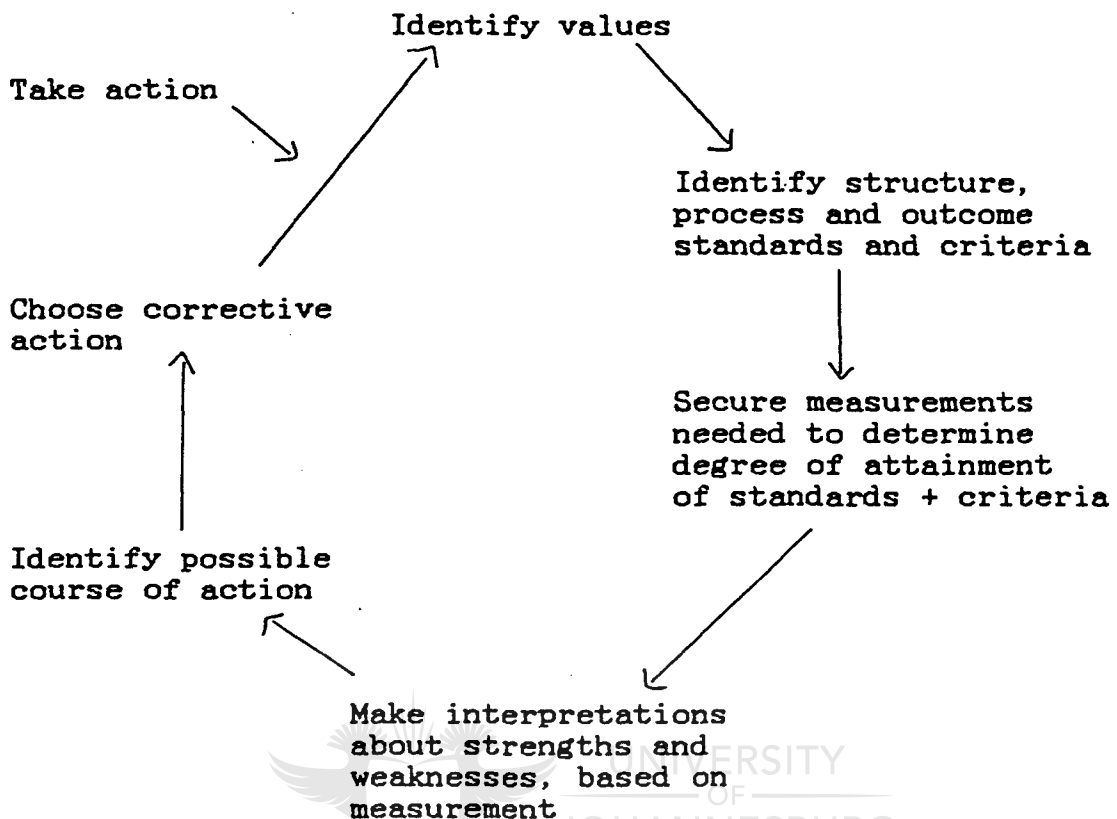


FIGURE 2.1. American Nurses' Association model for quality control.

2.3.2. Purpose of quality assurance.

Writers such as Phaneuf [1976 : 141], Curtis + Simpson [1985 : 18], Meredith + Gibbs [1980 : 538], Wandelt + Ager [1974 : XII], DiVincenti [1986 : 143] and La Monica [1979 : 323] all agree that the purpose of quality assurance is to measure and improve care.

The individual authors highlight various aspects of the purpose of quality assurance, for example :
Curtis, + Simpson [1985 : 18] break down the purpose of quality assurance into :

- evaluating patient care based on the nursing process;
- providing data for multiple research projects;
- allowing for patient care to be followed;
- use as an educational tool;
- allowing for feedback and follow up; and
- allowing for improvement in practice.

Wandelt, + Ager [1974 : XII] however group the purpose into three areas - administrative, supervisory and education. According to them, quality assurance is used to identify strengths and weaknesses in the quality of the nursing care and to determine whether the record reflects the quality of care given. Problems which interfere with the giving of care can be identified and measured, so that the quality of care can be improved. The quality assurance process can assist in improving staff utilisation and facilitating the planning of inservice or other education programs. Staff can be alerted to neglected areas.

2.3.3. Principles underlying quality assurance.

Gillies [1982 : 394] very aptly enumerates the principles underlying a quality assurance program. The principles are as follows :

- doctors and nurses contribute materially to patient care and are therefore both responsible for quality assurance;
- planning should be for a total quality assurance program for the entire health care institution;
- there should be appropriate resource expenditure;
- for the best value for money, only critical performance factors should be monitored;
- there should be accurate assessment;
- effective monitoring and feedback is necessary;
- once the quality of care is assessed and the needs identified, peer pressure should be used to get effect;
- if a change in the pattern of care delivery is required, organisational support is needed to implement the change at unit level;
- data collection for quality assessment is linked to decision making; and
- the person possessing the data must be free to manipulate input variables to improve the quality of care.

2.3.4. Characteristics of a quality assurance program.

A quality assurance program should comply with certain characteristics. The program should be objective, that is, it should be based on established standards and criteria for measuring care and be clinically sound. The standards or criteria must reflect optimum care achievable.

Efficiency will result if the program is implemented by the best person, usually a nurse, but it need not all be done by the nurse. The program must be flexible, variations from standards are permissible with reported good cause, and at all times all decisions and evaluations must be documented. Finally, the quality assurance program must be action oriented, that is, orientated towards corrective action [La Monica, 1979 : 323].

With the growing complexity of the health services and increasing specialisation of health profession, more and more rigorous controls are now needed to ensure that health practitioners possess sufficient knowledge and skills to deliver safe and effective care.

In the past, the principle mechanisms for ensuring quality of nursing care were for example, state registration and organisational policies and regulations. Now with the increasing cost and increasing expectations and demands of the public for health care, the profession has been forced to adopt other quality assurance mechanisms.

High quality nursing care does not happen by chance, it is the result of deliberate decision-making and action.

2.4. The process of quality assurance.

2.4.1. STEP 1 : Values, philosophy and definition.

The first step in the quality assurance process is to define the values and the philosophy of the profession and also to define nursing.

Values provide guidance and the basis for a cohesive work group and unified organisational effort, while the philosophy gives meaning to the activities and it clarifies the underlying reasons. The philosophy provides a basis for accountability and it is also the basis for setting priorities and later evaluation [Berger, Elhart, Firsich, Jordan, + Stone, 1980 : 53].

The definition of nursing is influenced by individual perspectives and experience and therefore the thoughts of the staff must be pooled in order to arrive at some operational meaning of nursing care, that the staff will support and implement [DiVincenti, 1986] [See 2.2].

The practice of nursing must be defined in legal terms, so that the boundaries of practice can be clearly understood. In the Republic of South Africa, the Nursing Act No. 50 of 1978, as amended, gives the legal basis for the 'Scope of Practice' [South African Nursing Council, 1984].

2.4.2. STEP 2 : Identify structure, process, outcome standards and criteria.

The criteria are statements of structure, process or outcome, that can be measured. They are yardsticks against which judgement can be made.

Standards are models, established by the authorities or by general consent, of the level of quality considered adequate for a specific purpose.

Since standards reflect excellence in nursing, they are the first step in evaluating the nursing care that is delivered.

Standards are criteria against which performance can be measured and therefore they must be clear, concise, specific statements, worded in terms of the action and the behaviour required for the intended outcome [DiVincenti, 1986 : 136].

According to Gillies [1982 : 98] and Stevens [1980 : 287], the setting of standards is the first step in structuring a quality control system. They see the purpose of setting and using standards as threefold, namely :

- to improve the quality of nursing care;
- to decrease the cost of nursing care; and
- to provide a basis for determining nursing negligence.

Another reason why standards are so important is that employees must know what level of performance is expected of them. Standards enable one to measure performance and therefore they help one to distinguish between good and poor performance, by increasing objectivity and reliability. Standards reduce conflict (tasks and roles are clearly spelled out) and they enable one to communicate more effectively with staff (focus on task not person). Standards ensure that wards and departments run efficiently and effectively [Buitendach, Wenman, + Veale, 1986 : 21].

The process of standard development as set out by Rowland + Rowland [1980 : 373], starts with the choice of a category and the identification of the target population. The appropriate population variables and criteria are selected. The quality assurance

committee generates outcome criteria and the standards are established. The source of the criteria is documented and the preliminary selection for screening of the criteria and standards is done.

There are many types and varieties of nursing standards of practice. The different types of standards have been used to direct and control nursing activities, as they have been written in terms of the structure, process or outcome.

Structure standards focus on the structure in which the care will take place. They include examination of the physical facilities, equipment, administration, policies, staffing and the qualifications of the personnel.

Although there is a positive correlation between good structural attributes and good care, structural standards are only based on assumption or expectation and the patient need not necessarily receive adequate care.

Structure standards which are currently used are informal structure standards. When nurses say that they are short staffed, they have done an evaluation of the structure. The staff from the Transvaal Provincial Administration or South African Nursing Council use structure standards during inspections of hospitals and colleges and the Organisation and Work Studies personnel also attempt to lay down structure standards for hospitals.

Process standards are concerned with the delivery of patient care, the assessment of the patients, the planning of care, the implementation thereof and the final evaluation of the treatment given. The actual care given is compared with the standards.

In evaluating the process, immediate appraisal is possible.

Process standards are used in an informal manner every day when professional nurses check on other nursing staff or observe the work of students.

Quality monitoring instruments which utilise process standards are the Phaneuf Audit, Rush Medicus and the American Nursing Association's Standards of Practice [Goldstone, + Ball, 1984 : 56; Rowland, + Rowland, 1980 : 320; Phaneuf, 1972 : 20].

Outcome standards are involved in the result of the care given, the patient's state or behaviour at the end of the nursing intervention. The outcome standards are a retrospective look at the service rendered. Examples of these standards are in use, for example, morbidity and mortality statistics or the evaluation of the patient's response to treatment.

Outcome standards are the most difficult to measure in nursing because there are only a few activities linked directly to patient care outcomes, and therefore assumptions have to be made. There can also be other factors apart from care that can influence the outcome. Outcome criteria are however the most important type of standards, as the primary aim of nursing care is an improved patient health status.

The Joint Commission on Accreditation of Hospitals [JCAH] and the American Nursing Association in the Professional Standards Review Organisations [PSRO] use outcome standards.

A list of standards for the entire intensive nursing care practice is given by Kayser Jernigan, + Pepper Young [1983 : 108]. An example of such a standard - is the identification and gathering of data concerning the health status of the patient (assessment), which includes a comprehensive patient history and physical examination, the collection of data by scientific methodology, the organisation of the data in a systematic arrangement, and recording of the data.

Standards for staff development have been set by the American Nursing Association [1975 : 2-8] and they include aspects such as - the program must be relevant to the educational needs of the learner, the objectives must describe the expected outcome for the learner and the principles of adult education must be used in the process of teaching and learning.

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2.4.3. STEP 3 : Measurement.

The next step is to secure measurements which are needed to determine the degree of attainment of the standards.

A plan and systematic process must be devised for monitoring, for evaluating and for securing the measurements needed to determine the degree to which the standards were attained.

There are numerous methods that can be used to measure the level of nursing practice according to the established criteria. These methods include self-assessment, supervisor evaluation, performance observation or review of records, analysis of accident reports, interview with staff or even nursing rounds [Froebe, + Bain, 1976 : 56; Goldstone, + Ball, 1984 : 56].

Gillies [1982 : 391] adds other quality assurance activities to the list and they include patient care retrospective audit, patient care concurrent audit, peer

review, utilisation review and patient care profile analysis.

In devising a monitoring system for quality assurance one must consider certain aspects.

The first aspect that must be taken into account is the element of nursing care that shall be monitored. The nursing process elements are suitable categories to be monitored. Examples in the assessment phase to be monitored are history taking, physical examination and the making of a nursing diagnosis.

The next step in devising a monitoring system is to determine the objective criteria which shall be used to measure each element, that is the setting of standards which has already been mentioned.

After this, the means by which data is to be collected must be stipulated. This can be done by means of a checklist, a questionnaire or an interview.

Other criteria that need to be built into the monitoring system are aspects such as the frequency with which data must be collected, how the observations, the interviews or the record audits shall be documented.

It is important to determine which people are to take what part in establishing the system and then who has to collect the raw data [Gillies, 1982 : 393].

Many types of instruments to monitor the quality of care have been developed. Therefore consideration should be given to using an instrument that has already been tested for value, technique of application, validity and reliability.

The tool must have a descriptive rating based on directly observable entities. The ratings can be yes-or-no, 1 - 4 or best nurse-worst nurse.

The items should be arranged in groups, so that sub-totals can be worked out and the overall score must permit comparison between different patient groups.

The tool must be able to be used repeatedly and it should allow for generalisation of the results.

The implementation must be done by a person who is competent in the field and this often means only a nurse can do the evaluation. The instrument must decrease subjectivity of the evaluator [Berger, et al., 1980 : 67].

Examples of quality assurance programs are :

Rush Medicus Instrument was developed in 1972, and is a method of monitoring the quality of nursing care, by observation of the patients and the environment, as well as consultation of the nursing records. The instrument has internal statistical consistency and is reliable, as

well as being economical and it also permits relevant future research [Goldstone, + Ball, 1984 : 56].

The American Nursing Association (ANA) sets official standards for nursing services in 1973. These standards are structure or process oriented and facilitate a systems analysis of nursing intervention. The standards are not measurable, but are useful for developing sub-criteria for actual measurement [Gillies, 1982 : 390; Rowland, + Rowland, 1980 : 320].

The quality assurance program developed by the Joint Commission on Accreditation of Hospitals (JCAH), 1974, is called the Performance Evaluation Procedure. They recommended the development of outcome criteria and critical management elements for client-oriented diagnostic categories.

This audit was based on analysis of the patient's history and assessment, his master problem list, his nursing diagnosis, his nursing care plan, and the final achievement of his nursing goals [Mayers, Norby, + Watson, 1977 : 11; Gillies, 1982 : 390].

Slater Nursing Competency Rating Scale, 1967, measures the competencies displayed by a nurse as she performs nursing actions in providing care to patients. The scale is a means for accounting for the quality of the performance of the nursing staff and for identifying areas of strength and weaknesses in the care, so that action can be taken to improve the quality of care [Rowland, + Rowland, 1980 : 322; Wandelt, + Slater Stewart, 1975 : xiii; Berger, et al., 1980 : 63].

The Quality Patient Care Scale (Qualpac) which was developed in 1974, is a scale used to determine the level of the quality of the nursing care which is provided. It measures the care as it is being given. This scale is derived from the Slater scale by changing the nursing performance criteria into actual criteria describing the care received by the patient [Wandelt, + Ager, 1974 : 36; Berger, et al., 1980 : 63].

The Phaneuf Audit, 1976, assesses the quality of nursing through retrospective examination of records of patient care with the use of an audit schedule. The scale measures the extent to which the seven (7) functions of the nurse are executed and recorded [Phaneuf, 1972 : 20 + 27; Berger, et al., 1980 : 63].

Just as the nursing process is only one of a number of the models of nursing, there are also numerous models of quality assurance.

These different models and their instruments have varied in the extent of their usefulness within the education and research programs.

One must not get preoccupied with quality assurance and forget about improving the patient care.

The measurements can be secured by interview, observation, and chart review. The collection of the data should be timely, accurate and inexpensive.

The information must be collected by a person who is competent in judging the appropriateness of the information. That means a clerk can audit the biographic data, but when it comes to nursing actions, only a nurse can audit the section on nursing care.

2.4.4. STEP 4 : Making interpretations of the measurements.

Once the data has been collected, the measurements are evaluated against structure, process and outcome standards.

The degree to which the identified standards have been met serves as a basis for pinpointing the strengths and weaknesses of nursing practice.

The areas where the actual care did not meet the required standards must be identified. The deficiencies must be clearly stated and recorded and the source and reasons for the deficiency must be identified.

In analysing the results, simple scoring and descriptive measurements are adequate, for example, central tendency or frequency distributions.

Interpretations must be made about the strengths and weaknesses of the program. For example, identify the management or organisational shortcomings which promote unsatisfactory performance, highlight aspects which contribute to the lack of a motivational environment (reward, promotion). Personality problems, inappropriate job assignment, the lack of training, improper supervision and the lack of specified job expectations all contribute to a poor quality in nursing care [Lachman, 1984 : 8].

2.4.5. STEP 5 : Identify possible courses of action.

In the initial quality assurance program it must be determined where, by whom and who would supervise the data interpretation and planning of further activities.

When the deficiencies have been highlighted, the short-term objectives of corrective action must be determined.

The remedial plan must actually be written down. Take note of what the deficiencies are, how they can be corrected and when these corrective actions should be carried out and by whom the various activities shall be done.

Once the remedial plan has been designed, the quality assurance committee must decide on where the improvement plans shall be carried out and be tested and who will assess the results of such action.

2.4.6. STEP 6 : Take action.

When the audit report is complete, possible courses of action will be identified.

After several alternative actions have been proposed and examined in the light of existing resources and organisations, the best action is selected for implementation.

The course of action is chosen and the action initiated. This action must be corrective action and needs to be followed up, that is, the effectiveness must be evaluated continuously.

The results of the quality assurance monitoring can be used in many ways, for example, the modification of nursing care plans or implementation of a program for improving documentation or the supervisor's attention can be focused upon areas of weakness that have been identified, thus leading to the designing of responsive orientation and in-service programs [Rowland, + Rowland, 1980 : 380].

2.4.7. Documentation.

A system for collection and recording of the raw data must be established when drawing up the quality assurance program.

Decisions must also be made regarding the collection and reporting of the data to ensure that accurate and complete records are kept.

An audit report must be written and this should be enhanced with visual material such as graphs.

There should also be an annual evaluation report on the overall program which should be published [Decker, 1985 : 21].

All reports should be made known and be easily accessible to the relevant people so that they may be utilised to the full.

2.4.8. Re-evaluate.

Evaluation is making judgement about merit, success, excellence or quality. It is examining and appraising the phenomena against some kind of yardstick or measure.

Re-evaluation is the repetition of the assessment activity in order to amend the deficiencies in the appraisal system or quality assurance process.

At this point the cycle begins again and each time an action is taken, the progress of nursing practice needs to be re-assessed and remeasured.

Continual re-evaluation of practice in the light of established criteria and standards can indicate how well a change is progressing and whether the activities taken to implement the change are having an effect [Rowland, + Rowland, 1980 : 368; La Monica, 1979 : 324; Berg, 1974 : 331; Decker, 1985 : 21; Alexander, 1977 : 256; Marriner, 1980 : 213 + 219].

2.4.9. Conclusion.

In the present day, with the focus on productivity, it is necessary to emphasise that although appropriate and full utilisation of personnel is important, it is equally important that a high quality of nursing care be provided. This can be achieved by diligent supervision, the development of standards for care and an appropriate tool for evaluation.

The principal and overriding problem associated with quality assessment procedure, is that sight is lost of the ultimate goal - that of improving the standard of nursing care. Unless quality assessment data is funneled

back to direct care givers, the immediate supervisors, and the organisational management, in a form that stimulates correction of practice error, measurement of nursing action and patient outcome is little more than an intellectual game.

Evaluation is part of professional accountability and quality assurance is a method of achieving this accountability inherent in professional practice.

Quality assurance has two aspects to it, monitoring of performance against set standards. Performance appraisal is a part of this evaluation process. The second aspect of quality assurance is the remedial action which is taken to ensure that the standards are met. This remedial action involves the process of staff development.



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2.5. Performance appraisal.

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2.5.1. Introduction.

Performance appraisal is a control system, a means of measuring employee behaviour against set standards [Stevens, 1980 : 303].

From the previous statement it is evident that performance appraisal is part of the quality assurance program.

Performance appraisal is one of the most difficult yet one of the most important activities of a nurse manager. Accurate appraisal provides a sound basis for administrative decision-making and employee development [Sullivan, + Decker, 1985 : 340; Stevens, 1980 : 303]. Possessing a set of skills for dealing with ineffective performance should make the nurse manager's job easier, more effective and more satisfying [Lachman, 1984 : 84].

Performance appraisal is a method of acquiring and processing information needed to improve individual worker performance and accomplishment. It is a set of standards and objectives against which people can be appraised and then plans can be made to correct or reinforce the behaviour.

Performance appraisal includes supervisor-subordinate interaction (coaching, counselling, disciplining), written documentation (recording critical incidents, completing performance reviews), the formal performance appraisal interview and follow-up with coaching and or discipline [Sullivan, + Decker, 1985 : 311].

A performance appraisal system thus has two aspects to it, firstly the collection of data concerning the worker's performance or behaviour and secondly, utilising this information to improve the worker's performance and his motivation. This should result in increased employee output [Brief, 1979 : 7].

The system of performance appraisal goes further than the standards that are set or the instrument which is used to monitor behaviour. It is a continuous, consistent and directive process, which can be used as the basis for staff development.

Lachman [1984 : 9] gives an interesting formula for performance :

performance	=	ability	x	effort
		(aptitude,		(motivation,
		experience,		expectation,
		training)		incentive)

Appraisal is more than analysis, it not only determines weaknesses, but highlights strengths and potentials, in the behaviour of the staff [Rowland, + Rowland, 1980 : 312].

2.5.2. The purpose of performance appraisal.

According to Gillies [1982 : 421], performance appraisal helps the workers to improve their performance, whether the work was initially satisfactory or not. Performance appraisal can be used to identify employees who are ready for promotion and recognise those workers who could be used for special work assignments. Furthermore, the appraisal system improves communication between the subordinate and the administrator, and it establishes a basis for coaching and counselling.

Rowland + Rowland [1980 : 311] add, that through performance appraisal the learning needs of the staff can be determined and their aspirations can be discovered.

Brief [1979 : 7] mentions an important point, that performance appraisal improves the employees' motivation and therefore also increases their efforts and performance level.

Orpen [1979 : 139] divided the functions of performance appraisal into those related to the organisation (promotion, training and development, salaries, transfer and motivation) and those referring to the individual (self-knowledge and positive evaluation from others).

2.5.3. Principles of appraisal.

Like any other system of evaluation, performance appraisal must be based on certain principles.

The work performance which is to be evaluated must be based on the job description of the position of the employee and it must be based on the performance standards of that position.

The staff must have copies of their job descriptions, performance standards and the evaluation form, before performance appraisal can take place.

The sample of behaviour that is being evaluated must be representative of the entire behaviour.

The performance appraisal should be documented, that is the positive and negative aspects are recorded.

If there are areas in the employee's behaviour which need improvement, the priorities are indicated and remedial action is planned [Gillies, 1982 : 422].

Another principle of performance appraisal that needs to be highlighted is that performance appraisal is a shared process, where both the administrator and employee know what is expected of the employee and where the employee is allowed to respond, where he gets feedback and where he assists in the planning for altering his behaviour [Sullivan, + Decker, 1985 : 314; Stevens, 1980 : 304].

It is ideal to have the immediate superior do the evaluation, because that superior has already been in direct contact with the employee.

The superior must of course be trained in the performance appraisal process, in order for the evaluation to produce accurate and useful information.

The frequency with which performance appraisal is done can vary. It can be done annually or at the end of a learning session.

An effective performance appraisal system is built on trust and openness and involvement from all levels of staff [Brief, 1979 : 10].

2.5.4. Appraisal system.

The essential elements of an effective appraisal system are the technical soundness of the system and its credibility, so that a realistic picture of the employee's work performance will be obtained [Brief, 1979 : 8].

In developing a performance appraisal system, the administrator must determine what employee behaviour will be evaluated and then a method for measuring the performance dimensions must be established and the

procedure must be documented so that it can become an ongoing process [Brief, 1979 : 8].

There are various types of evaluation devices that can be used, for example, a free response questionnaire, forced choice response, self- or peer evaluation, direct observation and checklists [Sullivan, + Decker, 1985 : 319; Gillies, 1982 : 424].

The problem with performance appraisal is that nursing care activities are multi-dimensional. The tools used to evaluate nursing care must therefore measure a number of different dimensions in a variety of ways [Orpen, 1979 : 137].

Like any other evaluation instrument, the instrument must be reliable and valid and, of course, objective.

The appraisal process consists of an input (employee's behaviour as evaluated), a throughput (structures designed to modify or direct behaviour), an output (employee's behaviour after the exposure to the throughput) and finally the feedback and control [Stevens, 1980 : 303].



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2.5.5. Conclusion.

Regular appraisal acts as an incentive to the employees, they get the feeling that they are not being overlooked, and the appraisal system reaffirms the administrator's interest in the employee [Rowland, + Rowland, 1980 : 312].

The performance appraisal system promotes growth and development of the staff and contributes to improve the quality of care.

The quality of nursing care depends to a large extent on the level of knowledge, skill and attitude of the nursing staff. Staff development is the answer to the need of the service for an increase in the quality of care, as well as the answer to the individual nurse's need for self-development [Crotty, 1984 : 20; Greaves, + Loquist, 1983 : 81; Nzimande, 1987 : 21].

The value of the work done by an individual increases proportionately to the education of the person. The value of the work is 108 percent greater when the person has a secondary education and it would be 300 percent greater if he had a higher degree [Schutte, 1982 : 16].

CHAPTER THREE

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STAFF DEVELOPMENT

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3.1. Introduction to the concept of staff development.

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Staff development is the total process which includes both formal and informal learning activities for those employed in an institution. The focus is on the development of the individual, as well as assisting that individual to perform competently in her working role. Staff development assists the individual towards personal advancement and occupational progress [DeYoung, 1985 : 248; Cooper, + Hornback, 1973 : 1].

Staff development for professionals has rapidly increased in importance in recent years. With increased sophistication in monitoring techniques, widening professional horizons and increased scrutiny of health care delivery by the consumer, the nursing profession needs more opportunities for staff development in order to meet the stresses and demands in caring for the critically ill [Rodger Kinney, et al., 1981 : 6; Crotty, 1984 : 20; Thompson, 1982 : 34].

The primary objectives of staff development in a nursing institution is thus to improve the quality of nursing care, develop the person as an individual and citizen and to improve the status of the nursing profession [Cooper, + Hornback, 1973 : 1; Lahiff, 1984 : 27; Nicklin, 1985 : 26].

Professional education has milestones but no end and therefore, for all nurses, self-development is an integral part of their professional responsibility and they have to maintain their level of expertise by participating in seminars, workshops and other continuing education programs. Unfortunately there are at the same time, a large number of nurses who do not routinely participate in any kind of continuing education program and this decreases their standard of nursing care [Arneson, 1985a : 7 ; Wasserman, 1984 : 20].

All levels of nurses, but especially the newly qualified nurse, need a period of consolidation and development to reach professional maturity.

It can therefore be argued that, by developing nurses, the patient care they give will be improved, but continuing education alone does not mean competence [Wilk, 1986 : 17].

A simple model of staff development is illustrated by Wilk [1986 : 17] :

Input	----->	Throughput	----->	output
(education)		(continuous learning process)		(professional competence)

Tobin, Yoder Wise, Hull, + Scott, [1974 : 81] elaborate on these three aspects and state that the input consists of organisational, health care and individual factors, while the throughput is the planning and implementation of the educational program. The output is the performance or behaviour of the participant.

The training model by Sullivan and Decker [1985 : 280] is useful as an introduction to this chapter on staff development, because they break down the staff development process as follows :

- assessment - of the trainees readiness to learn, learning needs and skills, ability and knowledge;
- planning - by finding resources, matching needs and methods;
- implementation - using trainers, trainees, materials and methods; and
- evaluation - of cost-effectiveness, achievement and transfer of learning.

Staff development is the formal and informal learning activity provided or subsidised by a given agency, to reinforce or enhance the employees' knowledge and skill in providing patient care.

Douglass, + Bevis [1979 : 86], Gillies [1982 : 257], Cooper, + Hornback [1973 : 3] and Mellish [1982 : 252] all agree that the components of staff development include orientation, in-service education, continuing education and incidental learning

Orientation is the means by which staff is introduced to the philosophy, goals, policies, procedures, role expectations, physical facilities and special services in the work situation. Orientation occurs at the time of

employment and aims to stimulate the employee to identify herself with the organisation and its goals.

In-service education is an instructional or training program in the work environment given to people while in employment. It is designed to increase competence in a specific area of practice by filling in a gap in learning or to remedy deficiencies in knowledge and skills.

Continuing education is an organised lifelong learning program, beyond the basic professional education, usually on a part-time basis. It is built on previous knowledge, to promote development of knowledge, skills and attitudes, and extend opportunities, thus improving health care delivery to the public.

Incidental learning occurs through the opportunities at work which are not planned, but are invaluable in achieving the goal of staff development.

Although staff development is seen slightly differently by various authors, they do agree on the principles and purpose.

3.2. The staff development process.

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The staff development process, like any other process has underlying beliefs and philosophy. The philosophy of the department offering staff development programs directs individuals or groups in the achievement of their purpose. Although there are many beliefs and values involved in staff development, the underlying philosophy is to treat the person as a whole and to develop that person professionally and as a citizen [Cooper, + Hornback, 1973 : 3 + 47].

The staff development process consists of need assessment, planning (aims and objectives), implementation (curriculum) and evaluation.

3.2.1. Needs and need assessment.

Assessment in staff development is determining the present educational status of the individuals. It is the first step in any teaching and learning process and is necessary to establish the need upon which the content

and method can be built. Information is gathered from all the appropriate and available sources. Assessment does not only occur before teaching begins, but it continues throughout the learning process [Douglass, + Bevis, 1979 : 88].

Educational needs are the discrepancy between what the individual wants to be and what he actually is, that is the required level of competence and the present level of competence [Knowles, 1980 : 88].

The need for staff development programs arise from the needs of the personnel, the organisation, the consumer and society, as brought forward by the quality assurance program.

The principles of need assessment for the individual will reveal the personal characteristics and prior experience which have and will influence the learning potential and which will dictate the content. Assessment will determine the learner's socio-cultural group which will in turn determine the nature, content and acceptability of learning and the learner's prevalent life needs will determine what he will learn [Douglass, + Bevis, 1979 : 84].

Personally, the nurse needs staff development to get up-to date after a period of absence from nursing or to make up deficits from previous education programs or to upgrade her knowledge. She may want to expand her role in practice by personal growth, furthering a career goal, making changes in her career ladder or increasing her status. Staff development can fulfill personal needs for lifelong learning, personal growth and becoming a more effective citizen [Clark, 1979 : 3; Cooper, + Hornback, 1973 : 3; Nzimande, 1987 : 21].

The requirements for the nurse to give quality patient care includes the science of nursing (cognitive skills) and the art of nursing (psychomotor and affective skills) [Butterfield, 1985 : 99].

Organisations need staff development programs because of the move towards primary nursing, independent practice and the accompanying change in the staffing structure. The changing technology and increase in unionisation and the increase in research, makes staff development essential in order to fulfill the organisation's goals and objectives [Gillies, 1982 : 256; Bowman, Wolkenheim, Le Beck, O'Donnell, + Schneider, 1985 : 201].

In order to satisfy consumer demands for increasing quality care and a wider variety of services, staff

development programs need to be implemented [Thompson, 1982 : 34].

There are demands placed on the nursing profession by the rapid advances in health care and technology, the consumer's increasing expectations for competent and knowledgeable practitioners, while the administrators want to curtail costs yet improve practice [Fojtasek, 1985 : 58; Curren, + Smeltzer, 1981 : 25].

Society wants health care for all, and at the same time there is a change in disease patterns which leads to a change in the health care delivery pattern with changing legislature [Gillies, 1982 : 256]. There are various methods of assessing the need for continuing education, such as, the problem-focused audit determining the discrepancy between actual nursing practice and recommended practice; the process audit, which includes the setting of standards and after the program has been used, a re-audit. Then there are others such as questionnaires to staff, checklists, Delphi II, performance appraisal and observation surveys [see chapter two on quality assurance] [Clark, 1979 : 132 + 139; Foglesong, 1983 : 12; Rezler, + Stevens, 1978 : 241].

3.2.2. Planning : Aims and objectives of staff development.

The clarification of the purpose of staff development is the first step in the planning of a staff development program. The ultimate purpose is to provide quality patient care, and although each individual program will have specific objectives, in the end they contribute to the overall purpose [Berger, et al., 1980 : 4].

3.2.2.1. Aims.

According to both Crotty [1984 : 4] and Clark [1979 : 3] the aims of staff development are :

- to develop centres of excellence in the clinical areas which will provide an exceptional high standard of individualised patient care and a suitable learning environment for the staff;
- to develop in the qualified nurse the skills of clinical competence, teaching and management;
- to develop research awareness in all trained staff;
- to meet the needs of the service as well as the individual, this means increasing self-development and professional growth;

- to promote individual responsibility and accountability for continuous learning and its application to practice;
- to assess continuously and respond to immediate as well as long range continuing education needs; and
- to provide opportunities for non-practicing nurses to become aware of changes in nursing and health care.

3.2.2.2. Objectives.

The objectives define the goal for both teacher and learner. Participation of the learner in the setting of goals will increase the number of meaningful and useful learning activities for the learner. The more congruent and relevant the goals are to the life needs of the learner, the more likely goals can be realised.

Realistic behavioural goal setting enables selection of appropriate and meaningful content. Setting goals that specify the precise degree of attainment required provides the learner with guidelines that can be followed [Douglass, + Bevis, 1979 : 84].

Objectives resulting from the needs assessment are a demand for orientation to the health care agency, policy, procedure, physical environment, people and goals, a need for mastery of health care oriented content and finally a need for promotional mobility [Douglass, + Bevis, 1979 : 111].

The objectives of staff development, according to Crotty [1984 : 20] and Douglass + Bevis [1979 : 111] are :

- to increase the ability of the health care givers to be congruent with and supportive of the health agency's philosophy and or statement of mission and goals as provided in its organisational plan or appropriate documents;
- to meet the specific learning needs of individual nursing staff in order to facilitate the employee's optimal development;
- to enable each employee to provide the most effective and efficient patient care possible, in the setting where employed;
- to develop excellence in clinical areas - a high standard of patient care and a suitable learning environment;
- to develop individual nurse's skills (clinical, administrative and teaching);
- to develop a research awareness; and
- to meet the needs of the service and the individual.

3.2.3. Standards of staff development.

The standards of staff development as set out by the American Nurses' Association are useful criteria on what to formulate one's own structural standards and base one's own programs.

For detail on how standards are formulated and the difference in the types of standards, see section 2.4.2.

These standards for staff development read as follows :

- The continuing education program is consistent with the overall goals and objectives of the sponsoring organisation. Each specific continuing education activity should be designed to implement these objectives.
- The program of continuing education is relevant to both the educational needs of learner and the health needs of consumer. The learners, the educators and the consumers of health services should participate in identifying these needs.
- Learning and behavioural objectives are defined for each continuing education activity and are used as a basis for evaluating content and learning experiences, and for evaluating effectiveness.
- Continuing education programs are designed to assist nursing personnel to:
 - * acquire and update knowledge and skills,
 - * prepare for re-entry into practice,
 - * make a transition from one area of practice to another,
 - * enhance the professional attitude,
 - * implement concepts of change,
 - * assume the responsibility for personal and professional development,
 - * promote and support innovation and creativity in health services.
- An interdisciplinary approach to sponsoring, planning, and implementing continuing education activities is used when appropriate.
- Innovative approaches are used in planning, conducting, and evaluating education activities.
- Continuing education activities are implemented through a variety of formats and teaching methodologies in order to achieve the above objectives.

- The department is knowledgeable about the concepts of continuing education and adult learning and is experienced in the application of these concepts.
- The department collaborates with other nursing departments and other health disciplines to utilize the resources more effectively and to meet common learning needs.
- In the selection of the resource person and faculty for continuing education activities, care is exercised in choosing persons with expertise and clinical competence and academic preparation in the material to be presented.
- The sponsor provides adequate support for all continuing education offerings and programs.
- The budget provides adequate funds for planning, conducting, and evaluating continuing education activities.
- The sponsoring agency provides facilities and resources appropriate to the content of the activities.
- Continuing education records are confidential and maintained in a systematic manner.
- Counselling and guidance are made available so that learners will be informed of the range of continuing education opportunities that may meet their short- and long-range goals.
- Provision for continuous evaluation is an integral element of the continuing education program and of each specific offering within the program [ANA, 1975 : 6].

3.2.4. Implementation : curriculum design.

There are many different definitions for the term curriculum, but the definition that encompasses both the content and the process is the definition by Nicholls + Nicholls, as quoted in Quinn [1980 : 73], who stated that the "curriculum is all the opportunities planned by the teacher for pupils".

The curriculum is the instrument through which desired behavioural changes are brought about in the student.

Curriculum development implies an ability to look into and predict the future for the practitioners who will be following the specific curriculum.

A distinction should be made between product models of curriculum design which emphasise the outcome of the learning experience (behavioural objectives) and process models which emphasise learning acquired from experience (cognitive objectives and experience) [Sheehan, 1986 : 672].

There are at present many strategies which could be used in curriculum design. They range from learner-centred to teacher-centred, problem-based to information-based and an elective to uniform curricula [Handon, Sowden, + Dunn, 1984 : 284].

The emphasis in curriculum development for staff development programs for nursing personnel, should be based on professionalism and flexibility, that is, the curriculum should be learner-centred, problem-based and elective.

A focus on student needs is therefore a pre-requisite for staff development programs or curriculum design. What the student wants to learn is far more important than what the teacher wants to teach. This approach tends to increase student motivation because it allows them to be more actively involved in planning their curriculum and encourages them to take more responsibility for their own learning [Harden, Sowden, + Dunn, 1984 : 287].

Clinical problem-solving is an essential component of all nursing care activities. The use of a problem-based approach which enables the student to acquire a body of knowledge which can then put into practice.

This approach also allows for active student participation and an overcrowded curriculum can be avoided by leaving out irrelevant matter [Harden, et al., 1984 : 288].

The elective curriculum is another way of preventing an overcrowded curriculum. It allows the student to design her own curriculum, it provides the student with the responsibility for her own learning and so meets the individual student's needs and aspirations.

Torres + Stanton [1982 : 17] break down the curriculum process into four stages - the directive, formative, functional and evaluative stages.

These can be linked to the four (4) components of the curriculum model as used by many writers. These four (4) components are as follows :

- objectives;
- content (subject-matter and knowledge);
- method (experiences); and
- evaluation [Quinn, 1980 : 74].

Uys [1982 : 17] extends this model and proposes the following model for curriculum design. This model is very similar to the model developed by Wheeler in 1967 [Wheeler, 1967 : 31; Allan, + Jolley, 1987 : 105].

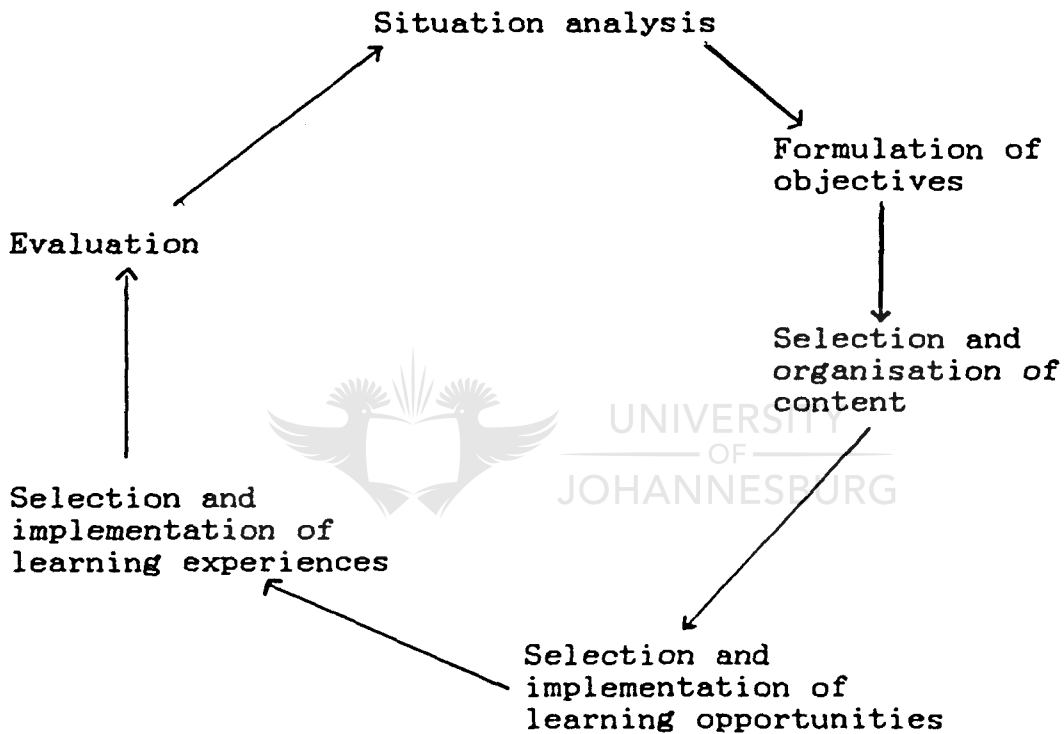


FIGURE 3.1. Curriculum design model [Uys, 1982 : 17].

One can thus see that curriculum development is a continuous cycle with feedback, new developments and changes in response to the development of the medical technology and the changes in the teaching and learning environment.

Situation analysis

A situation analysis is the first step in the curriculum design. In determining what the actual situation is

like, the specific needs of the learners will be identified.

The curriculum must be relevant to the changes in the health care needs of the society. In the Republic of South Africa, there is a move towards privatisation and therefore the education needs of the staff in the private institutions must be taken into consideration when developing curricula.

This also implies that curriculum design must be dynamic and therefore a continuously changing process is necessary for the profession to survive.

There are many other factors that will also shape the curriculum and should therefore be included in a situation analysis. These include the characteristics of the learner and teacher, the requirements of the profession and statutory bodies, the government policies, the patient and society [Quinn, 1980 : 76]. Uys [1982 : 19] uses the variables proposed by Tanner + Tanner which are society, knowledge, content and the learner. Conley [1973 : 82 + 86] mentions population mobility, shifting disease patterns, commercialisation of the profession and the broadening perspective of medical care as factors which affect curriculum design.

These assessment stages provide the foundation for the development of the curriculum. It is also during this directive phase that the beliefs, philosophy, theories and concepts are identified [Torres, + Stanton, 1982 : 19]. For a more detailed definition of philosophy and theory, see 2.2.2 and 2.2.3. respectively and for need assessment in the staff development process, see 3.2.1.

Formulation of objectives

When the learning needs have been identified, the specific learning objectives can be formulated. This is the formative phase of Torres + Stanton [1982 : 19].

Objectives are statements of the goals of a certain program.

There can be various levels of objectives, such as terminal or program objectives, stage or intermediate objectives and specific learning objectives and each of these objectives should cover the cognitive, affective and psycho-motor spheres [Conley, 1973 : 73, 223 + 232].

For example, the terminal objectives for a program on 'Cardio-pulmonary-cerebral resuscitation' are as follows :-

You will be able :

- * to recognise a cardio-pulmonary arrest; and
- * to perform effective cardio-pulmonary-cerebral resuscitation.

The specific learning objectives for the first terminal objective would include the following :-

You will be able to :

- * diagnose absent respiration;
- * diagnose fixed-dilated pupils; and
- * feel the large pulses.

The formulation of objectives is of value to both the student and the teacher.

It clarifies the situation for the students so that they know exactly what is expected of them, they also can determine what level of performance is required and it enables them to evaluate their own progress.

It is also of value to the teacher because it forces her to concentrate on student needs and to select content which is relevant to the situation.

Objectives also assist the teacher in the selection of instructional techniques (learning opportunities and experiences), and provide excellent guidelines for student evaluation.

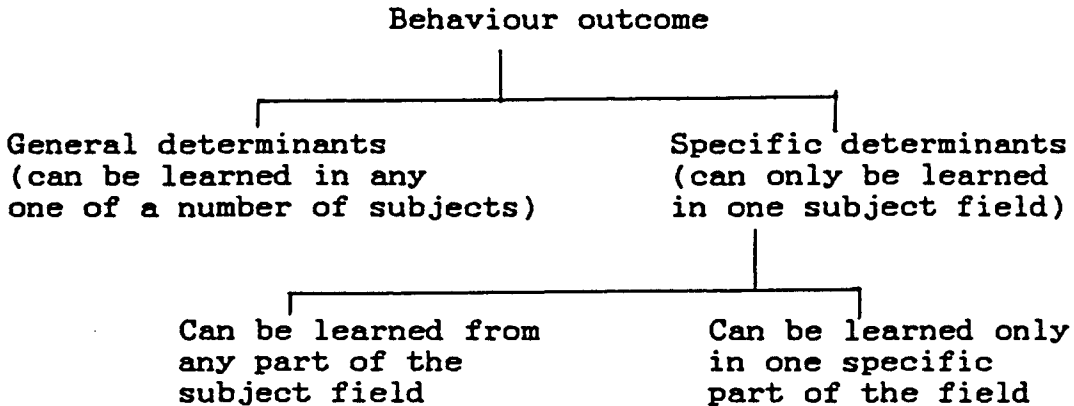
The objectives can also be used to evaluate the overall effectiveness of the program [Alspach, 1982 : 41].

Selection and organisation of content, learning experiences and learning opportunities

A second aspect in this formative phase is the selection of the course content and learning opportunities and experiences. These three (3) aspects are often grouped together because it is impractical to consider them in isolation.

The course content must reflect the philosophy, objectives and conceptual framework of the institution. The content of a curriculum depends on the objectives. For example if the objectives dealt with diagnosis, the content would have to include assessment, decision-making and the pathophysiology of the disease. If the objective stipulated implementation, the content would include leadership, decision-making, pharmacology, pathophysiology, planning and psycho-motor skills [Torres, + Stanton, 1982 : 77].

Wheeler [1967 : 185] illustrates the selection of the content as follows :



Torres + Stanton [1982 : 79] stress the point that the depth and breadth of the content should be appropriate and valid for the particular learners' needs, thus motivating the individual to learn. It must reflect the changing role of the nurse and should therefore be generalisable and progressive.

The content should also reflect levels of the cognitive, affective and psycho-motor domains relevant to the objectives.

Wheeler [1967 : 218] also states that the major criteria for selection of content are the validity and significance of the content. He does however not exclude the needs and interests of the learner, the utility of the content, the learnability of the content and the consistence of the content with social realities. These aspects he describes as the minor criteria.

The teaching strategies must enable the student to collect the necessary information and understanding and to internalise it and, in turn, the student must be able to give feedback of the newly synthesised material.

The teaching and learning situation must provide the student with the opportunity to implement the learned material whether it be in the real situation or in simulation [Bevis 1978 : 179].

Now that the functional or action phase has been reached, the method of teaching and learning are designed into learning experiences. The content and learning experiences should be selected and organised so as to provide continuity, sequence and integration. Provision should be made for the attainment of a large range of objectives. The teaching methods must be suited to the content and objectives of the course and they must be in

accord with psychological and learning principles which can be adapted according to students' needs.

The learning experiences should be selected according to their validity, comprehensiveness, suitability, variety, pattern (balance, repetition), relevance and pupil participation [Wheeler, 1967 : 147].

Methods of instruction could include dependent, independent and interdependent methods. Dependent methods allows for one-way communication only, for example the lecture or demonstration. Independent methods allow for learner participation in the selection of the content. This gives the student the opportunity to pace his own learning as in programmed instruction or the use of the computer. In the interdependent method, the flow of communication is shared between teacher and student. This method includes discussions, simulations and live experiences [Cooper, + Hornback, 1973 : 121].

The selection of the method is guided by the belief in the nature of the adult learner and the purpose of continuous education. The selection is also guided by the theory and definition of learning and the belief in what constitutes knowledge and the curriculum [Apps, 1979 : 168].

Evaluation

To complete the cycle, the entire process (input, throughput and output) must be evaluated and suggestions made for improvement or alterations in curriculum design. The curriculum therefore remains dynamic. For the detail on evaluation, see the following section.

3.2.5. Evaluation of a staff development program.

3.2.5.1. Introduction.

Evaluation is an integral part of the process of staff development. Evaluation involves assessing the worth or value and using this to implement planned change for program improvement [Tobin, et al., 1979 : 162].

The nurse educator, administrator and practitioner have an ethical responsibility to evaluate the quality of nursing care rendered by the qualified staff and students [Rezler, + Stevens, 1978 : 3].

Evaluation aims to show that staff development increases clinical competence, and that nurses are demonstrating accountability to the public [Clark, 1981 : 30].

Evaluation in staff development programs is often limited to participant satisfaction, written examinations of knowledge gained and self-assessment of clinical practice.

Evaluation (appraisal) is the systematic documentation of the consequences (results or effects) of program (curriculum or course) and the determination of their worth (merit) in order to make decisions about them. It includes data analysis and reporting in order to make decisions based on the facts. Judgement is made about the acceptability of the results of behaviour measurements compared to standards and criteria [Green, + Stone, 1977 : 4; Rezler, + Stevens, 1978 : 4 + 391].

Evaluation of staff development courses for nurses consists of measurements and judgements about changes in behaviour in relation to the objectives which has been brought about through learning [Cooper, + Hornback, 1973 : 236].

3.2.5.2. Purpose and principles of evaluation.

The purpose of evaluation is to assist in determining the progress of the participant in learning, memorizing, knowledge application, problem solving, improved job performance, development of new interests, and changes in attitudes. Evidence is needed to improve

student learning and teaching. Evaluation helps to clarify the significant goals and objectives of education and to determine the extent to which students are developing. It is used to establish a system of quality control to determine whether the process is effective or not, and to provide a tool in the education practice to determine whether different educative procedures are equally effective in achieving the set educational goals [Popiel, 1977 : 187].

Evaluation should provide information on the overall program improvement (congruent evaluation), on budgeting, on resource allocation and other administrative concerns (contingency evaluation) [Rezler, + Stevens, 1978 : 64].

The purpose of evaluation is thus to document whether and to what extent the learners have attained the program objectives and also to systematically examine the program to see how it could be improved. It is also used to document participants' interest and to note if they actually used the information in clinical practice [Faulk, 1984 : 139].

The following are the principles of evaluation.

- Evaluation should be made in terms of the goals or objectives developed for the course.
- Evaluation, in order to be effective, must be ongoing and planned, when the course is planned.
- Evaluation must be made in terms of expected behaviour.
- Integration of self-evaluation of participants, resource person, staff, and faculty must be a step in the process.
- Evaluation should be a stimulating force leading to a definite improvement in both teaching and learning.
- Adequate follow-up of the effectiveness must be built into the entire evaluation process.
- Always determine and clarify what is to be evaluated as a priority.
- Evaluation technique should be evaluated in terms of the purpose to be served.
- Comprehensive evaluation requires a variety of evaluation techniques.
- Proper use of the evaluation techniques requires an awareness of their limitations as well as their strengths.
- Evaluation is a means to an end and not an end in itself.

[Popiel, 1977 : 187; Gronlund, 1976 : 21]

3.2.5.3. Models and process of evaluation.

An evaluation model is an analytical plan or framework, which serves the purpose of guiding thought or structuring the field in which the evaluator functions. A model serves the useful function of providing a method of applying a theory of evaluation to a specific goal-oriented process [Green, + Stone, 1977 : 38].

Universal characteristics of evaluation models are the clarification of the objectives of the evaluation and the definition of the role of the evaluator. There must be a statement of assumption upon which the evaluation is to be based and clarification and acknowledgement of the decisions to be made as a result of the evaluation. A design or strategy for conducting the evaluation must be developed to identify the objectives, the information needed and the appropriate sample. The strategy includes the selection of the appropriate instruments and procedures, establishing a schedule and selection of the data analysing procedures. Judgement as to the merit and worth of the program must be made and feedback given to program administrator and or developers [Green, + Stone, 1977 : 38].

All educational programs consist of inputs (pretest, structure), throughputs (an innovative curriculum, process) and outputs (post-test). Evaluating inputs means analysing the context of departments or institutions and collecting demographic data on the subjects. It includes noting the characteristics of the proposed curriculum and the numbers and grades of staff required. Evaluation of throughputs includes describing treatments as they are occurring, selecting treatment areas to be analysed and the collecting, organising and coding of the data. Then an analysis of the procedure, re-evaluating and repeating the analysis or cross-check must be performed. In order to evaluate the output, one must ascertain the planned and unplanned consequences, determine the audience for the report and choose the method for publication [Green, + Stone, 1977 : 7; Waters, 1986 : 28].

The following is a brief outline of the steps in the evaluation process, which is very similar to any other process.

The purpose for evaluation must be determined and the objectives or desired outcomes must be formulated. The next step is to establish standards and determine their intended audience.

A model and design (evaluation method, schedule) must be chosen and the sample must be selected.

Collection of the data, analysis and interpretation of the data follows and then the findings are reported.

A conclusion is reached and recommendations are made [Green, + Stone, 1977 : 4; Rezler, + Stevens, 1978 : 5; Steele, 1978 : 1; Clark, 1979 : 162].

3.2.5.4. Types of evaluation.

It is not practical to attempt to evaluate the participants, the curriculum and the impact on the quality of patient care resulting from the program for each program. There are thus different types of evaluation that can be used, which will be representative of the program.

Evaluation can be final or summative, which means that the evaluation determines what the program has achieved. Evaluation can consist of occasional or continuous feedback, formative, or process evaluation, which is evaluation of the procedure [Rezler, + Stevens, 1978 : 5].

Popiel [1977 : 71] illustrates the following types of evaluation :

- evaluating participants growth through pre- and post-test;
- self-evaluation at the end of the program or after a few months;
- formative program evaluation;
- summative program evaluation;
- formative and summative department evaluation;
- evaluation of the effects which the course had on the participants performance on the job; and
- evaluation of improvements in the quality of care because of behavioural changes brought about by the course.

3.2.5.5. Conclusion.

Evaluation is part of a cycle - objectives, activity and evaluation.

Maintaining desired standard of performance requires continuous effort on the part of the employee, nurse manager and nurse educator.

For evaluation to be successful, it must have influence. The determinants of influence are if the evaluation is needed and if someone cares about the evaluation [Faulk, 1984 : 140].

Evaluation is the final stage of a process and seemingly the most difficult to implement. In evaluating aspects of nursing, the situation is made more difficult because of the insufficient body of nursing knowledge necessary to provide data for predicting outcomes [Waters, 1986 : 30].

Because the major focus of staff development programs is to meet the learning needs of the nursing staff in relation to health care needs of the consumer, evaluation requires participation of the learner as well as of other nursing service personnel, educators and consumers [ANA, 1976 : 10].



3.3. Learning Theories.

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A learning theory is a systematic integrated outlook, in terms of the nature of the process whereby people relate to their environment, in order to enhance their ability to use themselves and the environment more effectively [Bigge, + Hunt, 1980 : 221].

There are many aspects of learning, such as the learning procedure, the person's ability to remember and the people's use of the knowledge which they have acquired. As learning is multifactorial, it is difficult to develop a single theory of learning and at present there is no one theory that covers all aspects of learning [Quinn, 1980 : 15].

Considering the complex nature of concepts such as maturity and intellectual development, a theory of education based on age needs very careful scrutiny. Theories of adult learning must include aspects such as reinforcement and social learning, as advocated by Skinner and Bandura; individual differences and stages of development from Piaget and Gagne; while Maslow and Rogers view on self-actualisation and self-assessment are essential elements [Mast, + John Van Atta, 1986 : 35].

The following is a short overview of the three groups of learning theories.

3.3.1. Behaviouristic theory.

The behaviourists see learning as a change of behaviour, where the learning process is that of the stimulus-response type.

Learning is teaching and instruction centered, where the teacher provides the situation with the stimulus and cues and then reinforces the appropriate response. The result is a more or less permanent connection between the two events.

Responses which do not occur naturally can thus be taught, as the student is active and responding. Repetition and practice of the response helps learning and generalisation, while discrimination is taught by practicing in a variety of contexts, which is helped by selective reinforcement and extinction.

Because there is so little emphasis on the learner, this theory does not adhere to the principles of adult

education and is thus of limited value in staff development programs. Skinner's programmed instruction can however be utilised.

The behavioural theorists are Pavlov, Thorndike, Hull, Guthrie and Skinner [Clark, 1979 : 26; Austin, 1981 : 17; Kidd, 1973 : 61; De Wet, Monteith, + Van Der Westhuizen, 1981 : 36-41].

3.3.2. Humanistic theory.

The humanists, Maslow and Rogers, see the learner as an active participant in the learning process. Learning is a purposeful, exploratory and creative experience, where motivation is more important than the cognitive processes.

Learning is centered around the activities of the learner and the teacher. The emphasis is on the progressive development of the mind and self-actualisation of the individual. Thus prior knowledge affects new learning and the person learns mainly those things which he perceives as important to himself.

The learner sets his own goals and the instructor guides him in the achievement thereof. This theory is applicable to adult learning, as the adult learner has a high level of individual learning ability [Clark, 1979 : 26; Austin, 1981 : 19].

3.3.3. Cognitive theory.

The cognitive theories are perceptual theories or Gestalt theories, as taught by Bruner, Piaget, Tolman, Koffka and Lewin [Clark, 1979 : 27; Austin, 1981 : 18; Kidd, 1973 : 6].

These theorists state that perception of the environment and its people will influence learning.

The learner perceives a need to acquire knowledge, skills or attitudes, which is just as important as motivation.

Learning is the organisation of knowledge, which involves new knowledge being built onto prior learning.

For the Gestalt theorists, learning is the gaining of insight and thought patterns, concept formation and transfer of knowledge.

The teacher and student plan the objectives and activities together and cognitive feedback is used to correct faulty learning.

The teacher organises the learning environment in a structurally meaningful manner and presents the essential features to the student [Clark, 1979 : 27; Austin, 1981 : 18; Kidd, 1973 : 6].

3.3.4. Andragogy.

Nurses are adults and therefore staff development programs must be based on the principles of adult learning or andragogy.

Lindeman, as quoted by Knowles [1978 : 30] define adult education as a co-operative venture in a non-authoritarian, informal learning situation, with the chief purpose to discover the meaning of experience. Education is co-existent with life, which therefore elevates living itself to an adventurous experience.

Andragogy assumes that the characteristics of the adult learner are different to those of the child learner and therefore the teaching methods have to be adapted accordingly.

3.3.4.1. The andragogical model.

The andragogical model is a process model, where the teacher is a facilitator and establishes a climate conducive to learning. The teacher creates mechanisms for mutual planning, diagnosing of the needs of the learner and then formulates program objectives to satisfy these needs. Together they design a pattern of learning experiences and then conduct the learning experiences with suitable techniques and they finally evaluate the outcome [Knowles, 1978 : 108].

3.3.4.2. Characteristics of the adult learner.

Oberholzer [1979 : 72], Clark [1979 : 28], Heerman, Enders, + Wine [1980 : 3], Cooper, + Hornback [1973 : 66], Apps [1979 : 50], Austin [1981 : 18] and Knowles [1978 : 110] have identified a number of characteristics of the adult learner.

Characteristic of the adult learner include self-concept, self-directed independence and a sense of responsibility. These characteristics must ultimately have an effect on the teaching and learning process.

They indicate that there must be a climate of openness and respect, where the student can plan his own learning experience and use self-evaluation.

Another characteristic of the adult learner is that he defines himself in terms of his experience. The implication for the learning situation is that the learner needs to make use of experiential techniques, which will encourage and lead to self-actualisation.

A third characteristic of the adult learner is his motivation and readiness to learn, which implies that they must be involved in the planning. They must also get frequent feedback because they want to apply the knowledge immediately.

Adult learners thus see themselves as responsible, self-directed individuals, accumulating many and varied experiences as a base for a new level of learning readiness. Adults learn for the here and now and therefore learning is a voluntary, purposeful effort at self-development [Popiel, 1973 : 51; Cooper, + Hornback, 1973 : 2].

3.3.4.3. Theorists in adult education.

The following is a brief overview of adult education as seen by different authors.

For Lindeman adult education is a new technique of learning applied to adults.

It is the process whereby the adult becomes aware of and evaluates his experience. He therefore concentrates on the situation he finds himself in and learns for the here and now.

All previous knowledge is put together and is used to solve problems as they present themselves.

All students contribute to the learning process and so there is mutual discovery, shared authority and planning.

Lindeman sees the adult learner as motivated to learn, oriented to life-centered learning, as having experience, being self-directed and as having individual differences [Knowles, 1978 : 30].

Dewey contrasts traditional learning concepts with those of adult education, where in the process of adult education, the teachers use the discovery method and inquiry, so that learning is self-directed or problem-solving.

He organised his system around the key concepts of experience (all genuine education comes about through experience), democracy, continuity (experience is essential for growth and development) and interaction

(experience in its education function is an interplay of conditions) [Knowles, 1978 : 79].

Tough was concerned with the self-directed learner. The teacher has a helping role and creates the appropriate environment, he is approving and supportive. The teacher and learner are equal and therefore the learner feels free and can contribute to planning. According to Tough, adult learning proceeds through phases in the process of engaging in a learning project. The steps include setting goals, planning and engaging in the learning process [Knowles, 1978 : 46 + 75].

Houle identifies adults as continuing learners, where there are three types of learners. Firstly, for goal-oriented learners, education implies the setting of objectives. Secondly, for the activity-oriented learner the situation provides a problem or need and lastly the learning-oriented learner seeks knowledge for its own sake [Knowles, 1978 : 44].

Maslow sees adult education as the development of the self-actualising person.

Maslow identifies the elements of the growth process as the person reaches out to the environment and desires information about it. Where the person feels safe and self-accepting, he can be daring and he can choose experiences which will lead to growth and finally will give him feedback on himself [Knowles, 1978 : 39].

Rogers emphasises the development of the fully functioning person as an integral part of the learning process which is also student centered.

His approach encompasses the hypothesis that one cannot teach another person directly, but can only facilitate learning. A person learns mainly those things which he perceives as being of immediate value to himself and these experiences lead to change in the organisation of the self. The education situation must promote learning and therefore decrease the threat to the individual [Knowles, 1978 : 141].

After studying all the theories of education and adult education, one must decide how to use them. Firstly one can ignore them, or one can pick one theory, or take the best from each theory and incorporate those aspects into a model.

The researcher believes in the eclectic approach of using relevant aspects from the various theories.

3.4. Learning propositions.

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In planning a staff development program the following learning propositions as illustrated by Bevis [1978 : 73] and Knowles [1978 : 76] must be taken into account :-

- People learn when they encounter a problem. This need creates anxiety, which in turn produces direct motivation. The situation dictates the need and therefore education will take the form of problem-solving.
- Motivation and drive produce a learner's need for information, cues, models, or opportunities to discover new things. This will enable progression towards goal attainment or reaching solutions for problems.
- Progression towards goal achievement is promoted by moving from the familiar to the unfamiliar and by involving the learner in the learning activity. Learning is for immediate use and it takes into account individual differences.
- Reinforcement of desired behaviour increases movement towards the goal, and conversely, absence of feedback of any kind prevents progress and consistently negative feedback, accidental or deliberate, leads to frustration, aggression and avoidance, progress then halts and the problems are not solved. The learner must be involved in planning and implementation.
- Repetition is feedback and the consequent improvement accompanied by reinforcement develops behaviour, habits and patterns. There must be participant learning.
- Spaced or distributed recall or more and varied opportunities for application enables the learner to identify central concepts, verify principles, make generalisation and discriminations and retain learned behaviour.
- Success leads to tolerance of failure, realistic self-assessment, realistic goal setting and continued evaluation. The individual is involved in goal setting and evaluation, with the teacher as facilitator. Learning is thus likely to be realistic.

It is thus evident that any staff development program should be based on the principles of adult education, taking into account the learning theories, andragogy and the learning propositions.

3.5. Organisation of a staff development program.

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3.5.1. Orientation.

Professional horizons are widening so rapidly that nurses must be prepared to update their knowledge constantly [Clarke, 1985 : 48].

Professional courses equip a person for ten (10) years of professional life only and it is too costly to retrain every nurse after ten (10) years in order to maintain a satisfactory standard of care [Clarke, 1985 : 48].

The solution to this problem is to institute effective staff development programs.

Staff development assists individual nurses in achieving and maintaining competence and realizing their potential as related to the objectives of the hospital and nursing practice. This implies striving to meet the standards of care set by the profession and the organisation [Sovie, 1980 : 38].

Staff development is thus essential in order to maintain competence in nursing practice.

Learning is a lifelong process, it is a continuous and expanding process of self-development [Lenburg, 1975 : 10].

The objectives of staff development are a visible, continuous increase in the quality of nursing care. This can be achieved if all staff can prove that they are up to date with new and relevant knowledge and that they function according to approved standards.

By achieving these objectives, most nurses will experience job satisfaction and thus be motivated to improve themselves continuously [Vermaak, 1982 : 9].

Although it is assumed that education is expensive, education will increase staff competence. This will in turn decrease accidents at work, decrease claims for negligence from patients, and cause a faster patient turnover and so make a profit for the institution.

Ensuring high quality care while controlling costs is a vital concern of a nursing service director and the staff development educator [Sovie, 1980 : 38].

3.5.2. The responsibility for staff development.

The responsibility for staff development lies both with the employee and the employer.

The employees, that is the nurses, have to fulfil their professional obligations to the consumers.

The individual nurses must ensure that they as practitioners maintain a level of knowledge consistent with safe practice [Lenburg, 1975 : 23].

They must engage in interpersonal and interdisciplinary relationships for the purpose of sharing knowledge and they must then apply this knowledge, in order to improve the patient care which they render.

The individual nurse must utilize the principles of the social and natural sciences, as well as research findings to improve the care she provides [Lenburg, 1975 : 187].

The responsibility of the individual nurse with regard to maintaining her own level of competence, includes identifying her learning needs and making them known, and then pursuing them to satisfy these educational needs.

The employer carries a responsibility to the public and therefore needs to promote staff development for the nursing staff in the institution.

The nurse administrator should create the infrastructure for staff development. She should develop a costing system, enlist the services of experts in the relevant specialities and plan for the repetition of the programs.

In order to start staff development programs, the nursing administrators must establish and publicise policies related to staff development.

They should provide opportunities for the staff to attend such staff development courses by making time and money available.

The nurse administrator has a role to play in identifying the learning needs of the staff and contributing to the planning and implementation of the programs.

The employer must furthermore provide recognition for participation in staff development programs and assist in the implementation of concepts that have been learned [American Nurses' Association, 1975 : 175].

3.5.3. Types of staff development organisations.

Self-directed learning, as advocated by Hegge [1985 : 206], is a method of learning where the individual uses his own initiative in assessing, planning, implementing and evaluating his learning.

Most people will use self-study activities, specially as many of the formal programs cause problems with family, time and transport.

The answer is thus for the individual or qualified others to develop a number of independent study packages with a self-test or comprehensive examination. These types of programs make education more accessible to the rural population.

Distance learning provides for easier accessibility to education, where the student can work at his own pace, at his own time and does not have to ask time off from work [Robinson, 1984 : 100].

Distance education is very cost-effective and it can be employed to teach adults, who because of responsibilities of work and family, are not able to study full-time [Van Bogaerde, 1987 : 9].

The programs are flexible, accessible, and cater for a variety of needs.

An open curriculum system is one that incorporates an educational approach designed to accommodate the learning needs and career goals of students, by providing flexible opportunities for entry into and exit from the educational programs and by capitalising on previous relevant education and experience [Lenburg, 1975 : 47].

These various forms of non-traditional education are not inferior or lower in standard to formal education.

In the system of non-traditional education, standards are set, objectives are formulated and, as in any other system, it is the function of the administrator to ensure that a high standard is maintained [Lenburg, 1975 : 35].

Most forms of non-traditional learning rest on the principles of adult education and therefore presumes an independent learner. The characteristics of a student who will successfully use independent study include the ability to perceive worthwhile things to do, to personalise learning and to be able to exercise self-discipline. The learner must make use of human and material resources and produce results in striving for improvement [Lenburg, 1975 : 24].

Nurses must be taught concepts into which the many realities they encounter can fit and in which the multiple phenomena can be analysed.

It is obvious that staff development facilities need to be diverse. In order to fulfil such a diverse role, a multi-faceted staff development organisation could provide all the necessary resources.

3.5.4. Advantages of a staff development organisation.

There are numerous reasons for utilising such an independent staff development organisation.

One of the purposes of creating a private staff development organisation is to have mutual sharing of resources and thus a reduction in the duplication of staff development programs.

This will lead to cost containment of educational programs and more efficient use of the money spent on education [Stetler, McGrath, Everson, Foster, + Holloran, 1983 : 23].

Stetler, et al. [1983 : 27] mentions advantages such as the increased scope and variety of staff development offerings which will be available, as well as an increase in the number of specialised courses. There would be a greater opportunity to free the staff to attend the courses and for the staff to interact with peers for professional socialisation.

Although Walljasper, Hash, + Donlea [1984 : 191] advocate similar advantages of a private staff development organisation, they add that such an organisation could offer better prepared teaching staff, and there could be more recognition and support from the larger community than the individual organisation could offer. There would be an opportunity to respond in a more meaningful way to nurses' educational needs.

Lenburg [1975 : 75] again emphasises the flexibility and individualisation of time frames, program choice and content, which is so important to fulfil the educational need of the nurse.

If the employer has limited resources, the individual hospitals should be able to offer the basic educational facilities such as an orientation program according to the requirements of the staff in the institution. For any other staff development requirements, the hospital can then approach a private staff development organisation, a university or nursing college. These organisations can then supply the facilities (human and material) for formal and informal staff development programs.

3.5.5. Problems with utilising a staff development organisation.

There are problems which could arise with the utilisation of staff development organisations. Some of these may be similar to those encountered in any staff development program. There are however a number of added problems.

If programs are to be used in more than one institution, there will be a need for increased sophistication and variation in the program, depending on the type and size of the hospital.

If the program is to run in a centralised place, there may also be family and social commitments which will prevent the staff from attending the staff development programs. Distance from the hospital or home may also play a role in discouraging people from taking part in the programs.

Financial problems within the individual institution may present problems. Staff development will be one of the first areas which will suffer if hospitals have to cut costs [Stetler, et al., 1983 : 23].

Stetler, et al., [1983 : 27] also identify problems with this type of organisation if there are differences in the sizes of the participating hospitals. This may lead to an inequality of exchange, a problem with the control of combined funds and an unequal number of nurses from each hospital participating in the program.

These problems can however be minimized with the establishment of a multi-disciplinary multi-institutional committee, known as the staff development advisory committee.

This committee should have a clear structure and their powers and functions must be defined.

This committee should draw up the terms of agreement and ensure correct implementation of the programs.

3.5.6. Staff development advisory committee.

According to Popiel [1973 : 150] the function of an advisory committee is to investigate and then make recommendations for policies, provide communication between the institutions and the education agency, gather data re educational needs, maintain continuity of education programs and assist in the evaluation process.

A committee consisting of representatives of each of the institutions and the independent education agency should therefore be organised, so that a co-operative working agreement could be developed.

An informal network of communication and informal meetings initially contribute to smooth functioning. At a later stage the proceedings can and should be formalised.

The informal dealings will familiarise everyone with the new project which is there to benefit all concerned by using available resources and supplementing deficiencies.

The committee members increase in their usefulness if they know the objectives of staff development, are interested in their work and are readily accessible. They must have enough time available to serve on the committee and possess good interpersonal skills [Mellish, 1976 : 310].

The usefulness of the committee lies in the fact that the members can transmit information, improve the communication between groups, pool judgements and expertise and assist in the reaching of decisions [Mellish, 1976 : 314].

The committee must scan existing programs, as these can be used and if they are utilised, minimal preparation and cost will be involved. Available staff and educational resources or materials can also be used.

It all boils down to pooling of resources.

3.5.7. Administration of the staff development organisation.

The independent staff development organisation can be composed of a number of hospitals. Each hospital should have it's own teaching department, the size of which will vary according to the size of the hospital.

The teaching department of each institution, as well as of the independent staff development organisation needs an administrative infra-structure with :

- policies and procedures;
- facilities; and
- finance.

The policies and procedures governing the programs must be stipulated and the committee will play an important role in determining the initial and overhead structures.

Policies are made with regards to :

- * who is responsible;
 - * what formula will be used to determine the number of staff development posts and the minimum qualifications that are required for the posts;
 - * each person's responsibilities;
 - * the type of programs to be instituted and their repetition;
 - * attendance - voluntary or compulsory, and the number of hours per year;
 - * financing of the staff development process, as well as outside courses; and
 - * whether attendance will be a step in promotion.
- [Vermaak, 1982 : 9].

The facilities will include the human resources, instructors, teaching staff, support personnel, secretaries, and audiovisual staff.

The roles of other educators or staff in the teaching departments must be defined, the lines of communication must be clarified and the organisational support must be enlisted.

The teaching staff will be involved in the quality assurance program of the institution and in research [For the detail on quality assurance see chapter two].

The physical facilities are the time, classrooms, audiovisual material, office, support systems and reference material [Mellish, 1976 : 340].

The finance of the venture is an important aspect which must be clarified.

The money used to finance education comes from varied sources in the health and hospital budgets. Indirectly it comes from the taxpayer and is canalised into the health services [Mellish, 1982 :42].

The source of funding can vary from internal funding such as departmental funds, or participant funds and thirdly external funds such as donations, grants, gifts, governmental funds and subsidies are also available [Alspach, 1982 : 69; Mellish, 1982 : 47].

Aspects that must be considered in the budgeting process are the independence of program budget, the income from course registrations, or the other benefits such as overtime pay or course attendance in on-duty time. The expenses include such things as payment for the instructors and the physical facilities.

Then the entire cost offset by the program must be considered [Alspach, 1982 : 68].

3.5.8. The role of the teaching departments.

There will be numerous affiliated hospitals in the private staff development organisation set-up.

The person responsible for education in each hospital could occupy any number of positions in the organisation, for example, sister-in-charge, clinical tutor, or staff development organiser.

Mellish [1976 : 578] recommends that all teaching programs within a specific institution should be the responsibility of one person, who can of course delegate, or sub-departments can be established.

The role of the person in-charge of the teaching department is the adventurer, mover, actor, prophet, facilitator, student, delegator, specialist, compassionate peer and evaluator [Popiel, 1973 : 147]

The job title and position may vary, but the mandate, which is to provide an effective process of educating critical care nurses so that they possess the knowledge, skills and attitudes required for safe, competent, and effective nursing practice in the intensive care unit, remains the same [Alspach, 1982 : 3].

The educator must have educational and administrative knowledge of the specific organisation.

For staff development programs to be effective, the administration of the institution must support the programs and therefore the education staff must be aware of the administrative structure of the institution.

For the educational staff to effectively plan and implement staff development programs, they must be adequately prepared in educational methods.

The function of the staff developer is to guide the staff in the learning process, assist with appraisal, encourage activities that promote learning and stimulate thought. She is teaching the learner to learn [Cooper, + Hornback, 1973 : 104].

The role of the staff development personnel is to provide leadership in the education process, identification of needs, motivation of participants, implementation of programs and evaluation, as well as projecting and implementing the budget [ANA, 1976 : 7].

The staff developer must be an expert in her field, have in-depth knowledge and clinical expertise, as well as a broad knowledge base of current developments in nursing. She must be skilled in working with adults and have a concern for people.

The other important attributes of a staff developer are flexibility and creativity.

She must also accept the responsibility for her own continuing education [Cooper, + Hornback, 1973 : 108].

In order to implement a new educational structure for staff development, the teaching personnel must make a checklist of their requirements and these include :

- a written philosophy;
- written policies and procedures;
- goals and objectives;
- written mechanisms for budget development;
- documentation of the outcome of the need assessment;
- format;
- implementation strategy; and
- documentation of attendance.

[Alspach, 1982 : 44].

3.5.9. Concepts of a private staff development organisation.

The concepts of a private staff development organisation embodies the characteristics of adult education. It should therefore allow for multi-faceted programs which cater for individual needs of the different learners at different times.

The organisation should present a flexible open-system program to allow for family and social commitments of learners.

The 'teachers' in this organisation should be facilitators of learning rather than givers of information.

The organisation should through the process of curriculum design utilize various techniques with the emphasis on self-directed learning.

The organisation should thus be able to cater for a very diverse group of people.

3.5.10. Conclusion.

Staff development aims to produce registered nurses capable of providing the nursing art and science component of critical care, with competence based on knowledge and skill, with understanding, judgement and humanity.

There are fortunately some nurses who are self-directed in obtaining education, while others rely heavily on the service institution for assistance [Alspach, 1982 : 11].

As long as the service predominates, education will not be of the high standard it should be and therefore in the end, the service will suffer [Mellish, 1982 : 47].

Education and service have the same philosophy, and aim at high quality patient care, but they have different orientations towards the service they render and therefore conflict arises. Education is future oriented and the service has its emphasis on the present. With negotiation and co-operation, both can benefit [Alspach, 1982 : 12].

The benefits of co-operation between service and education, are that more realistic and up-to-date goals are set for patient care, more appropriate standards are set and the educational programs will be more relevant to the work situation.

There will be more competent clinical instructors who have the knowledge of both the theory and practice, and therefore there can be greater reinforcement of the classroom instruction and transfer of learning to the clinical situation.

A result of this co-operation between education and service will lead to an improved work environment, increased staff morale and a sense of self-satisfaction and achievement and there will be greater team effort [Alspach, 1982 : 12].

The advantage of an open, non-traditional model of learning is that it enables advanced placement of applicants, the curriculum can be adapted to the characteristics of the individual student and can allow entry and exit at various points. The program awards academic credentials solely on the basis of performance [Lenburg, 1975 : 131].

The need to maintain clinical proficiency is a strong stimulus to seek meaningful and continuous learning experiences.

3.6. Chapter conclusion.

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Staff development aims to continuously improve the individual by self-development and increasing productivity, and thus improving patient care.

Quality assurance is the basis or origin of staff development as it highlights the educational needs.

In South Africa where there are so few quality assurance programs available, it would not be wise to wait for the establishment of fully functioning quality assurance programs before commencing with staff development.

The researcher therefore advocates that quality assurance programs be developed, but that staff development be started at the same time, until such time as staff development follows out of the quality assurance process.

The evaluation instruments used in the staff development programs can later be incorporated into the quality assurance process.

Staff development assists individual nurses in achieving and maintaining competence and realising their potential as it relates to the objectives of the hospital and nursing practice. They can thus strive to meet the standards as set by the profession and the organisation [Sovie, 1980 : 38].

CHAPTER FOUR

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Research design

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4.1. Identification of the problem.

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There is an increasing demand for acute health care services in the Republic of South Africa and the State can no longer provide all the services required. The State can also not accommodate the increasing cost of training the nursing staff for these various health services. Recent political and economic statements in South Africa have therefore emphasised the need for an increased contribution from the private sector [Spier, 1982 : vii; Roux, 1984 : 17; Van Huyssteen, 1984 : 10; Thomson, 1984 : 17].

There are private hospitals in the Republic of South Africa and a large proportion of these private institutions are in the metropolitan areas. Of the forty-two (42) private hospitals in the Republic of South Africa, which provide acute and high care facilities to the public, sixteen (16) are situated on the Wiatersrand [Engelhardt, Ed. 1985 : 85].

The nursing staff cannot work effectively and efficiently in specialised areas such as intensive care units, without the necessary preparation, be it in-service education or more formal training in intensive care nursing [Lahiff, 1984 : 27; EDNA, 1983 : 87].

Staff development programs are thus a response to attain and maintain the competence of the staff in order to supply a high quality service to the public.

Some research reports have shown that the quality of patient care is higher in hospitals where there are training programs for the staff, compared to those institutions where there are no educational facilities available to the staff [De Villiers, 1974 : 17].

Pera [1985 : 13] found that managers in the private sector have neglected the aspect of staff development in their hospitals.

From discussions with colleagues at seminars and informal contact with the nursing staff in the private

institutions, the researcher has reached the conclusion, that there is a lack of educational facilities in these private institutions.

4.2. Statement of the problem.

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In the Republic of South Africa the nursing profession is faced with rapid privatisation of the health services.

The question can be asked whether the private sector will provide adequate staff development programs for the nurses working in these hospitals and especially in the intensive care units, to provide a quality nursing service.

There is evidence of the lack of staff development facilities in the private institutions and at the same time it can be assumed that the quality of patient care is dependent on the educational level of the staff and the frequent updating of their knowledge.

It is therefore necessary to establish the actual need for staff development and to devise methods to supply staff development programs to the nurses in the private sector in a cost-effective manner.

The private sector must play a more active role in sharing some of the functions and responsibilities which have traditionally been carried out by the public sector and one of these functions is an educational contribution for the nurses in the private hospitals.

4.3. Statement of the purpose.

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To be able to solve the problem, the purpose of this study is :

TO DETERMINE THE EDUCATIONAL NEEDS OF THE STAFF IN THE INTENSIVE CARE UNITS, IN ORDER TO DEVELOP A STAFF DEVELOPMENT MODEL FOR THE NURSING STAFF IN THE PRIVATE HOSPITALS.

The purpose of the research project gives rise to the following objectives, namely to :

- do a baseline situation analysis of the activities carried out in the intensive care units;
- determine the educational needs of the staff;
- formulate a model for staff development;
- implement a part of such a program; and
- evaluate the outcome of the corrective action.

4.4. Research methodology.

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4.4.1. Introduction to the research design.

A problem has been stated and it has been translated into the purpose of this research project. As this is a practice related problem, the research will be applied research.

To meet the unique research needs of this project, a quantitative research design was chosen which consisted of descriptive, explanatory, exploratory and predictive research.

The descriptive part of the study, the situation analysis, is designed to gain information about the particular field of study, that is, the nature of the actual nursing care given by the nurses in the intensive care units in private institutions. The purpose is to provide a picture of the situation as it naturally happens and therefore factors are identified and described [Burns, + Grove, 1987 : 26; Treece, + Treece, 1977 : 5].

The explanatory aspect of the research aims at clarifying the relationship amongst the phenomena. In this case it is the explanation of the educational needs of the staff in terms of the patient care needs. There is an element of correlational research, the examination of the relationship between the variables of patient care and educational needs [Burns, + Grove, 1987 : 63].

The third aspect of the research is exploratory, in that little is known about the field and therefore the research design must be flexible and adaptable as the situation is explored. It is only once the situation analysis has been done that the educational needs of the staff can be explored or investigated.

The final part of the research design in this study is predictive, proposing a similar model for other fields of nursing [Burns, + Grove, 1987 : 241 - 253; Polit, + Hungler, 1978 : 23; Seaman, + Verhonick, 1982 : 15; Treece, + Treece, 1977 : 5].

This research design is also quasi-experimental in that relationships are identified and clarified, and predictions can be made. The purpose of quasi-experimental research is thus to examine cause-and-effect relationships [Burns, + Grove, 1987 : 66].

In figure 4.1 the steps involved in the research design of this study are illustrated.



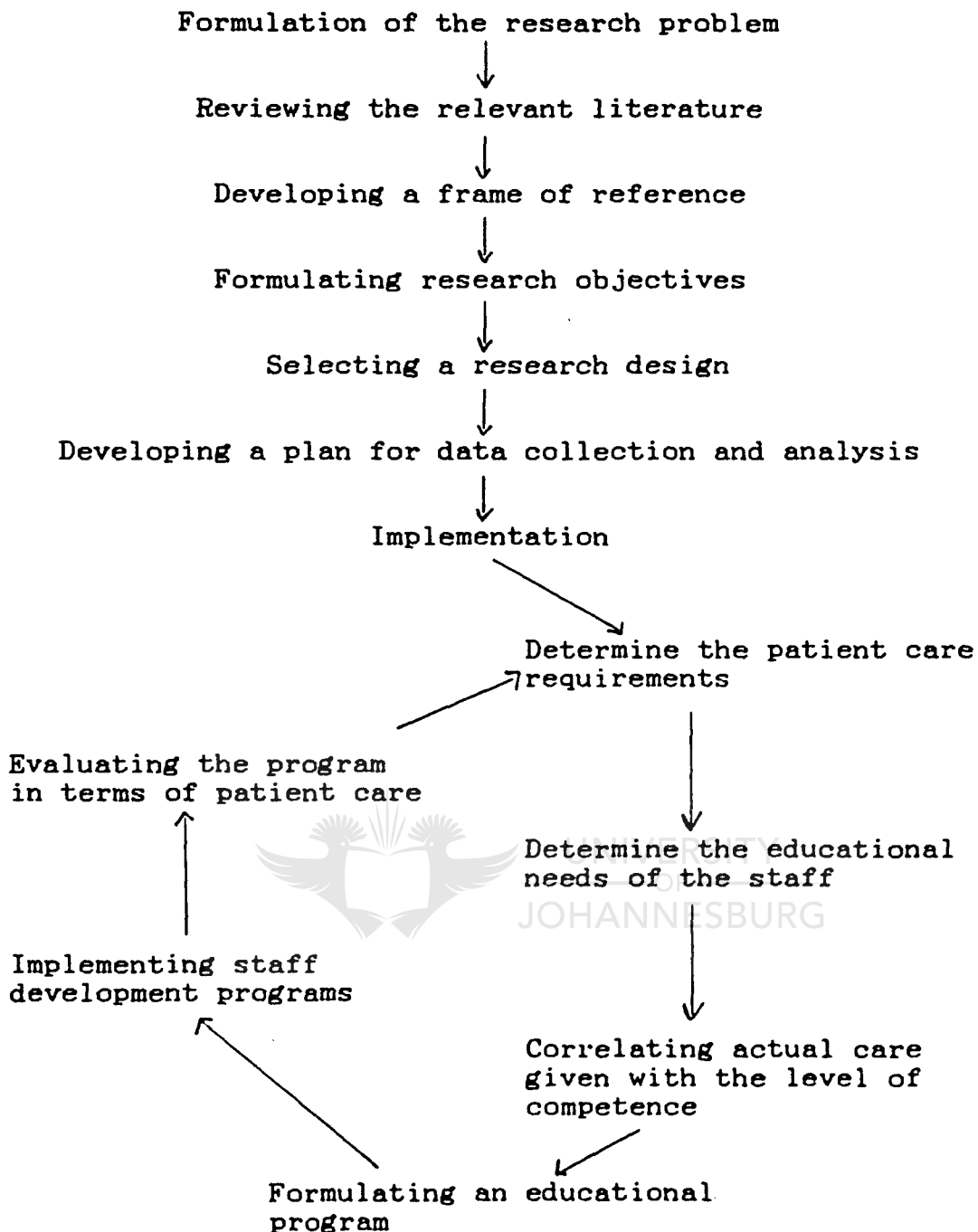


FIGURE 4.1. Model of the research design for the study.

The research design takes the form of the systems approach, where there is an input (the educational level and competence of the staff), throughput (the educational program) and an output (the increased

knowledge and competence of the staff) [Stevens, 1980 : 277].

4.4.2. Research method.

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In order to reach the objectives of the research design, various methods were used.

4.4.2.1. Literature survey.

A literature survey conducted to determine the theoretical background was concerned with the selected research problem. Thus the researcher gained a broad background and understanding of the information available.

The purpose of the literature survey was also to clarify the research topic and problems, and identify relevant theories and studies. The literature survey assists in selecting a research design and identifying the instruments required to collect the data. Finally, the literature survey was useful in processing and interpreting the findings [Burns, + Grove, 1987 : 5 + 127].

The available local and overseas literature was studied with special reference to quality assurance and staff development.

The literature survey therefore covers an overview of :

* Quality assurance

Nursing care is based on satisfying the human needs of the patients by implementing the scientific method of nursing.

Quality assurance involves assessing the quality of care provided. The actual care given is evaluated against set standards which are an important basis for the quality assurance process. Quality assurance monitoring included performance appraisal and chart audit.

Quality assurance is not only a system of measurement, it is also a method of initiating corrective and remedial action. One of the methods in this corrective process is staff development.

* Staff development

Staff development rests on the needs of the staff and the organisation to improve the quality of nursing care rendered. In order to meet these needs, relevant and appropriate programs must be developed, which will be diverse in format and content.

The underlying principles of adult education, as well as of teaching and learning are adhered to in the development of the curricula.

For the staff development programs to be effective, the entire staff development process must be evaluated.

4.4.2.2. Situation analysis.

A situation analysis was done :

- to identify the activities; and
- to establish the competence of the staff.

There are forty-two (42) private hospitals with intensive care or high care facilities in the Republic of South Africa. Of these forty-two (42) hospitals, sixteen (16) are situated on the Witwatersrand. There are twenty-thousand-and-two (20002) beds in all the private hospitals and nine-thousand-nine-hundred-and-seventy-one (9971) of these beds were situated in the private hospitals on the Witwatersrand. The three (3) companies who own the majority of the private hospitals, also own institutions on the Witwatersrand. It was for these reason that the research population was delimited to the Witwatersrand area, as it should be representative of the private hospitals of the entire country.

4.4.2.2. (a) Population.

The population consisted of the private institutions on the Witwatersrand and the nursing staff working in the intensive care units in these institutions.

4.4.2.2. (b) Sample.

4.4.2.2. (b)i. Institutions.

According to the South African Hospital and Nursing Yearbook [Engelhardt, Ed. 1985 : 85] there are sixteen (16) private institutions on the Witwatersrand with intensive care units or specialist facilities for intensive care.

The population thus included all the managers and matrons of these private institutions and the nursing staff working in the intensive care units of these institutions.

The top management (managers and matrons) of these sixteen (16) institutions were approached by letter for permission to do the proposed research in their hospital [See annexure Q for a copy of the letter].

There were thirteen (13) replies from the matrons or managers.

The matrons of two (2) of these institutions replied that they only had a high care area and not an intensive care unit.

These institutions were thus excluded from the study.

Three (3) institutions did not reply and one (1) refused permission. These four (4) institutions were also eliminated.

The number of institutions finally included in the research was ten (10).

Table 4.1. shows the number of institutions where permission to do the research was granted and the results were then converted into percentages.

Table 4.1. Permission granted and frequency of return rate.

	Number	Percentage
Institutions approached	16	100
Total	16	100
Replies / Returns	13	81.25
No reply	3	18.75
Permission granted	10	62.5
Permission refused	1	6.25
No intensive care units	2	12.5
Total of replies	13	81.25

The sample for this research therefore included the ten (10) institutions where the managers or matrons had granted permission for the research to be carried out.

According to Burns + Grove [1987 : 216] this sampling technique could be called accidental sampling or incidental sampling.

Although the return rate was 81.25 percent (13 institutions), only ten (10) institutions granted permission. This means that the sample comprises 62.5 percent of the original number of institutions that were approached.

Looking at it from a different point of view, of the thirteen (13) replies, ten (10) or 76.92 percent gave permission and were thus included in the study.

Table 4.2. gives the number of beds in each of the institutions included in the research and the number of beds in their intensive care units.

Table 4.2. Total number of beds in each hospital and the number of beds in the intensive care units.

Hospital	Total no. of beds	No. of ICU beds
A	281	6
B 1	204	14
B 2		6
D	206	6
D 1	200	5
D 2		6
E	204	5
F	133	6
G	103	6
H	298	4
I	210	5
J	121	4

The number of hospital beds was obtained from the South African Hospital and Nursing Yearbook [Engelhardt, Ed. 1985 : 85] and personal enquiry at the institution where the information was not in the South African Hospital and Nursing Yearbook.

As can be seen from table 4.2., the size of the institutions varied from one-hundred-and-three (103) to two-hundred-and-ninety-eight (298) beds and the number of beds in the intensive care units ranged from four (4) to twenty (20) beds per institution. Two (2) of the institutions had two (2) intensive care units, and thus the total number of intensive care units included in the study was twelve (12).

4.4.2.2. (b)ii. Nursing staff working in the intensive care units.

Not only were the institutions and the intensive care units part of the study, but the nursing staff working in the intensive care units formed a second aspect of the population.

At the time of the study there were one-hundred-and-five (105) permanent nursing staff members working in the various intensive care units and they were all included in the study.

Seventy-three (73) of the nursing staff returned their questionnaires, thus there was a return rate of 69.5 percent.

Of these seventy-three (73) nurses, sixty-eight (68) were registered nurses and the other five (5) were sub-professionals.

The return rate of the questionnaires is shown in table 4.3 and as can be seen, nursing staff from all the hospitals returned questionnaires, with the lowest return rate being 50 percent.

Table 4.3. The number of questionnaires issued and returned, and percentage of returns from the nursing staff.

Hospital	Number issued	Number returned	% return
A	10	6	60
B 1	8	6	75
B 2	8	8	100
C	9	7	77.8
D 1	8	4	50
D 2	12	6	50
E	7	5	71.4
F	12	9	75
G	8	5	62.5
H	10	7	70
I	4	3	75
J	9	7	77.8
Total	105	73	69.5

4.4.2.3. Data collection instruments.

The questionnaire was selected as the method for collecting the data for the situation analysis. Two (2) questionnaires were used, an 'Activity Questionnaire' and a 'Competence Questionnaire' [See annexure B and G].

The advantages of using a questionnaire is that it is a simple method of obtaining data and it is less time consuming than many of the other methods. The other advantage is that the respondents remain anonymous [Treece, + Treece, 1977 : 182].

The information obtained from a questionnaire is very similar to that of an interview, although it has less depth. This was not a drawback in this study because no discussion was required in either of the two questionnaires.

The questions were presented in a consistent manner and all the questions were closed-ended.

There are of course disadvantages to the use of the questionnaire, and they include that the respondents can omit items or that they are forced to make choices which may be inappropriate. Further drawbacks are that the items can be misunderstood or that the subject does not return the questionnaire [Treece, + Treece, 1977 : 182].

The questionnaires were carefully structured and tested for validity (content and face validity) and reliability (equivalent tests) [See 4.4.2.3. (a) and 4.4.2.3. (b)].

4.4.2.3. (a) 'Activity Questionnaire'.

The 'Activity Questionnaire' determined the frequency with which the various activities were carried out by the nursing staff in the intensive care units and was used as a checklist.

This questionnaire lists all the nursing care activities used in an intensive care unit, and includes both direct and indirect patient care activities.

The questionnaire was designed by Richardson [1985 : 35] and tested for reliability by equivalent testing by Dannenfeldt [1986a : 15]. The Kuder-Richardson reliability test was not used. The validity was tested for content and face validity by a group of nurses working in intensive care [Dannenfeldt, 1986a : 15].

* Composition of the questionnaire

The 'Activity Questionnaire' included seventy-eight (78) activities, placed in ten (10) groups to facilitate completion by the nursing staff.

The ten (10) groups covered nursing activities used in accommodating for the patient's altered level of consciousness; general nursing activities; ensuring the patient's hygiene; supplying nutrition; doing observations; performing minor treatments; care of the patient's ventilation; administration of medication; care of intravenous therapy; and peri-operative care. [For detail of the entire questionnaire see annexure B].

The following extract from the 'Activity Questionnaire' illustrates some aspects of the observations done by intensive care nurses.

Activity	Day							
	1	2	3	4	5	6	7	8
Pacemaker obs.								
N/G measurement								
Chest drain obs.								
IABP monitoring								
Take ECG								

Richardson [1985 : 35] and her group of experts in intensive care nursing allocated scores to each activity depending on the degree of skill required to perform the specific activity. This score allocation was validated (content and face validity) by nurses working in intensive care units [Dannenfeldt, 1986a : 15].

By means of the scale given below, the appropriate level of skill was allocated to each activity [Annexure C].

The scale ranges from one (1) to five (5), where for example, five (5) refers to an activity where the level of skill required for doing the activity is equivalent to the skill of a professional nurse who is also trained in intensive care nursing.

Scale : 5 = intensive care trained professional nurse
 4 = professional nurse with 1 year experience in intensive care
 3 = professional nurse with 6 - 12 months intensive care experience
 2 = professional nurse with less than 6 months experience in intensive care
 1 = nursing assistant

* Distribution of the questionnaire

The sister-in-charge of each of the different intensive care units was given a short in-service education session by the researcher, so that they could be the supervisor of the project in their units.

The questionnaires were then distributed to the various intensive care units by the researcher.

A copy of the questionnaire was put next to every bed in the various intensive care units and all the activities carried out for the patient occupying the specific bed were recorded. The recording was done by means of a tick or a number written in the column next to the specific activity under the corresponding day.

The project continued for fourteen (14) days, where a day was from 07h00 on the one day to 07h00 the next morning.

The following is an extract from a completed questionnaire.

Activity	Day + Frequency				
	1	2	3	4	5
Pacemaker obs.	5	3	3	3	
N/G measurement	8				
Chest drain obs.					
IABP monitoring	24	12	12		
Take ECG	4	4	4		

The researcher visited each unit once (1), that is one (1) hour per unit, during the fourteen (14) day period and also telephoned twice (2), that is twenty (20)

minutes per unit, to enquire whether there were any problems. There were no obvious problems.

The researcher collected the questionnaires after the fourteen (14) day period.

* Analysis of results

The analysis of the results was done as follows :

- * Each of the twelve (12) units was treated separately.
- * The total number of times each activity was carried out over the fourteen day period was calculated [For detail of the analysis see chapter five].

An extract from a completed 'Activity Questionnaire' where the totals have been computed, is given as illustration.

Activity	Day + Frequency					Total
	1	2	3	4	5	
Pacemaker obs.	5	3	3	3		14
N/G measurement	8					8
Chest drain obs.						
IABP monitoring	24	12	12			48
Take ECG	4	4	4			12

- * Each activity was then placed in a category according to its allocated skill level score on the scale from one (1) to five (5). [See annexure C for detail of skill allocation].
- * The total number of activities falling into the five (5) score categories was then computed [See chapter five].

An example of the totals of the 'Activity Questionnaire' according to the skill level of the activity is given.

Activity	Total	Skill Score				
		1	2	3	4	5
Pacemaker obs.	14				14	
N/G measurement	8		8			
Chest drain obs.						
IABP monitoring	48					48
Take ECG	12		12			

* The totals of the ten (10) categories were then expressed as percentages of the entire number of activities carried out in order to facilitate comparison [See annexure E].



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4.4.2.3. (b) 'Competence Questionnaire'.

The next step was to hand a questionnaire to each member of the nursing staff in the units, to determine their level of competence in carrying out the nursing care as evidenced in the 'Activity Questionnaire'.

* Composition of the questionnaire

The 'Competence Questionnaire' was designed to ask for :
- biographical data, and
- to what extent the staff saw themselves as competent in carrying out the various activities.

* The biographical data formed the first part of the questionnaire using direct measurements.

The biographical aspect of the questionnaire was drawn up from previous studies by Clarke [1985 : 48], Arneson [1985b : 13], Chesney, + Beck [1985 : 40] and American Association of Critical-Care Nurses [1986 : 41] and was therefore not tested for reliability and validity.

Some of the biographic scales were nominal scales, where the categories are mutually exclusive and collectively they are exhaustive [Treece, + Treece, 1977 : 259].

For example :

Sex : Male
 Female

Ordinal scales were also used where the variables were placed in a specific order, for example, age in years.

Interval scales were used, where the variables are in a specific order and also where there is an equal interval between each unit of measurement [Treece, + Treece, 1977 : 259].

For example :

Age in years : 21 - 25
 26 - 30
 31 - 35

* The second part of the questionnaire measured abstract aspects and the questions were thus indirect measures.

This part of the questionnaire dealt with the competence of the staff, and was devised by using the questions from the activity scale, which were then grouped according to the categories used in the 'Scope of Practice for Registered and Enrolled Nurses' [South African Nursing Council : 1984].

The scale used is an adapted form of the semantic differential, where values are assigned from one (1) to five (5), in this case, each number referring to a specific positive or negative response.

The person had to give herself a score between one (1) and five (5), where one (1) meant she was not competent and five (5) referred to excellence in carrying out the procedure.

The scale which was used is as follows :

- 0 = not applicable, do not use the activity in the unit
- 1 = not competent at all
- 2 = can only carry out the procedure poorly
- 3 = can do the activity fairly well
- 4 = competent in carrying out the procedure
- 5 = can carry out the procedure with excellence

The questionnaire was tested for validity and reliability at a provincial hospital in 1986. The questionnaire was given to twenty (20) nurses working in the intensive care units. The questionnaire was then discussed and questions which were not clear were reformulated. Thus the re-test and equivalent tests for reliability were done. The content and face validity was tested. This research project was not published [Dannenfeldt, 1987].

The following is an extract from the 'Competence Questionnaire' [For detail of questionnaire, see annexure G].

How well can you execute the following nursing regimes?

Activity	Score
N/G feeding	
Changing tracheostomy tubes	
Setting up a ventilator	
Doing CPR	
Doing an ECG	

* Distribution of the questionnaire

The questionnaires were personally distributed by the researcher to the nursing staff in the various intensive care units and the completed questionnaires were collected by the researcher after a two (2) week period.

* Analysis of results

The biographic data was analysed as follows :

- * The response rate for each item in the biographic questionnaire was computed and a frequency distribution for every question was drawn up.
- * Statistical correlations, by means of a linear regression was done between certain items of the biographic questionnaire (independent variable) and the competence scores (dependent variable).

The items used in the linear correlation were age; nursing registration and qualification; time lapse since completion of basic training; period of time in

present position and the frequency with which professional journals are read [For detail of the linear regressions see 5.6].

The competency scores were analysed as follows:

- * The number of people who scored themselves between zero (0) and five (5) for each of the questions were added up.

The following is an extract from a completed 'Competence Questionnaire'.

How well can you execute the following nursing regimes?

Activity	Score
N/G feeding	5
Changing tracheostomy tubes	1
Setting up a ventilator	NA

- * The responses from all seventy-three (73) respondents were then totalled.

The following is an extract from the 'Competence Questionnaire' giving the different perceived competence levels.

How well can you execute the following nursing regimes?

Activity	Score					Tot	
	0	1	2	3	4		5
N/G feeding		6		8	25	34	73
Chang. trachy. tubes		18	28	12	10	5	73
Setting up a ventilator							

Where the totals did not add up to seventy-three (73), the individuals did not score themselves on that specific item.

- * The number of nurses trained in intensive nursing care, were separated from the nurses who had no intensive nursing care training. There were forty-five (45) intensive care trained sisters out of the

total seventy-three (73) respondents [See annexure I for these results].

- * The population was divided into two (2) groups, those nurses who were trained in intensive care and those who were not. These two groups were compared with regards to the frequency with which they scored four (4) and five (5) for the various activities.
- * These results were converted to percentages to make comparison possible [See chapter five for the analysis of the results].
- * These subscales were created to measure the competence of the nursing staff in different aspects of nursing care activities.
To determine the validity of these subscales, the statistical method of principle factor analysis was applied.

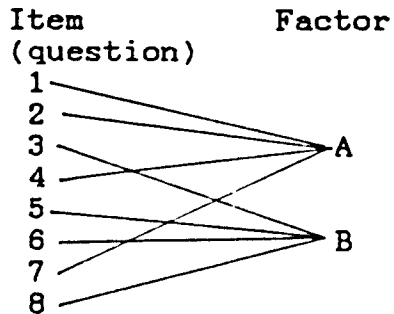
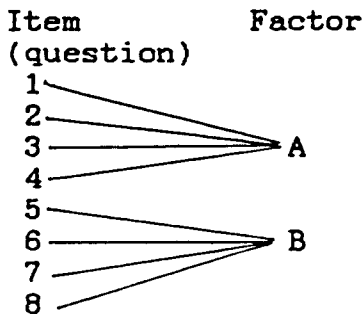
The factor analysis is used in order to obtain common factors amongst the items of each question.

In doing a factor analysis a better representation of what is being measured is brought forward, for example, instead of the original eight (8) items in a question, the factor analysis will determine if these items are measuring similar aspects and the eight (8) variables will possibly be grouped into one (1) or two (2) common factors.

Model of a factor analysis :

Example 1 :

Example 2:



The advantage of a factor analysis is to obtain a better measurement of a specific aspect than would be the case if only subscales were used.

Only the questions with two (2) or more items were used, therefore there were ten (10) frequency distributions to which the factor analysis was applied.

The sample for the factor analysis consisted of sixty-eight (68) registered professional nurses.

The five (5) non-professional nurses included in the original sample were excluded in the factor analysis.

The cumulative proportion of variance in the data space is reported in 5.4 .

The total variance is defined as the sum of the positive eigen values of the correlation matrix.

4.4.2.4. Correlation of the 'Activity Questionnaire' and the 'Competence Questionnaire'.

* The data of the situation analysis (Activity Questionnaire) and of the competence level of the staff (Competence Questionnaire), were related. The two sets of data were placed next to each other for comparison. No statistical methods were applied.

* The raw scores would have been meaningless and therefore the scores were converted to percentages.

The percentage for each activity was calculated as a percentage of the specific group in which the activity was found.

For the 'Competence Questionnaire', the percentage was calculated from the total seventy-three (73) respondents [For the detail of these results see chapter five].

* The results of the factor analysis on the 'Competence Questionnaire' (dependent variable) were correlated in a statistical linear correlation with five (5) aspects of the biographic data (independent variable). A multiple linear regression was done to obtain the multiple relations between every aspect of the predictors.

For example, a linear regression was done between the age of the respondents and the competence level in order to determine whether age has an effect on competence [For detail of these correlations see 5.6].

For each of the correlations, the statistical significance for the 0.05 level was determined, where $PR |T|$ is less than 0.05 [See 5.6].

The estimate was reported. That is the higher the value of the estimate, the stronger the effect of the

independent variable on the dependent variable, therefore the stronger the correlation.

The R-square value is reported for each of the dependent variables.

There were cases of discrepancies between the frequency of activity and competence, as well as a poor correlation between the dependent and independent variables.

These discrepancies were identified as deficiencies requiring remediation. This implies that an educational program could improve the correlation between the activities and competence.

4.4.3. Planning a staff development program.

In relating the frequency with which activities are executed and the competence of the staff, there would possibly be areas of discrepancies, for example, where an activity is performed frequently, but the staff is not competent to perform that activity.

Two (2) such areas of discrepancies were identified. They were 'cardio-pulmonary-cerebral resuscitation' and 'physical assessment'.

An educational program was planned to remediate in these two areas and the programs were implemented.

The design on which these staff development programs were based was the 'One-group Pretest - Posttest' design. This is a frequently used design as it gives the researcher some control, and only one experimental group is needed, thus no control group has to be selected. The findings are then a comparison between the pretest and posttest scores.

The design is simple :

pretest → treatment → post test

[Burns, + Grove, 1987 : 257]

4.4.3.1. Educational program on 'Cardio-pulmonary-cerebral resuscitation'.

The educational program consisted of a lecture and demonstration on cardio-pulmonary-cerebral resuscitation [For the outline of the program, see annexure K].

The lecture and demonstration for cardio-pulmonary-cerebral resuscitation was given to fifty-seven (57) participants, who subscribed to the course, on four (4) different occasions in November 1987.

The test for the cardio-pulmonary-cerebral resuscitation program was selected from an existing examination instrument. The instrument was tested for reliability and validity by the authors [Rambo, + Wood, 1982 : 563]. The test was selected because it measured the same aspects which the researcher wanted to measure and the process of administering the instrument was feasible, as it consisted of twenty (20) multiple-choice questions and the participants could fill in the questionnaire easily.

The same test was used as pre- and posttest [For the entire test see annexure J].

The following is an extract from the test on 'cardio-pulmonary-cerebral resuscitation':

9. Following cardiac arrest, the clinical signs of death are seen within :

- a. 20 to 40 seconds.
- b. 1 to 2 minutes.
- c. 2 to 4 minutes.
- d. 4 to 6 minutes.

The results from the pre- and posttest were added up individually and then compared [For detail of the results see chapter five and annexure L].

4.4.3.2. Educational program on 'Physical assessment'.

A series of lectures on the method of physical assessment were given to twelve (12) participants who subscribed to the course in November 1987 [For the outline of the program see annexure O].

The instrument for the physical assessment program was developed by the researcher and tested for reliability

and validity by a group of experts (six (6) professional nurses who had lengthy experience in the clinical field of intensive care nursing) at a seminar, in Johannesburg in July 1987. The instrument was discussed and corrected.

The instrument was initially developed for use by the researcher for observing the participant while actually doing a physical assessment on a patient on admission to the unit. The strategy was however altered and after a short briefing, the questionnaire was given to the individual participants of the course to evaluate themselves.

The instrument (questionnaire) was completed before and after the program, that is it was used as pre- and posttest.

The following is an extract from the questionnaire on 'Physical assessment'.

PHYSICAL ASSESSMENT

The nurse must be able to :

Activity	Score
Ensure the patient's safety and comfort	
Palpate the relevant body areas	
Complete the record	

The results of the pre- and posttest were calculated separately and then the two sets of data were compared [For detail of the results see chapter five and annexure P].

These two programs form part of the entire staff development model which is proposed in chapter seven.

4.4.4. Design of a staff development model.

In the design of the model for staff development, the curriculum cycle was followed.

The initial step was to do a situational analysis by means of a checklist to determine the activities which were performed in the intensive care units and secondly

a questionnaire was handed out to determine the competence of the staff.

This culminated in a need analysis which is similar to a quality assurance program which will give rise to the educational needs of the staff.

The formulation of learning objectives is directly dependent on the needs which were highlighted.

The next step in the curriculum cycle was determining the learning experiences, opportunities and the course content.

The selection of these aspects was based on the principles of teaching and learning, as well as the principles of adult education.

To complete the cycle, the entire program must be evaluated.

Instruments were developed to assess the competence of the staff or to evaluate their knowledge after the completion of the staff development program.

A structure was designed to incorporate all the various types of private institutions or private nurse practitioners, who all have a need for staff development.



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4.5. Limitations and shortcomings in the research.

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* The 'Activity Questionnaire' was only done over a period of fourteen (14) days and there could thus be slight variations depending on different patient loads or patient types, as well as seasonal variations in disease pattern. From previous research [Richardson, 1985 : 35; Dannenfeldt, 1986 : 16], it is indicated that the sample can however be considered representative of the nursing activities in the various intensive care units.

* The 'Activity Questionnaire' emphasised the direct patient care activities and ignored the other areas of activities such as administration, education and research. The researcher however wanted to put emphasis on direct patient care.

* Self-scoring, as used in the 'Competence Questionnaire' can be subjective, but it gave the

researcher a good basis to work from with regards to areas of competence.

- * The 'Competence Questionnaire' was designed as an evaluation instrument for evaluating staff by observation, and not as a self-assessment tool. This could have made the results inaccurate. A factor analysis was however done on the items of the questionnaire and the validity of the instrument was proven.
- * The lack of quality assurance programs and standards to measure the performance of the participants against, reduced the objectivity of the evaluation.
- * The One-group Pretest-Posttest design does have the serious weakness in that the pretest scores do not serve the same function as a control group.

Another problem with this type of design is that events which occur between the pre- and posttest could alter the hypothesis. This was not the case with this research, as the pre- and posttest were only separated by the teaching/learning situation.

- * The multiple-choice questions in the pre- and posttest for the 'Cardio-pulmonary-cerebral resuscitation' program were in English, and most of the participants were Afrikaans speaking. This may have affected the results.
- * The size of the sample may be considered small, but it was felt that the sample was representative of the population. There are forty-two (42) private institutions in the Republic of South Africa with intensive care facilities and sixteen (16) of these are on the Witwatersrand.

4.6. Summary.

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The research commenced with a situation analysis of the activities in the intensive care units and the competence of the nursing staff.

On the results from the situation analysis, a linear regression was done.

The research design culminated in the analysis of the data and interpretations of the results which is done in detail in the next chapter.

This was done in order to design a staff development model for the nurse working in intensive care units in private institutions.

CHAPTER FIVE

=====

ANALYSIS OF DATA

=====

5.1. Introduction.

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In the previous chapter the research methodology was discussed and the data will be analysed in this chapter.

A survey of the activities which are carried out by nursing staff in intensive care units was done by means of a checklist, the 'Activity Questionnaire'.

The nursing staff were given a questionnaire, the 'Competence Questionnaire', in which they had to rate their competence in performing the various activities in the intensive care units.

The results of the 'Activity Questionnaire' were related to the results of the 'Competence Questionnaire'.

A statistical correlation between competence and various independent variables was also done.

Two (2) educational programs were developed and the results of the pre- and posttest are analysed here.

5.2. 'Activity Questionnaire'.

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The 'Activity Questionnaire' aimed at determining the activities which were carried out by the nursing staff in the various intensive care units.

Each of the twelve (12) intensive care units was treated as a separate entity. It emerged that, although the units were different, the general trend was the same and therefore the total score for all units is used to represent the entire group.

The total refers to the number of times each activity was carried out. These numbers were converted into percentages [For detail of all the results see annexure D and E].

The seventy-eight (78) items of the activity questionnaire were categorised into ten (10) groups to facilitate completion.

Table 5.1 summarises the frequency with which the activities occurred in each of the ten (10) groups, and then the total for each group is converted to a percentage of the total of all the activities.

Table 5.1. Frequency and percentage of occurrence of activities.

Activity category	Total no.	Percentage
Level of consciousness	782	2.02
General activities	492	1.27
Hygiene	6458	16.71
Nutrition	441	1.14
Observation	20242	52.37
Minor treatments	1749	4.53
Ventilation	3680	9.52
Medication	2934	7.59
Intravenous therapy	1418	3.67
Surgery	451	1.17
Total	38647	99.99

From the above table, it is obvious that the nursing staff spends most of their time (52.37%) doing observations, while the next most frequent (16.71%) activity was care of the patients' hygiene.

To make this information more meaningful, one must now look at the the level of skill required for carrying out the specific activity.

The actual frequency with which each activity occurred varied from unit to unit and therefore, the following table shows the data which is expressed as percentages [The actual values are given in annexure D and E].

Table 5.2 Summary of activities in the skill categories per hospital , represented in percentages.

Hosp	Score - Skill level				
	1	2	3	4	5
A	2.41	24.77	36.90	11.26	24.63
B1	1.52	10.72	43.99	27.64	16.11
B2	1.27	20.54	38.98	5.89	33.29
C	1.92	25.63	40.52	6.14	25.77
D1	4.28	26.81	30.89	7.99	30.00
D2	3.59	22.22	34.62	6.69	32.86
E	0.55	23.35	44.60	2.04	29.42
F	1.96	22.11	43.48	7.05	25.37
G	2.01	22.22	24.91	24.64	26.20
H	0.46	27.46	27.55	4.12	40.39
I	1.67	25.07	35.63	8.35	29.25
J	2.56	22.43	30.02	3.63	41.34
Ave.	2.02	22.78	36.01	9.62	29.56

From the above table it is evident that in most intensive care units, the majority of activities require a skill level of three (3).

There are two (2) units (J + H), where activities with a skill level of five (5) occurred most frequently and in three (3) units (D1, D2 + G), the activities were fairly evenly distributed between skill level scores of three (3) and five (5).

The results from the 'Activity Questionnaire' are very similar to the results obtained by Dannenfeldt [1986a : 16] for the various intensive care units in a provincial hospital. The distribution of the scores for the skill levels were virtually the same, that is, skill level one (1) occurred seldom and activities with a skill level of three (3) occurred most frequently.

5.3. 'Competence Questionnaire'.

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Each item of the 'Competence Questionnaire' will be analysed separately.

5.3.1. Number of questionnaire.

Each questionnaire was numbered and one-hundred-and-five (105) questionnaires were handed out [See table 4.1. for detail of return rate].

5.3.2. Hospital.

Ten (10) hospitals were included in the study. In two (2) of the hospitals there were two (2) separate intensive care units, therefore twelve (12) units are represented in the data analysis.

The units are numbered alphabetically from A to J, with hospital B and D having two units (B1 and B2, D1 and D2).

5.3.3. Type of intensive care unit.

Seven (7) of the twelve (12) intensive care units included in the study, were general intensive care units, while two (2) were surgical units, one (1) was a neurosurgical unit, one (1) was a medical unit and one (1) was a cardio-thoracic unit.

Forty-seven (47) of the seventy-three (73) respondents, worked in general intensive care units, see table 5.3.

Table 5.3. The number of respondents in each unit, according to the speciality of the intensive care unit.

Speciality	Hospitals											Tot	
	A	B1	B2	C	D1	D2	E	F	G	H	I		J
Medical						6							6
Surg/Trauma				4						7			11
General	6		8	7			5	9	5			7	47
Pediatric													-
Cardio-thorac		6											6
Neurosurgery											3		3
Total	6	6	8	7	4	6	5	9	5	7	3	7	73

5.3.4. Sex of the respondents.

Table 5.4. Sex of the respondents.

Sex	Hospitals											Total	
	A	B1	B2	C	D1	D2	E	F	G	H	I		J
Female	6	6	8	7	4	6	5	9	3	7	3	7	71
Male								1					1
No resp								1					1
Total	6	6	8	7	4	6	5	9	4	7	3	7	73

It is well known that nursing is mainly a female dominated profession, and therefore it was not surprising to find that 97.3 percent of the participants were female.

There was one male nurse and one person did not respond to this question.

In South Africa, only 3 percent of the entire nursing profession are males [Mellish, 1982 : 54].

This seems to correlate with the United States of America. In a survey done of nurses employed in critical care areas in 1985, the American Association of Critical-Care Nurses found that 93.2 percent of the respondents were female and 6.8 percent were male [American Association of Critical-Care Nurses, 1986 : 61].

5.3.5. Age.

Table 5.5. Age of the respondents in years.

Years	Hospitals											Total	
	A	B1	B2	C	D1	D2	E	F	G	H	I		J
21 - 25	1	1	2		1			1		1	1		8
26 - 30	2	4	2		2	3	1		2	3	1	1	21
31 - 35	1		2	2	1	2	1	4	3	2		3	21
36 - 40	2	1	2	3		1	1	3		1	1	3	18
41 - 45				2			2	1					5
46 - 50													0
51 - 55													0
55 +													0
Total	6	6	8	7	4	6	5	9	5	7	3	7	73

All the respondents were under the age of forty-five (45) years.

Twenty-nine (29 or 39.7%) were between the age of twenty-one (21) and thirty (30) years.

Thirty-nine (39 or 53.4%) were between the age of thirty-one (31) and forty (40) years.

There were only five (5 or 6.8%) who were older than forty-one (41) years.

Jones, Yoder and Jones [1984 : 94] found that in the emergency areas which they had studied, 45 percent of the members of the nursing profession were between the age of twenty-one (21) and thirty (30) years and 31 percent were between the age of thirty-one (31) and forty (40) years.

The American Association of Critical-Care Nurses [1986 : 61] survey revealed that, 15.8 percent of critical care nurses were between the age of twenty (20) and twenty-nine (29) years, 62.8 percent were age thirty (30) to thirty-nine (39) years, 17.4 percent were age forty (40) to forty-nine (49) years and 4.1 percent of the respondents were over the age fifty (50) years.

5.3.6. Marital status.

When one looks at the marital status of the respondents, thirty-nine (39 or 53.4%) were single and twenty-eight (28) respondents or 38.4 percent were married.

Pera [1985 : 182] found that 42 percent of the nurses working in the private sector in the Republic of South Africa were married and 46 percent were single, while the remainder were divorced or widowed.

Chesney + Beck [1985 : 40], in their study found that 11.8 percent of the respondents were single and 69.0 percent were married. These figures are similar to the results of Arneson [1985b : 14], where 8.1 percent of the respondents were single and 80.9 percent were married.

Table 5.6. Marital status of the respondents.

Marital status	Hospitals												Total
	A	B1	B2	C	D1	D2	E	F	G	H	I	J	
Single	4	5	4		1	2	2	5	3	4	2	7	39
Married	1	1	2	6	3	3	2	4	2	3	1		28
Divorced	1		2	1		1	1						6
Widowed													0
Total	6	6	8	7	4	6	5	9	5	7	3	7	73

5.3.7. Ethnic group of the respondents.

Table 5.7. Ethnic group.

Ethnic group	Hospitals												Tot
	A	B1	B2	C	D1	D2	E	F	G	H	I	J	
White	5	6	7	2	4	6	1	3	5	4	3	5	51
Black	1		1	5			4	5		1		1	18
Coloured										2			2
Indian													0
No respo							1					1	2
Total	6	6	8	7	4	6	5	9	5	7	3	7	73

The majority of respondents, fifty-one (51 or 69.9%), were White, while eighteen (18) respondents or 24.7 percent were Black and only two (2 or 2.7%) were Coloured.

In 1986, the nursing profession in South Africa, consisted of 41.54 percent Whites, 8.84 percent Coloureds, 2.14 percent Indians and 47.48 percent Blacks [Searle, 1987 : 19].

5.3.8. Educational level.

Table 5.8. Highest level of nursing education.

Level of Nursing Education	Hospitals												T
	A	B1	B2	C	D1	D2	E	F	G	H	I	J	
Diploma	6	6	7	6	3	6	5	8	4	5	2	6	64
Bac. degree			1					1	1			1	4
Master													0
No response				1	1					2	1		5
Total	6	6	8	7	4	6	5	9	5	7	3	7	73

The majority of nursing staff, sixty-four (64 or 87.7%), had a Diploma in Nursing, while only four (4 or 5.5%) were in possession of a Degree in Nursing. One (1) person also had a non-nursing qualification at degree level.

Of the twenty-six-thousand-one-hundred-and-twenty-four (26124) registered nurses in the Republic of South Africa in 1983, two-thousand-four-hundred-and-twenty-one (2421) had obtained post-registration qualifications at university [South African Nursing Association, 1984 : 60].

Arneson [1985b : 14] found in her study that 78 percent of the respondents had a Diploma or Associate Degree in Nursing, 19.5 percent had a Baccalaureate Degree and 2.5 percent of the respondents had a higher degree.

In the study by the American Association of Critical-Care Nurses [1986 : 61], 9.8 percent of the respondents had an Associate Degree, 21.7 percent a Diploma in Nursing, 33.5 percent had a Baccalaureate Degree, 23.4 percent possessed a Masters Degree and 0.1 percent a Doctorate.

In their study, Jones, Yoder and Jones [1984 : 94] found that 60 percent of the nursing staff had a Diploma in Nursing and 20 percent were educated at Baccalaureate level.

5.3.9. Types of nursing registrations.

Table 5.9. Nursing registration.

Types of Registration	A	B1	B2	C	D1	D2	E	F	G	H	I	J	Tot
Nursing ass.					1					2			3
Enrolled n.		1									1		2
General n.	6	5	8	7	3	6	5	9	5	5	2	7	68
Midwifery	3	5	7	7	2	6	5	9	3	3	1	7	58
Psychiatry			2						3			1	6
Intens. care	3	4	4	6	2	5	5	8	2		1	6	46
Pediatrics		1						1					2
Theatre tech.												1	1
Other	1	2	1				1	2	3				10

When one looks in more detail at the type of nursing registrations which the respondents had, one sees that sixty-eight (68 or 93.2%) were registered as general nurses.

Five (5) respondents or 6.8% percent were of the non-professional category, that is they were nursing assistants or enrolled nurses.

Fifty-eight (58 or 85.3%) of the sixty-eight (68) registered general nurses, were also trained midwives and there were forty-six (46 or 67.6%) respondents who had a Diploma in Intensive Nursing Science.

Pera [1985 : 190] stated in her study, that of the respondents who had additional qualifications, 7.5 percent were trained in intensive nursing care.

Only 2.56 percent of the entire nursing profession in the Republic of South Africa in 1986, are trained in intensive care [South African Nursing Council, 1987].

The total number of registered nurses in 1986 was sixty-four-thousand-nine-hundred-and-sixty-four (64917 or 41.7%) whereas the enrolled nurses numbered twenty-three-thousand-nine-hundred-and-twenty-four (23924 or 15.4%) and there were forty-two-thousand-one-hundred-

and-fifty-five (42155 or 27.1%) enrolled nursing assistants [Kotze, 1987 : 5].

In the research done by Dannenfeldt [1986a : 16] in a provincial hospital, the staff distribution in the intensive care units was as follows, 57.2 percent of the staff were professional nurses, trained in intensive care nursing, 34.5 percent were professional nurses, with general nursing training and 8.3 percent were nursing assistants.

5.3.10. Number of years qualified.

Table 5.10. Number of years qualified.

Years qualified	Hospitals											Tot	
	A	B1	B2	C	D1	D2	E	F	G	H	I		J
Less than 1 yr										1			1
1 - 5 years	4	2	3		2	2	2	1	2	1	2		21
6 - 10 years		3	3	3	1	3		5	1	4		1	24
11 - 15 years	2		1	3		1	1	2	2	1		5	18
16 - 20 years		1	1			1	2				1		6
20 +				1				1				1	3
Total	6	6	8	7	4	6	5	9	5	7	3	7	73

There was only one (1) person who had been qualified for less than a year. Twenty-one (21 or 28.8%) of the respondents had been qualified between one (1) and five (5) years and twenty-four (24 or 32.9%) respondents had qualified six (6) to ten (10) years previously.

There were also a significant number, eighteen nurses (18 or 24.7%) who had completed their basic training between eleven (11) and fifteen (15) years previously and three (3 or 4.1%) of the respondents actually trained more than twenty (20) years ago.

Of the nursing staff in the study by Jones, Yoder and Jones [1984 : 94], 38 percent of the nurses had been nursing for zero to five (5) years, 28 percent had been in the nursing profession for six (6) to ten (10) years

and 34 percent had been in the profession for over ten (10) years.

Chesney + Beck [1985 : 40] found that 2.7 percent of the respondents had been trained for less than one (1) year, 26.2 percent between one (1) and five (5) years, 21.9 percent had qualified between five (5) and ten (10) years ago and 45.4 percent had completed their training longer than ten (10) years ago.

5.3.11. Present position.

Thirty-five (35) of the sixty-eight (68) registered nurses, see table 5.11., held the position of junior sister and twenty (20) were senior sisters.

Table 5.11. Present position.

Present Position	Hospitals												Tot	
	A	B1	B2	C	D1	D2	E	F	G	H	I	J		
Nursing ass.					1						2			3
Enrolled n.												1		1
Sr - junior	5	3	6	4	3	4		3	2	2	1	2		35
- senior		2	1	1		1	4	5		2			4	20
Sr-in-charge	1	1	1	1			1	1	1	1	1	1		10
No response				1		1			2					4
Total	6	6	8	7	4	6	5	9	5	7	3	7		73

5.3.12. Type of employment.

Table 5.12. Type of employment.

Type of employment	Hospitals												Tot
	A	B1	B2	C	D1	D2	E	F	G	H	I	J	
Full-time	6	6	7	6	3	6	5	8	5	7	3	6	68
Part-time			1	1	1								3
Sessions								1					1
No respo												1	1
Total	6	6	8	7	4	6	5	9	5	7	3	7	73

By far the majority, sixty-eight (68 or 93.2%) of the respondents, were in full-time employment at the specific institution, while three (3 or 4.1%) respondents worked part-time and only one (1 or 1.3%) respondent worked on a sessional basis.

Faulk [1984 : 141] had similar results, where 92 percent of the respondents were in full-time employment and 2 percent were part-timers.

The figures from the research of the American Association of Critical-Care Nurses [1986 : 61] are very similar, in that 93.4 percent of the respondents were in full-time employment and 6.6 percent were employed on a part-time basis.

5.3.13. Period of time in present position.

Table 5.13. Period of time in present position.

Current Position	Hospitals												Tot
	A	B1	B2	C	D1	D2	E	F	G	H	I	J	
0 - 2 yr	6	6	7	2	4	3	4	6	1	2	1	3	45
2 - 4 yr			1			3			3	1	1	2	11
4 - 6 yr				3			1		1	3		1	9
6 - 10 yr				1				1			1	1	4
10 - 15 yr				1				1		1			3
15 +								1					1
Total	6	6	8	7	4	6	5	9	5	7	3	7	73

Nurses are a mobile population [Dannenfeldt, 1986c : 1]. This is evidenced by the large number of respondents, forty-five (45 or 53.4%), who had only been in their present position for less than two (2) years.

Eleven (11 or 15.1%) of the seventy-three (73) respondents, were in the service for two (2) to four (4) years. Eight (8 or 11.0%) of the respondents had been employed in their present position for longer than six (6) years.

Similar results are quoted by Chesney + Beck [1985 : 40], who found that 14.8 percent of the respondents had been in their current position for less than one (1) year, and 17.7 percent had worked in their present position between two (2) and four (4) years.

5.3.14. Professional journals.

Table 5.14. Frequency with which the staff reads professional journals.

Reading of Journals	Hospitals											Tot	
	A	B1	B2	C	D1	D2	E	F	G	H	I		J
Never													
Sometimes	3	2	6		4	4	2	2		1	2	2	28
Daily								1					1
Weekly		1	1	3									5
Monthly	1	3	1	4		2	3	6	5		1	5	31
Annually										5			5
No respo	2									7			3
Total	6	6	8	7	4	6	5	9	5	7	3	7	73

The reading of professional journals seems to be erratic, as twenty-eight (28 or 38.4%) of the respondents only read these journals sometimes. There were however thirty-three (31 or 42.5%) respondents, who read professional journals on a monthly basis.

The results of a study by Clarke [1985 : 48] show that 16 percent of the respondents read professional journals once a week, but 26.6 percent read the journals on a monthly basis and 37.3 percent read professional journals even less frequently.

5.3.15. Further studies.

Table 5.15. Staff studying for a nursing qualification.

Study	Hospitals											Total	
	A	B1	B2	C	D1	D2	E	F	G	H	I		J
Yes		1	1	1				3	1	1			8
No	5	5	7	6	4	6	5	6	4	6	3	7	64
No re	1												1
Tot	6	6	8	7	4	6	5	9	5	7	3	7	73

A large number of respondents, sixty-four (64 or 87.7%), are not studying for another nursing qualification at present.

To quote authors who have proven the opposite, Tough [Hegge, 1985 : 205] says that 70 percent of adults utilize self-directed learning to expand their capabilities. According to Hegge [1985 : 205] Penland has found that 75 percent of adults attend at least one self-directed learning course per year.

5.3.16. Educational facilities.

Table 5.16. Educational facilities available at the institution.

Educational Facilities	Hospitals											Tot	
	A	B1	B2	C	D1	D2	E	F	G	H	I		J
Orientation		6	7	6			5	5	2	2		2	35
Inservice educ.	1	5	6				5	4	2	1		6	30
Study leave	1	1	2	6		1	5		2	2		1	21
Congress atten.	2	6	7		2	4	5	3	5	2		2	38
Official course								1	2				3
None						1				3	3	1	8

Orientation is available to thirty-five (35 or 47.9%) of the repondents, inservice education is available to thirty (30 or 41.1%) and congress attendance is possible for thirty-eight (38 or 52.1%) of the respondents. Twenty-one (21 or 28.8%) of the repondents did have study leave facilities available to them.

Heerman, Enders + Wine [1980 : vii] found that 90 percent of all adults attend at least one major learning activity a year.

Pera [1985 : 223] in a study of the nurses in the private sector in the Republic of South Africa, states that 13 percent of the nurses in the private sector have never attended a refresher course, while 60 percent attend some time or another.

5.3.17. Policy manuals.

Table 5.17. Availability of manuals in the unit.

Manuals	Hospitals												T
	A	B1	B2	C	D1	D2	E	F	G	H	I	J	
Procedure manual	1	5	7	2		2	5	5	4	5	2	7	45
Hosp. policy man.		6	4	6		1	5	3	5	3			33
Unit policy man.	1	5	5	6		1	3	3	3	3	1	7	38
SANC Acts + reg.		4		4	3	4	5	6		1	2	3	33
None										1			1
Do not know								1					1
Other													0

As can be seen from table 5.17., manuals, such as procedure and policy manuals, and the South African Nursing Council Directives were available in some units.

5.3.18. Advancement opportunities.

Table 5.18. Clinical advancement opportunities which are available.

Clinical Advancement	Hospitals										Tot		
	A	B1	B2	C	D1	D2	E	F	G	H		I	J
Senior sister		3	5		2	2			1				13
Charge sister		5	5	1		5	1	5	1	1		1	25
Matron		1	3					5		1	1		11
Clinical Sr.		2	1					1					4
Other													0
No response													20

Clinical advancement opportunities are limited. Only thirteen (13 or 17.8%) of the respondents could be promoted to senior sister, while twenty-five (25 or 34.2%) of the respondents could be promoted to charge sister and eleven (11 or 15.1%) of the respondents could be promoted to matron.

5.3.19. Competence.

In the second part of the questionnaire each member of the nursing staff was asked to rate their competence for the various activities carried out in the intensive care units on a scale from one (1) to five (5).

The scale that was used :

- 0 = not applicable, do not use the activity in the unit
- 1 = not competent at all
- 2 = can only carry out the procedure poorly
- 3 = can do activity fairly well
- 4 = competent in carrying out the procedure
- 5 = can carry out the procedure excellently

The questionnaire was devised by using the sixteen (16) categories of the 'Scope of Practice Registered and Enrolled Nurses' (South African Nursing Council, 1984). To illustrate each of the sixteen (16) categories, activities were selected from the 'Activity Questionnaire'.

The number of respondents for each of the categories is shown in tables 5.19 to 5.33..

Where the numbers do not add up to seventy-three (73), the deficit was the number of 'no responses'. Where percentages are used, the percentages are calculated from the total of seventy-three (73) respondents.

5.3.19.1. Diagnosis of health care needs of the patient.

Table 5.19. Ability to diagnose the health care needs of the patients.

Activity	Score						T
	0	1	2	3	4	5	
Taking a history	5			12	43	11	71
Physical assessment :							
- observations			2	10	44	16	72
- palpation	4	6	7	38	15		70
- percussion	3	8	10	31	13	6	71
- auscultation	3	5	6	32	18	5	69

Only eleven (11 or 15.1%) of the respondents felt that they were fully competent in taking a patient's history and five (5 or 6.8%) felt that taking a history was not relevant in their specific setting.

As can be seen from table 5.19., the staff do not feel fully competent in carrying out the four (4) aspects of a physical examination, as only twenty-seven (27 or 36.98%) respondents gave themselves a score of five (5) for some of the components.

5.3.19.2. Nursing regimes.

There were only forty-two (42 or 57.5%) responses to the question : "Can you prescribe nursing regimes ?"

Only two (2) of those sisters were fully competent, twenty-six (26) gave themselves a score of four (4) and twelve (12) respondents scored three (3).

Table 5.20. Execution of nursing regimes.

Activity	Score						T
	0	1	2	3	4	5	
N/G feeding		1		1	29	42	73
Changing trache.tubes	4	3	3	15	28	17	70
Setting up ventilator		3	2	10	24	32	71
Setting up CPAP	10	5	4	15	18	14	66
Suctioning				4	32	36	72
Commence a IV line		2	1	6	29	33	71
Doing CPR		1	1	13	39	17	71
Doing an ECG				1	28	43	72

The level to which nurses were competent in carrying out nursing regimes is shown in table 5.20. The majority of respondents got a score of four (4), rather than five (5). Thirty-nine (39) respondents gave themselves a score of four (4) for cardio-pulmonary-cerebral resuscitation (CPR) and only seventeen (17) scored a five (5). Forty-three (43) felt that they were fully competent in doing an electrocardiogram (ECG).

5.3.19.3. Execution of prescribed treatments.

Table 5.21. Execution of treatments prescribed by a registered person.

Activity	Score						T
	0	1	2	3	4	5	
Inserting a N/G tube				2	32	39	73
Treating hypothermia	1		1	5	37	26	70
Treating hyperthermia	1			2	38	30	71
Peritoneal dialysis	6	3	8	15	25	14	71
Intubating	2	11	18	21	17	1	70
Extubating	1	1	3	10	29	27	71
Caring for traction	14	2	5	21	22	7	71

As shown in table 5.21., more respondents gave themselves a score of four (4) rather than five (5) for the execution of treatment procedures prescribed by registered personnel. For example, thirty-seven (37 or 50.7%) respondents scored four (4) and only twenty-six (26 or 35.6%) got a score of five (5) for treating hypothermia.

5.3.19.4. Administration of medicines.

Table 5.22. Administration of medication.

Activity	Score						T
	0	1	2	3	4	5	
Giving oral medication			1	5	20	46	72
Giving N/G medication	1				23	47	71
Giving IV medication	1				24	46	71

With regard to the administration of medication, the majority of respondents were fully competent, as can be seen from table 5.22.

5.3.19.5. Monitoring of patients' reactions.

Table 5.23. Monitoring of the patients' reactions to disease conditions, medication and treatment.

Activity	Score						T
	0	1	2	3	4	5	
T.P.R + BP					18	53	71
Recognising dysrhythmias			3	10	38	20	71
Neurological observations	2	1	3	13	39	14	72
ICP monitoring	15	5	4	16	22	9	71
Dextrostix					24	48	72
Swan-Ganz monitoring	8	4	4	12	29	14	71
CVP monitoring	1	2	2	7	29	31	72
Chest drainage observation	2			6	36	27	71
Direct RA + LA monitoring	11	4	8	14	23	11	71
IABP monitoring	16	4	10	16	17	8	71
Pacemaker observations	6	4	7	9	30	15	71
Taking venous blood		1		4	28	38	71
Taking arterial blood	2	1	2	13	32	19	69

Monitoring the patient's reactions to his disease, medication or treatment, is an activity carried out frequently in any intensive care unit. As can be seen from table 5.23, there were fifty-three (53 or 72.6%) respondents who were fully competent in doing temperature, pulse and respiration (TPR) and blood pressure (BP) and forty-eight (48 or 65.8%) respondents who could do Dextrostix with excellence. The staff was not as confident in doing neurological observations, and only fourteen (14 or 19.2%) scored a five (5), while nine (9

or 12.3%) of the respondents scored a five (5) for their ability to monitor intracranial pressure (ICP).

More respondents scored four (4) than five (5) for Swan-Ganz monitoring, intra-aortic balloon pump (IABP) and pacemaker observations.

It must be kept in mind, that some of these procedures are not applicable to all the units, for example, intra-aortic balloon pump (IABP) was not used by twenty-two (22) respondents.

5.3.19.6. Support and advice.

Table 5.24. Ability to give support and advice to various people.

Activity	Score						T
	0	1	2	3	4	5	
Individual patients				13	45	13	71
Groups / Families			2	23	40	6	71
Staff		1	1	25	36	7	70

Only thirteen (13 or 17.8%) and six (6 or 8.2%) felt fully competent in giving support to patients and their families respectively.

Giving support to staff was also an activity in which the respondents were not confident, as only seven (7) of the respondents gave themselves a score of five (5), refer to table 5.24.

5.3.19.7. Prescription and promotion of hygiene and comfort.

Table 5.25. Prescription and promotion of hygiene and comfort of the patient.

Activity	Score						T
	0	1	2	3	4	5	
Full bed wash				1	13	58	72
Mouth care				1	14	57	72
Reassuring the patient				7	35	30	72

Promoting hygiene is an activity carried out frequently and the staff also felt competent in doing these procedures. A score of five (5) was obtained by fifty-eight (58 or 79.5%) respondents for doing a full bed wash and fifty-seven (57 or 78.1%) scored five (5) for mouth care.

A small number of respondents, thirty (30 or 41.1%) were confident in reassuring the patients.

5.3.19.8. Exercise.

Table 5.26. Promotion of exercise.

Activity	Score						T
	0	1	2	3	4	5	
Limb exercise			3	10	43	13	69
Breathing exercise			4	12	37	16	69

Exercising the patient's limbs and promoting breathing exercises are also procedures in which the nursing staff do not feel fully competent. The number of respondents who scored a four (4) was higher than the number who scored a five (5), as can be seen from table 5.26.

5.3.19.9. Maintenance of oxygen supply.

Table 5.27. Maintenance of an oxygen supply to the patient.

Activity	Score						T
	0	1	2	3	4	5	
Handling oxygen masks				3	24	44	71
Care of ventilated pt.			2	10	34	25	71
Bird therapy/nebuliser		1	1	9	36	23	70

Maintaining a patient's oxygen supply is a fundamental nursing procedure. When the oxygen is supplied by oxygen mask, forty-four (44 or 60.3%) respondents gave themselves a score of five (5). However when it comes to caring for a patient on a ventilator or using the Birds machine, the majority of nurses only scored a four (4).

5.3.19.10. Supervising and maintaining fluid and electrolyte balance.

Table 5.28. Supervising and maintaining fluid and electrolyte balance.

Activity	Score						T
	0	1	2	3	4	5	
Set up an IV line			1	1	31	34	67
Change IV lines				1	28	40	69
Blood/FFP transfusion				2	27	33	62
Bladder catheterisation	1	1		4	25	38	69
Analyse blood gases	2	1	1	17	30	18	69

In supervising and maintaining fluid and electrolyte balance, the distribution of the scores between four (4) and five (5) was fairly even, as can be seen from table 5.28.

Analysis of blood gases was the exception, and thirty (30 or 41.1%) respondents scored a four (4) while only eighteen (18 or 24.7%) scored a five (5).

5.3.19.11. Healing of wounds.

Table 5.29. Facilitation of the healing of wounds and fractures.

Activity	Score						T
	0	1	2	3	4	5	
Wound dressing	1			4	41	24	70
Wound irrigation	7		1	4	43	15	70

Twenty-four (24 or 32.9%) of the seventy-three (73) respondents and fifteen (15 or 20.5%) felt fully competent in carrying out wound dressings and wound irrigation respectively.

5.3.19.12. Nutrition.

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Table 5.30. Nutrition of the patients.

Activity	Score						T
	0	1	2	3	4	5	
Setting up for TPN	10	1	1	6	39	11	68
N/G feeding				3	30	37	70

Although a certain percentage (13.7%) of the respondents said that setting up for total parenteral nutrition (TPN) was not applicable to their unit, only eleven (11 or 15.1%) of the respondents gave themselves a score of five (5).

5.3.19.13. Creation of a safe environment.

Table 5.31. Creating a safe environment.

Activity	Score						T
	0	1	2	3	4	5	
Physical environment				14	41	14	69
Emotional environment				31	30	7	68

The creation of a safe environment was only given a score of five (5) by twenty-one (21) respondents. Ensuring a safe physical environment got a score of five (5) from fourteen (14) respondents. Ensuring a safe emotional environment was given a score of five (5) by only seven (7 or 9.6%) respondents.

5.3.19.14. Preparing a patient for surgery.

Table 5.32. Preparing a patient for surgery and diagnostic procedures.

Activity	Score						T
	0	1	2	3	4	5	
Surgery	2			3	36	29	70
Diagnos. prosedures				5	46	20	71

As can be seen from table 5.32, preparing a patient for surgery or diagnostic procedures, scored four (4) in the majority of cases.

5.3.19.15. Co-ordination with the health team.

There were three (3) respondents who considered the co-ordination of health care not applicable to themselves.

Sixteen (16 or 21.9%) respondents could only co-ordinate the health care team fairly well (score 3),

thirty-five (35 or 47.9%) scored four (4) and seven (7 or 9.6%) were fully competent in co-ordinating the health care.

5.3.19.16. Communication.

Table 5.33. Communication with patients and others.

Activity	Score						T
	0	1	2	3	4	5	
Patients				5	35	24	64
Relatives				13	39	13	65
Nursing staff				7	36	22	65
Other personnel				8	39	17	64

The extent to which staff felt they were competent in communicating with others is reflected in table 5.33. Once again, more people scored themselves a four (4) rather than a five (5).

5.4. Factor analysis.

=====

In order to determine the validity of the questions in the 'Competence Questionnaire', a factor analysis was done on some of the items.

A principle factor analysis was done on all the questions with two (2) or more items. The results of the factor analysis are as follows.

5.4.1. Diagnosis of the health care needs of the patients.

Table 5.34. Factor analysis on 'the diagnosis of health care needs'.

Item	Factor 1	Factor 2
Taking a history		0.523
Physical assessment - observations		0.818
- palpation	0.834	
- percussion	0.908	
- auscultation	0.693	

Two (2) factors emerged, grouping history taking and observation together and the other aspects of the physical assessment.

The cumulative proportion of the variance in the data space was 0.7891.

5.4.2. Ability to execute nursing regimes.

Table 5.35. Factor analysis on 'execution of nursing regimes'.

Item	Fac.1	Fac.2	Fac.3
N/G feeding		0.922	
Chang. trache. tubes	0.531		
Setting up ventilator	0.794		
Setting up CPAP	0.792		
Suctioning		0.641	
Commence a IV line			0.565
Doing CPR			0.483
Doing an ECG			0.853

Three (3) factors emerged here, where factor 1 was the activities related to the ventilation of the patient, factor 2 included basic maintenance techniques, and factor 3 involved the resuscitative procedures.

The cumulative proportion of variance in the data space is 0.7306.

5.4.3. Execution of treatments prescribed by a registered person.

Table 5.36. Factor analysis for 'execution of prescribed treatments'.

Item	Factor 1	Factor 2
Inserting a N/G tube	0.582	
Treating hypothermia	0.652	
Treating hyperthermia	0.577	
Peritoneal dialysis	0.842	
Intubating	0.468	
Extubating	0.850	
Caring for traction		0.305

The caring for a patient in traction was separated out as factor 2, while all the other items were grouped as factor 1.

The cumulative proportion of variance in the data space is 0.7704.

5.4.4. Administration of medication.

Table 5.37. Factor analysis of 'administration of medication'.

Item	Factor 1
Giving oral medication	0.614
Giving N/G medication	0.706
Giving IV medication	0.737

As can be seen from table 5.37, only one factor emerged.

The cumulative proportion of variance in the data space is 0.9965.

5.4.5. Monitoring the patients' reactions to disease conditions, medication and treatment.

Table 5.38. Factor analysis on 'monitoring'.

Item	Factor 1	Factor 2
T.P.R + BP		0.423
Recognising dysrhythmias		0.750
Neurological observations		0.578
Intracranial pressure monit.		0.368
Dextrostrix		0.798
Swan-Ganz monitoring	0.866	
CVP monitoring	0.773	
Chest drainage observations		0.522
Direct RA + LA monitoring	0.790	
IABP monitoring	0.811	
Pacemaker observations	0.871	
Taking venous blood		0.655
Taking arterial blood	0.506	

There are clearly two (2) factors that emerged, separating out the basic observation techniques (factor 2) and the more advanced observation methods (factor 1).

The cumulative proportion of variance in the data space is 0.6405.

5.4.6. Support and advice given to various people.

Table 5.39. Factor analysis on 'support and advice'.

Item	Factor 1
Individual patients	0.612
Groups / Families	0.612
Staff	0.508

Only one (1) factor emerged with the cumulative proportion of variance in the data space of 0.9980.

5.4.7. Prescribing and promoting hygiene, comfort and exercise of the patient.

The factor analysis was done on two (2) questions put together. The questions were: 'the prescription and promotion of hygiene and comfort for the patient' and 'promotion of exercise for the patient'.

The cumulative proportion of variance in the data space is 0.6758.

Table 5.40. Factor analysis on 'hygiene, comfort and exercise'.

Item	Fact.1	Fact.2	Fact.3
Full bed wash	0.890		
Mouth care	0.934		
Reassuring the patient			0.529
Limb exercises		0.823	
Breathing exercises		0.762	

Three (3) factors emerged. This was to be expected as the basic hygiene procedures (factor 1) are not related to exercise (factor 2) and reassuring a patient (factor 3) is also the measurement of a different aspect.

The cumulative proportion of variance in the data space is 0.6758.

5.4.8. Maintenance of a supply of oxygen to the patient.

Table 5.41. Factor analysis on 'the supply of oxygen'.

Item	Factor 1
Handling oxygen masks	0.393
Caring for a pt. on a ventilator	0.598
Bird therapy/nebuliser	0.589

Only one (1) factor emerged and the cumulative proportion of the variance in the data space is 0.9899.



5.4.9. Supervising and maintaining fluid and electrolyte balance.

Table 5.42. Factor analysis of 'fluid and electrolyte balance'.

Item	Factor 1	Factor 2
Set up an IV line	0.827	
Change IV lines	0.895	
Blood/FFP transfusion	0.984	
Bladder catheterisation	0.701	
Analyse blood gasses		0.655

The analysis of blood gas results emerged as a separate factor (factor 2).

The cumulative proportion of variance in the data space is 0.8562.

5.4.10. No factor analysis.

A factor analysis was not done on the following questions as they only had two (2) items each.

- * How well can you facilitate the healing of wounds and fractures ?
- * With regards to the nutrition of the patient, how competent are you in doing the following ?
- * To what extent can you create a safe environment ?
- * Are you competent in preparing a patient for :
- * How well can you co-ordinate health care regimes provided for the patient by other categories of health personnel ?

5.4.11. Communication with various persons.

Table 5.43. Factor analysis on 'communication'.

Item	Factor 1	Factor 2
Patients	0.625	
Relatives	0.954	
Nursing staff	0.259	
Other personnel	0.442	

One (1) factor emerged and the cumulative proportion of variance in the data space is 0.8356.

5.5. Comparison between the competence level of the staff and the activities they carry out.

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5.5.1. Introduction.

The next step was to determine whether the staff is competent to carry out those activities which occur most frequently in an intensive care unit.

This was done by comparing the items in the 'Activity Questionnaire' with the corresponding item in the 'Competence Questionnaire'.

For example, in table 5.45., naso-gastric feeding was done one-hundred-and-sixty-six (166) times in the fourteen (14) day period, and naso-gastric feeding comprised 9.3 percent of the activities in that specific group.

Forty-two (42 or 57.5%) of the respondents thought that they were competent in giving naso-gastric feeds to the patients.

Each group of activities will be analysed separately. The totals and percentages will be calculated for the specific group.

To calculate the percentage from the grand total of activities would give a small meaningless percentage, therefore the totals of the groups were used.

The numbers of respondents who scored five (5) were converted to percentages of the total of seventy-three (73) respondents.

5.5.2. Diagnosis of health care needs.

There were thirty-two (32) admissions in total in the intensive care units over the fourteen (14) day period of the study. Each patient should have a physical assessment done on admission to the unit.

As illustrated in table 5.44., only twelve (12 or 16.4%) of the respondents were competent in taking a health history. In doing a physical assessment, only sixteen (16 or 21.9%) of the respondents were competent in doing the observations, no one could palpate a patient effectively and only six (6 or 8.2%) and five (5 or 6.8%) of the respondents were confident in percussion and auscultation respectively.

Table 5.44. Ability to diagnose the health care needs of the patients.

Item	Activity		Competence	
	No.	%	No.	%
Taking a history	-	-	12	16.4
Physical assessment				
- observations	-	-	16	21.9
- palpation	-	-	-	-
- percussion	-	-	6	8.2
- auscultation	-	-	5	6.8

5.5.3. Nursing regimes.

Table 5.45. Execution of nursing regimes.

Item	Activity		Competence	
	No.	%	No.	%
N/G feeding	166	9.3	42	57.5
Changing trache. tubes	-	-	17	23.3
Setting up ventilator	96	5.4	32	43.8
Setting up CPAP	21	1.2	14	19.2
Suctioning	963	54.4	36	49.3
Commence a IV line	140	7.9	33	45.2
Doing CPR	25	1.4	17	23.3
Doing an ECG	360	20.3	43	58.9

Of the nursing regimes carried out in the intensive care units, the activities done most frequently were suctioning (54.4%) and doing an electro-cardiogram (ECG) (20.3%).

Thirty-six (36 or 49.3%) felt that they were fully competent. Twenty-nine (29) of these thirty-six (36) respondents were trained in intensive nursing care [See annexure I].

If we look at cardio-pulmonary-cerebral resuscitation (CPR), an emergency procedure that needs to be carried out effectively, only seventeen (17 or 23.3%) of the respondents felt that they were fully competent. Of these seventeen (17) respondents, fourteen (14) were trained in intensive nursing care.

5.5.4. Execution of prescribed treatments.

Professional nurses may carry out treatment regimes prescribed by other registered persons. Of these prescribed treatments, extubation was carried out sixty-six (66 or 41.5%) times, the insertion of a naso-gastric tube was carried out twenty-eight (28 or 17.6%) times, and the treatment of hyperthermia was done forty-four (44 or 27.7%) times as indicated in table 5.46.

Extubation requires a skill level of five (5), and of the twenty-seven (27) nursing sisters who said that they were competent in extubating a patient, twenty-two (22) were trained in intensive nursing care.

The insertion of a naso-gastric tube requires a skill of three (3), and only forty-four (44 or 60.3%) of the respondents could do this well. Of these forty-four (44), twenty-five (25) of the respondents were trained in intensive nursing care.

Table 5.46. Execution of prescribed treatments.

Item	Activity		Competence	
	No.	%	No.	%
Inserting a N/G tube	28	17.6	44	60.3
Treating hypothermia	-	-	22	30.1
Treating hyperthermia	44	27.7	21	28.8
Peritoneal dialysis	1	0.6	14	19.2
Intubating	8	5.0	1	1.4
Extubating	66	41.5	27	37.0
Caring for traction	12	7.5	2	9.6

5.5.5. Administration of medication.

Table 5.47. Administration of medication.

Item	Activity		Competence	
	No.	%	No.	%
Giving oral medication	1056	38.2	50	68.5
Giving N/G medication	452	16.4	47	64.4
Giving IV medication	1256	45.4	46	63.0

The nursing care of the critically ill patient involves frequent administration of medication. Medication was administered two-thousand-seven-hundred-and-sixty-four (2764) times. One-thousand-two-hundred-and-fifty-six (1256 or 45.4%) of those were intravenous medications, four-hundred-and-fifty-two (452 or 16.4%) were nasogastrically administered and one-thousand-and-fifty-six (1056 or 38.2%) were oral medications [See table 5.47.].

The administration of intravenous medication is a skillful procedure and thus it was allocated a skill level of five (5). Thirty (30) of the forty-six (46) nursing sisters who were fully competent in carrying out this procedure, were trained in intensive nursing care.

5.5.6. Monitoring the patients' reactions.

Intensive nursing care involves frequent monitoring of the patient's reaction to disease conditions, medication and treatment, as well as monitoring of the equipment that is used.

Because these observations do not only have to be carried out correctly and accurately, but also need to be interpreted, the skill level for monitoring is a five (5).

The assessment of temperature, pulse and respiration was done seven-thousand-and-twelve (7012 or 47.7%) times and fifty-three (53 or 74.6%) of the respondents were competent [See table 5.48.].

Monitoring with the Swan-Ganz catheter gets done less frequently, ninety-eight (98 or 0.7%) times and only fourteen (14 or 19.7%) of the respondents were competent. Thirteen (13) of which were trained in intensive nursing care.



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Table 5.48. Monitoring of the patients' reactions.

Item	Activity		Competence	
	No.	%	No.	%
T.P.R + BP	7012	47.7	53	72.6
Recognise dysrhythmias	-	-	20	27.4
Neurological observ.	1076	7.3	14	19.2
ICP monitoring	-	-	9	12.3
Dextrostix	519	3.5	48	65.8
Swan-Ganz monitoring	98	0.7	14	19.2
CVP monitoring	1695	11.5	30	41.1
Chest drainage observ.	1573	10.7	27	37.0
Direct RA + LA monitor.	-	-	11	15.1
IABP monitoring	360	2.4	8	11.0
Pacemaker observations	1558	10.6	15	20.5
Taking venous blood	231	1.6	38	52.1
Taking arterial blood	584	4.0	19	26.0

5.5.7. Advice and support.

Table 5.49. Giving support and advice to various people.

Item	Activity		Competence	
	No.	%	No.	%
Individual patients	-	-	13	17.8
Groups / Families	-	-	6	8.2
Staff	-	-	7	9.6

It is very obvious from table 5.49. that only a few of the staff members in the intensive care units are

competent in giving advice and being supportive, whether it be towards the patient and his family or towards other staff members.

5.5.8. Patient hygiene and comfort.

Table 5.50. Prescription and promotion of hygiene and comfort of the patient.

Item	Activity		Competence	
	No.	%	No.	%
Full bed wash	596	27.2	58	79.5
Mouth care	1593	72.8	57	78.1
Reassuring the patient	-	-	30	41.1

One of the main functions of a nurses is to prescribe and promote the hygiene and comfort of the patients.

The majority of respondents, 79.5 percent and 78.1 percent, felt that they were competent in doing a full bed wash and mouth care respectively.

5.5.9. Exercise.

Table 5.51. Promotion of exercise.

Item	Activity		Competence	
	No.	%	No.	%
Limb exercises	770	52.1	13	17.8
Breathing exercises	709	47.9	16	21.9

Although limb and breathing exercises had a skill level of three (3), only thirteen (13 or 17.8%) and sixteen (16 or 21.9%) of the respondents respectively were competent in these procedures.

Thirteen (13) of the sixteen (16) respondents who were competent in carrying out limb exercises were trained in intensive nursing care.

5.5.10. Oxygen.

Table 5.52. Maintenance of a supply of oxygen to the patient.

Item	Activity		Competence	
	No.	%	No.	%
Handling oxygen masks	-	-	44	60.3
Care of ventilated pt.	-	-	25	34.2
Bird therapy/nebuliser	-	-	22	30.1

Very few nurses, only twenty-five (25 or 34.2%) are competent in caring for a patient on a ventilator. Of these twenty-five (25) respondents, twenty (20) were trained in intensive nursing care.

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5.5.11. Fluid and electrolyte balance.

The nurse in the intensive care unit is constantly supervising and maintaining the fluid and electrolyte balance of the patients.

Intravenous lines were set up one-hundred-and-forty (140 or 23.6%) times and the intravenous lines were changed one-hundred-and-seventy-six (176 or 29.7%) times.

Twenty-one (21) of the thirty-four (34) respondents who were competent in setting up intravenous lines, were trained in intensive nursing care.

Table 5.53. Supervision and maintenance of fluid and electrolyte balance.

Item	Activity		Competence	
	No.	%	No.	%
Set up an IV line	140	23.6	34	46.6
Change IV lines	176	29.7	40	54.8
Blood/FFP transfusion	190	32.1	33	45.2
Bladder catheterisation	86	14.5	36	49.3
Analyse blood gases	-	-	18	24.7

5.5.12. Healing of wounds and fractures.

Table 5.54. Facilitation of the healing of wounds and fractures.

Item	Activity		Competence	
	No.	%	No.	%
Wound dressing	197	84.2	24	32.9
Wound irrigation	37	15.8	15	20.5

Both wound irrigation and wound dressing had a skill level of two (2). Eleven (11) of the twenty-four (24) respondents who felt that they were competent in wound dressing, were trained in intensive nursing care.

5.5.13. Nutrition.

Most of the patients in the intensive care units were fed via the naso-gastric route (90.2%), but only thirty-seven (37 or 50.7%) of the nursing staff felt that they were competent in giving naso-gastric feeds to their patients.

Twenty-four (24) of these thirty-seven (37) respondents, were trained in intensive nursing care.

Table 5.55. Nutrition of the patients.

Item	Activity		Competence	
	No.	%	No.	%
Setting up for TPN	18	9.8	11	15.1
N/G feeding	166	90.2	37	50.7

5.5.14. Safe environment.

Table 5.56. Creating a safe environment.

Item	Activity		Competence	
	No.	%	No.	%
Physical environment	-	-	14	19.2
Emotional environment	-	-	7	9.6

Only seven (7 or 9.6%) of the respondents were competent in creating a safe emotional environment for the patients.

5.5.15. Preparation of the patient.

Table 5.57. Preparation of the patient for surgery and diagnostic procedures.

Item	Activity		Competence	
	No.	%	No.	%
Surgery	-	-	29	39.7
Diagnostic procedures	-	-	20	27.4

Once again there were only a few nurses (29 or 39.7%), who felt that they are competent in preparing a patient

for surgery and twenty (20 or 27.4%) nurses felt competent in preparing a patient for diagnostic procedures.

Nine (9) of the twenty (20) respondents who were competent in preparing a patient for diagnostic procedures, were trained in intensive nursing care.

5.5.16. Co-ordination of health care regimes.

There were only seven (7 or 9.6%) of the respondents who were competent in co-ordinating the health care regimes provided for the patient by other categories of health personnel. Two (2) of these respondents, were trained in intensive nursing care.

5.5.17. Communication.

Table 5.58. Communication with people.

Item	Activity		Competence	
	No.	%	No.	%
Patients	-	-	23	31.5
Relatives	-	-	13	17.8
Nursing staff	-	-	22	30.1
Other personnel	-	-	17	23.3

Communicating with other people is one of the activities in which the intensive care nurses are not competent.

Twenty-three (23 or 31.5%) of the respondents were competent in communicating with the patients, but only thirteen (13 or 17.8%) of the professional nurses were competent in communicating with relatives of the patients.

Fifteen (15) of the twenty-three (23) respondents who were competent in communicating with the patients, were trained in intensive nursing care.

5.6. Linear regression (statistical correlation).

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A statistical correlation was done between five (5) aspects of the biographic data (independent variable) and the factor which had emerged from the factor analysis for the ten (1) questions from the 'Competence Questionnaire'.

In the following tables the 'intercept' refers to a constant, 'age' means the actual age of the respondent, 'training' refers to whether the person had the Diploma in Intensive Nursing Science or only a basic general training. 'Basic' refers to the period of time since the respondent had completed her basic training. 'Position' means the length of time the respondent is in her present position and 'journal' refers to the frequency with which the respondents read professional journals.

5.6.1. Diagnosis of health care needs.

The R-square value for factor 1, 'assessment', is 10.10 percent.

There was no statistical significant effect of the independent variable on the dependent variable.

Table 5.59. Regression on factor 1, 'assessment'.

Item	Estimate	T for HO	PR> T	Std error of estimate
Intercept	6.89	4.91	0.00	1.40
Age	0.18	0.43	0.67	0.42
Training	0.60	1.56	0.12	0.39
Basic	0.13	0.32	0.75	0.42
Position	0.05	0.20	0.84	0.29
Journals	0.24	1.10	0.27	0.22

The R-square value for factor 2, 'observation' is 2.04 percent.

There is no correlation between the variables as the values are all above the statistical significant cut off point of 0.05.

5.6.2. Execution of nursing regimes.

The question to what extent the staff could execute nursing regimes, brought out three (3) factors, see 5.4.2.

The R-square value for the three factors is as follows :
 * factor 1, 'ventilation' = 57.09%
 * factor 2, 'maintenance' = 19.88%
 * factor 3, 'resuscitation' = 27.36%

Table 5.60. Regression on factor 1, 'ventilation'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	7.77	6.67	0.00	1.16
Age	-0.30	-0.83	0.41	0.36
Training	1.93	6.14	0.00	0.31
Basic	0.95	2.50	0.01	0.38
Position	-0.14	-0.60	0.55	0.23
Journals	0.30	1.67	0.10	0.18

There is a statistical significant correlation between the training of the respondents and their ability to execute nursing regimes related to the ventilation of a patient.

There is also a positive correlation between the length of time since the respondents basic training and their competence in ventilatory techniques.

Table 5.61. Regression on factor 2, 'maintenance'.

Item	Estimate	T for H0	PR > T	Std error of estimate
Intercept	7.69	14.79	0.00	0.52
Age	-0.00	-0.01	0.98	0.15
Training	0.33	2.31	0.02	0.14
Basic	0.15	0.97	0.33	0.15
Position	-0.04	-0.37	0.71	0.10
Journals	0.21	2.52	0.01	0.08

There is a positive correlation between the independent variables, training and reading of journals and the dependent variable, maintenance procedures such as nasogastric feeding.

Table 5.62. Regression on factor 3, 'resuscitation'.

Item	Estimate	T for H0	PR > T	Std error of estimate
Intercept	10.97	13.63	0.00	0.80
Age	0.36	1.52	0.13	0.24
Training	0.50	2.24	0.02	0.22
Basic	0.04	0.17	0.86	0.24
Position	-0.40	-2.38	0.02	0.16
Journals	0.33	2.59	0.01	0.13

There is a statistical significance between the training, the length of time in the present position and the reading of professional journals and factor 3, 'resuscitation'.

5.6.3. Execution of prescribed treatments.

In this question, two (2) factors emerged, factor 1, 'treatments' had a R-square of 40.04 percent, and the other factor 'traction' had a R-square value of 6.66 percent.

Table 5.63. Regression on factor 1, 'treatments'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	18.96	12.26	0.00	1.54
Age	1.20	2.37	0.02	0.50
Training	1.73	3.85	0.00	0.44
Basic	-0.10	-0.22	0.83	0.48
Position	-0.56	-1.71	0.09	0.33
Journals	0.41	1.62	0.11	0.25

There is a statistically significant correlation between the age of the respondents and their competence to execute prescribed treatments.

Table 5.64. Regression on factor 2, 'traction'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	3.31	6.19	0.00	0.53
Age	-0.09	-0.56	0.57	0.16
Training	-0.01	-0.11	0.91	0.15
Basic	-0.02	-0.17	0.86	0.16
Position	0.17	1.53	0.13	0.11
Journals	0.05	0.58	0.56	0.08

There is no correlation between the dependent and independent variables.

5.6.4. Administration of medication.

One factor emerged (R-square = 2.82%), and there was no correlation between any of the independent variables and the competence in administering medication to patients.

Table 5.65. Regression on factor 1, 'medication'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	13.05	17.42	0.00	0.74
Age	-0.02	-0.10	0.91	0.22
Training	-0.01	-0.06	0.95	0.20
Basic	0.17	0.78	0.43	0.22
Position	-0.01	-0.08	0.93	0.15
Journals	0.12	1.00	0.32	0.12

5.6.5. Monitoring.

In the question about the various monitoring techniques, the factor analysis brought out two (2) factors, 'advanced monitoring' and 'basic monitoring'.

The R-square values for the two (2) factors are 40.67 percent for factor 1 and 19.78 percent for factor 2.

Table 5.66. Regression on factor 1, 'advanced monitoring'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	19.28	7.49	0.00	2.57
Age	-1.13	-1.39	0.17	0.82
Training	2.90	4.12	0.00	0.70
Basic	1.79	2.25	0.02	0.80
Position	-0.52	-0.85	0.40	0.61
Journals	0.16	0.35	0.73	0.46

There is positive correlation between both the training and the length of time since the basic training and the ability to perform advanced monitoring techniques. There is no correlation between any of the other independent variables and the dependent variable.

Table 5.67. Regression on factor 2, 'basic monitoring'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	26.29	13.59	0.00	1.93
Age	0.27	0.46	0.64	0.60
Training	1.41	2.59	0.01	0.54
Basic	0.24	0.39	0.70	0.62
Position	0.12	0.32	0.74	0.38
Journals	0.17	0.54	0.59	0.32

There is a statistical significance in the relationship between training and the ability to perform basic monitoring techniques, such as blood pressure monitoring or intracranial pressure monitoring.

5.6.6. Giving support and advice.

The R-square for the correlation with the only factor that had resulted was 4.88 percent.

There is no positive correlation between any of the independent variables and the dependent variable.

Table 5.68. Regression on factor 1, 'support'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	10.32	11.05	0.00	0.93
Age	0.04	0.16	0.87	0.28
Training	0.08	0.33	0.74	0.26
Basic	0.13	0.48	0.63	0.28
Position	0.23	1.13	0.26	0.20
Journals	-0.01	-0.07	0.94	0.15

5.6.7. Promotion of hygiene and exercise.

For this question. three (3) factors emerged. The R-square values for the factors are as follows :

- * factor 1, 'basic care' = 8.28%
- * factor 2, 'exercise' = 15.62%
- * factor 3, 'reassurance' = 6.81%

Table 5.69. Regression on factor 1, 'basic care'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	9.43	20.32	0.00	0.46
Age	0.26	1.91	0.06	0.14
Training	-0.00	-0.03	0.97	0.12
Basic	-0.24	-1.71	0.09	0.14
Position	0.05	0.59	0.56	0.09
Journals	0.00	0.02	0.98	0.07

There was no statistical significance between any of the variables.

Table 5.70. Regression on factor 2, 'exercise'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	6.27	8.99	0.00	0.69
Age	0.36	1.73	0.08	0.20
Training	0.18	0.93	0.35	0.19
Basic	0.00	0.04	0.96	0.21
Position	-0.13	-0.82	0.41	0.15
Journals	0.18	1.57	0.12	0.11

There was no correlation between the independent variables and the dependent variables.

Table 5.71. Regression on factor 3, 'reassurance'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	4.37	12.81	0.00	0.34
Age	0.11	1.07	0.28	0.10
Training	-0.12	-1.34	0.18	0.09
Basic	-0.08	-0.77	0.44	0.10
Position	-0.09	-1.33	0.18	0.07
Journals	0.01	0.35	0.72	0.05

No correlation between the variables emerged.

5.6.8. Maintenance of the oxygen supply to the patient.

The R-square for the correlation between the single factor and the independent variables was 10.68 percent.

There was no statistical significance in the correlation between the variables.

Table 5.72. Regression on factor 1, 'oxygen'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	11.68	13.07	0.00	0.89
Age	-0.06	-0.25	0.80	0.26
Training	0.37	1.51	0.13	0.24
Basic	0.34	1.29	0.20	0.26
Position	-0.11	-0.57	0.57	0.19
Journals	0.09	0.62	0.53	0.14

5.6.9. Supervision of fluid and electrolyte balance.

In this question two (2) factors emerged. The R-square for factor 1, 'activities' was 4.18 percent and for factor 2, 'analysis' the R-square was 35.49 percent.

Table 5.73. Regression on factor 1, 'activities'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	16.48	15.36	0.00	1.07
Age	0.11	0.36	0.71	0.31
Training	-0.14	-0.48	0.63	0.29
Basic	0.24	0.76	0.45	0.32
Position	-0.06	-0.26	0.79	0.23
Journals	0.17	0.97	0.33	0.17

There is no correlation between the independent and dependent variables.

Table 5.74. Regression on factor 1, 'assessment'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	4.02	10.59	0.00	0.38
Age	-0.02	-0.20	0.84	0.11
Training	0.35	3.32	0.00	0.10
Basic	0.13	1.16	0.24	0.11
Position	-0.24	-2.95	0.00	0.08
Journals	-0.04	-0.72	0.47	0.06

There is a positive correlation between training and the length of time in the present position and the respondents ability to analyse blood gas results.

5.6.10. Communication.

The value of R-square is 4.21 percent.

Table 5.75. Regression on factor 1, 'communication'.

Item	Estimate	T for HO	PR > T	Std error of estimate
Intercept	15.36	13.18	0.00	1.16
Age	0.17	0.50	0.61	0.34
Training	-0.02	-0.09	0.92	0.32
Basic	0.01	0.05	0.96	0.36
Position	0.23	0.92	0.36	0.25
Journals	0.07	0.37	0.71	0.19

There is no statistical significance in the correlation between the variables.

5.7. Results from the tests of the education programs.

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5.7.1. Pre- and posttest for 'Cardio-pulmonary-cerebral resuscitation' program.

Each of the fifty-seven (57) participants in the lecture and demonstration on 'Cardio-pulmonary-cerebral resuscitation' completed a pretest and a posttest [For detail of the results, see annexure L].

The same test was used as pre- and posttest and it consisted of twenty (20) multiple choice questions [See annexure J].

The pre- and posttest results are compared with each other, and therefore it was not necessary to convert the scores to percentages.

The average score for the pretest was ten-point-five (10.5), ranging from three (3) to fifteen (15) [See annexure L].

The average score for the posttest was ten-point-eight (10.8), ranging from four (4) to sixteen (16).

Forty (40) of the participants scored higher on the posttest than on the pretest.

There were however eight (8) participants who scored higher on the pretest and nine (9) participants had the same score for the pre- and posttest.

5.7.2. Pre- and posttest scores for the program on 'Physical assessment'.

The same test was given as pre- and posttest to the twelve (12) participants of the lecture on 'Physical assessment' [See annexure M].

The total scores for each of the three (3) categories is as follows :

- * assessment = 48 points
- * diagnosis = 15 points
- * regimes = 42 points

Table 5.76. Average raw scores.

Category	Pretest	Posttest
Assessment	36.8	41.3
Diagnosis	9.2	11.6
Regimes	32.8	35.4

On average the total scores for the posttest (88.3) were higher than the total scores for the pretest (78.8) [For detail of the results, see annexure P].

Ten (10) of the twelve (12) participants, scored higher on posttest than on pretest, and two (2) scored higher on the pretest.

SUMMARY OF FINDINGS

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CHAPTER SIX

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SUMMARY OF FINDINGS, INTERPRETATIONS AND RECOMMENDATIONS

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6.1. Introduction.

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The purpose of this study was to develop a staff development model for the nurses working in the private hospitals.

The first step was to do a situation analysis by means of an 'Activity Questionnaire', which determined the type and frequency of activities done by the nursing staff in the intensive care units.

The second step was the assessment of the competence of the staff by a 'Competence Questionnaire'.

The two (2) sets of data were related to each other in terms of frequency and in some instances a linear regression was done.

This then highlighted the educational needs of the staff on which the staff development programs should be based.

The following interpretations and conclusions are based on the analysis of the data as presented in chapter five.

6.2. Findings on the activities performed in the intensive care units.

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6.2.1. Profile of the intensive care nursing.

In order to do a situation analysis of the nursing care in the intensive care units, the researcher decided that it was more relevant to analyse the actual nursing activities undertaken in these units, rather than look at the patient population.

The intensive care units included in the study varied from general, to cardio-thoracic to neuro-surgical intensive care units and therefore the results can be considered representative of all the intensive care

units in the private hospitals on the Witwatersrand and even the entire country.

The situational analysis was done by means of the 'Activity Questionnaire'.

The questionnaire was divided into ten (10) categories according to the sections of the 'Scope of Practice for Registered and Enrolled Nurses' [South African Nursing Council, 1984].

The individual activities in the intensive care units were recorded in the form of a checklist and for analysis purposes, the total scores for the ten (10) categories of activities were used [See table 5.1].

Each of the activities listed in the 'Activity Questionnaire' was classified according to the skill level required to perform the activity. The frequency with which the various skill levels occurred was worked out [See annexure H].

6.2.2. Discussion.

The nurse in the intensive care unit in the private institution on the Witwatersrand, spends 52.37 percent of her time doing observations, while the next most frequent activity (16.71%) is the care of the patient's hygiene, followed by 9.52 percent of the time spent on ventilation related activities. These results can be seen in table 5.1.

Nutrition (1.27%) and surgery related activities (1.16%) are activities done the least frequently [For detail of the frequency distribution, see table 5.1].

There are a number of studies indicating which percentage of the nurse's day is spent on the various activities [Brownlee, 1983 : 18 ; Wiseman, 1984 : 55; Goldstone, + Ball, 1984 : 56].

These authors only make distinctions between direct and indirect patient care, education, administration and research activities and some of the studies are referring only to general wards.

The only study where a questionnaire is used with more detail of the actual activities is the study by Kawczak Hagerty, Chang, + Spengler [1985 : 12]. The results of this study were also only presented in the broad categories.

A direct comparison of the results from this study with other studies is therefore not possible.

It is generally accepted that intensive nursing care is a highly skilled work. To verify this, the activities were graded according to the skill level required to carry out the activity.

The findings show that activities needing the two (2) higher skill levels, that is, skill levels four (4) and five (5), accounted for 39.18 percent of all the activities, with the highest skill level of five (5) representing 36.01 percent. Activities revealing the lower skill levels one (1), two (2) and three (3) totalled 60.81 percent [Refer to table 5.2].

Activities with skill level one (1) only occurred 2.02 percent of the time and skill level two (2) occurred 22.78 percent of the time. These results are represented in table 5.2.

A comparison could be drawn between the frequency with which the various skill levels occurred in the intensive care units in a provincial hospital as found by Dannenfeldt [1986a : 16], using a similar questionnaire and the frequency found in the private hospitals in this study.

Table 6.1. Comparison of skill levels.

Skill level	Private instit.	Provincial hosp.
	This study 1987	Dannenfeldt 1986a
1	2.02 %	2.2 %
2	22.78 %	18.5 %
3	36.01 %	30.6 %
4	9.62 %	18.7 %
5	29.56 %	29.9 %

From table 6.1 it can be seen that the activities, according to the skill required to perform them, have a very similar trend in the private and provincial hospitals.

6.2.3. Conclusion.

The intensive care units included in the research differed in the type of patients they catered for. Although the actual frequency with which the various activities were performed differed [See annexure D], the distribution of activities was fairly similar and therefore all the units were grouped together [See table 5.1].

The results from this research can therefore be generalised to other areas in the country.

Table 6.1. shows that the nurses in the private sector are already performing similar activities to the nurses in the provincial hospitals. Possibly, the private sector is ready to cater for patients similar to those cared for in provincial hospitals.

It can be concluded that intensive care nursing has a large component of highly skilled activities (level 5), but that there are many activities which do not require a high degree of skill.

If the activities are grouped into skill levels, for example the higher skill levels (4 and 5) put together and activities with the lower skill levels (1, 2 and 3), the results are as follows :

- the activities with the higher skill level are 39.18 percent of all the activities; and
- the remaining 60.81 percent are the activities with the lower skill levels.

Another deduction can be made from the fact that less than 40 percent of the activities require high skill levels, which is, that it is therefore not necessary for all the staff working in an intensive care unit to be trained in intensive care nursing.

There is place for lesser qualified staff, that is general nurses and even non-professional nurses to assist the intensive care trained nurse.

On the other hand, it can also be concluded that patients are admitted to the intensive care unit who do not require intensive care.

Every patient, whether in an intensive care unit or a general ward, needs basic nursing care. Although these basic needs are an essential aspects of nursing care, they do not require a high level of skill to be

performed. Therefore there will always be a component of lower level skill activities. In nursing the critically ill patient, the ratio of basic nursing care to highly skilled activities is different to nursing a patient in a general ward. In this research the ratio of higher skilled activities to lower skilled activities is two to three (2 : 3).

6.2.4. Recommendations.

- * In order to compare results, a similar study should be undertaken in the state hospitals.
- * To make this research more valuable, the study could be repeated over a longer period of time and the sample could be enlarged.
- * That nurse managers and charge-sisters look at the staff-mix in the intensive care unit in terms of the actual nursing care activities performed in the unit and have a complement intensive care trained staff, general nurses and non-professional staff.
- * In order to optimise on the intensive care facilities, patients who are admitted to the units should be screened or assessed. It is recommended that research be done into the various patient assessment instruments which exist and the results can be used for determining the need for and the establishment of intensive care units in the future.

Criteria for admission can be devised from patient assessments, in order to justify admission to the intensive care unit.

6.3. Findings on the competence of the staff.

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6.3.1. Biographical data.

The analysis of the biographical data revealed the following results.

6.3.1.1. Discussion.

As could be expected from analysing the biographical data from a predominantly female profession, the overwhelming majority of respondents (97.3%) were female [See table 5.4.].

The majority of respondents were under the age of forty (40) years, for example, twenty-one (21 or 28.8%) of the respondents were between the age of twenty-six (26) and thirty (30) years and a further twenty-one (21 or 28.8%) were between the age of thirty-one (31) to thirty-five (35) years.

Pera [1985 : 181], found a similar age distribution in her study. Her results showed that 71.4 percent of the respondents were below the age of thirty-nine (39) years.

In this study, the majority (53.4%) of the respondents were single, while overseas studies reported a majority (69.0%) were married [Chesney, + Beck, 1985 : 4].

Pera [1985 : 182] found that 42 percent of the nurses working in the private sector were married and 46 percent were single.

The ethnic composition of this study varied slightly from that of the entire nursing profession in South Africa [See 5.4.7.].

In this study, 51 (69.9%) of the respondents were white, while the white nurses comprise only 41.5 percent of all the nurses [Searle, 1987 : 19].

The results of this research correlates well with that of Pera [1985], if one looks at the type of employment in which the nurses are.

In this study, 93.2 percent of the respondents are in full-time employment, [See 5.4.12.], and Pera [1985 : 196] found that 91 percent of the staff in the private hospitals were in full-time employment.

This is contradictory to the popular belief that nurses in the private sector only work part-time or on a sessional basis.

The belief that nurses are a mobile population has however been confirmed.

There were 61.6 percent of the respondents who had only been in their present position for less than two (2) years.

These results can be confirmed by previous studies by Dannenfeldt [1986b] and by Chesney + Beck [1985 : 40].

Because nurses are such a mobile population, each time they commence work at a new place of employment, they should go through an orientation program.

The clinical advancement opportunities are limited [See 6.4.18.] and this could contribute to the poor motivation with regards to education amongst the staff.

6.3.1.2. Conclusion.

Intensive care nursing seems to appeal to the younger, female nurses who are still single and therefore more mobile.

The private hospitals have over the years catered mainly for white patients, and have only recently opened their door to patients and staff of all races.

The nurses working in the intensive care units in the private sector are generally in full-time employment, which means there is some commitment on the part of the nurses.

Although the nurses seek full-time employment, they do not appear to be a very settled group [See table 5.13].

There is a high turnover rate amongst these nurses.

6.3.1.3. Recommendation.

- * As the nursing staff in the intensive care units is a young group, it is essential to offer in-service education to these nurses, in order to supplement their previous training and equip them for the work.
- * The work in an intensive care unit is stressful and therefore the nursing staff need constant support and encouragement. The various supportive mechanisms can be built into staff development programs.
- * The commitment from the nurse and the fact that nurses change their work so frequently increases the need for staff development programs.
- * In order to keep up to date and maintain a high level of competence, all levels of staff need ongoing

education programs which are readily available to the staff.

6.3.2. The educational level of the staff.

6.3.2.1. Discussion.

The distribution of professional nurses to other categories in this study was 93.2 percent professional nurses and 6.8 percent sub-professionals. This is very similar to the distribution in the intensive care units in a provincial hospital, where there were 8.3 percent sub-professionals and the rest were professional nurses [Dannenfeldt, 1986a : 16].

The percentage of professional nurses in this study with Baccalaureate Degrees is small (5.5%), as compared to an American study where 19.5 percent of the respondents had degrees [Arneson, 1985b : 14] It must however be remembered that the American nursing education system is slightly different to the South African system [See 5.4.8.].

The researcher found that apart from the basic general nursing qualification, 85.3 percent of the respondents had a second qualification and 67.6 percent had a third nursing qualification.

Pera [1985 : 185] results showed that, 78 percent of the nurses in the private hospitals were registered nurses, of which only 16 percent had a second qualification, and 11 percent had a third qualification.

From this study it is evident that the ratio of nurses who are trained in intensive nursing care compared to those not trained, is similar in the private hospitals and the provincial hospitals. The percentage of intensive care trained nurses varied between 57.2 percent and 67.6 percent [See 5.3.9.].

The intensive nursing care trained group, however, only comprises a very small percentage (2.56%) of the entire nursing profession in South Africa [South African Nursing Council, 1987].

Forty-six (46 or 63.0%) of the respondents had completed their basic training ten (10 years ago) [See 5.4.10.].

According to Clarke [1985 : 48], most of the education programs for professionals can, due to the knowledge explosion, only prepare the person for ten (10) years of working life. If this is the case, there are a large number (37.0%) of nurses whose knowledge can be out of date, as there are only a few staff development programs available.

It appears that the nurses do not attend education programs and less than half of the respondents have actually got educational facilities available to them [See 5.3.16.].

The results from the study show that few of the respondents read professional journals [See 5.3.14.]. Only 42.5 percent of the professional nurses read professional journals on a monthly basis and 38.4 percent read these journals even less frequently. These results can be substantiated by the study done by Clarke [1985 :48], where similar results emerged [See 5.3.14.].

In the present study there were only 11.0 percent of the respondents who were engaged in further study. Tough, who studied the general adult population found that 70 percent of the adults utilize some form of continuing education [Hegge, 1985 : 205]. One wonders why the nursing profession exhibits a different pattern.

6.3.2.2. Conclusions.

One can conclude from this that the professional nurses in the entire private sector have not acquired further nursing qualifications [Pera, 1985], but that many of those nurses working in intensive care units do have some nursing qualification other than their basic training.

As has been mentioned previously, because of the diversity of the nursing care (basic care to skilled activities) there should be a mixture of categories of nursing staff. The staffing-mix in the intensive care units should include intensive care trained nurses as well as registered general nurses and even sub-professionals [See 6.3.2.1].

From the discussion in 6.3.2.1. it can be concluded that there are professional nurses working in the private hospitals whose knowledge is out-dated and as continual up-dating of knowledge is required to give quality nursing care, presumably, these nurses are not delivering the required standard of care.

Although some educational facilities are available, there does not seem to be consensus between the staff in the individual units, as to which education facilities are actually available, for example, only five (5) of the nine (9) sisters in the one unit (F) said that an orientation program was available and only four (4) said that there was in-service education [See table 5.16.].

6.3.2.3. Recommendation.

- * The nursing care of critically ill patients involves activities with various skills.
The nurse managers must therefore recruit suitable staff for their specific intensive care units.
If the number of intensive care trained nurses is low, that specific category must be recruited.
- * If suitable candidates cannot be recruited and the nurse managers have to employ a different category of staff, they, the nurse managers, must ensure that the staff received the necessary training and education for the work the staff is required to do.

6.3.3. Educational facilities.

6.3.3.1. Discussion.

The findings show that it is not clear to the staff which educational facilities are available and therefore these facilities cannot be used effectively [See 5.3.16].

The previous points reflect the problem that the private institutions do not only offer insufficient educational facilities to their staff, but also that the professional nurses are not motivated to seek continuing education.

The reasons for the lack of interest from the staff in education can be due to the fact that the staff is not consulted re their educational needs and that they are not involved in the planning and implementation of the programs.

6.3.3.2. Recommendation.

- * The teaching department in the hospital or the nurse manager must ensure that the staff is aware of any staff development programs. The programs must be advertised and the staff must be motivated and encouraged to attend these programs.
- * The nursing staff must be consulted about their needs for staff development.
- * The nurses should contribute to the planning and implementation of the educational programmes offered at the hospital.

6.3.4. Summary.

In summary, the biographical data indicates that the nursing population in the intensive care units in the private institutions is a young group of nurses who have not yet settled down in a specific line of work. The second aspect that can be highlighted is the lack of educational facilities and learning opportunities in these institutions for the nurses and this could result in lowered standards of patient care.

6.3.5. Findings on the competence level of the respondents.

6.3.5.1. Diagnosis and planning.

In order to implement scientific nursing care, the professional nurse must be able to diagnose the health care needs of her patient.

In this study it became evident that only 15.1 percent of the respondents were fully competent in taking a health history from a patient and 37.0 percent could carry out parts of the physical assessment procedure [See table 5.19.].

The fact that only forty-two (42) out of the seventy-three (73) respondents, [See 5.3.19.2.], answered the question about the prescription of nursing regimes, could indicate that the nursing staff do not know what a nursing regime is and did not know that they could prescribe nursing care.

6.3.5.2. Execution of nursing regimes.

When asked which nursing regimes they could execute, the response was more positive, more of the respondents felt that they were competent [See 5.3.19.2].

It is however disturbing to note that only seventeen (17 or 23.3%) of the respondents were fully competent in doing cardio-pulmonary-cerebral resuscitation. This is an emergency procedure in which every nurse should be proficient.

In general, when it comes to the execution of prescribed treatments such as peritoneal dialysis, intubation or the treatment of hypothermia, more of the respondents gave themselves a score of four (4) rather than five (5) [See table 5.21.].

The administration of medication seemed to be a procedure which was well executed as many of the respondents scored a five (5) [See table 5.22.].

The competence of the staff in monitoring the patients' reactions to disease conditions, medication and treatments varied. This was to be expected because in some units the intra-aortic-balloon pump (IABP) was not used and in other units intracranial pressures were not monitored. Once again the scores for the monitoring procedures centered around four (4) and five (5) [See table 5.23.].

In the routine, but very important aspects of hygiene and comfort, most of the staff felt they were competent [See 5.3.19.7.].

The staff was not so confident in carrying out breathing and limb exercises [See table 5.26.].

The same applied to their ability or inability to care for patients on a ventilator [See table 5.27.].

The majority (60.3%) of staff could however use an oxygen mask in the nursing care of the patients.

The supervision and maintenance of fluid and electrolyte balance and the supplying of nutrition to the patients were activities in which the staff predominantly scored

a five (5), with the exception of blood gas analysis and setting up for total parenteral nutrition (TPN) [See tables 5.28. + 5.30.].

The fact that more respondents gave themselves a score of four (4) rather than a five (5) [See table 5.29.], for their ability to facilitate wound healing may be due to the fact that the intensive care units in this sample were mainly general intensive care units and only four (4) of the units were specifically surgical or trauma units [See table 5.3.].

A similar pattern emerged with regard to the preparation of the patients for surgery or diagnostic procedures, as the staff did not feel confident in carrying out these procedures [See table 5.32.].

6.3.5.2. (a) Conclusions.

The nurses working in the intensive care units were not competent in doing a physical assessment on a patient, nor were they able to plan and prescribe nursing regimes.

The staff may not understand the meaning of the term 'regime'. It appears to be a lack of knowledge of the 'Scope of Practice Regulations for Registered and Enrolled Nurses'.

It can be concluded that varying degrees of competence exists in the performance of nursing care procedures.

6.3.5.2. (b) Recommendation.

- * The 'Scope of Practice Regulations' need to be emphasised in the staff development programs.
- * One of the aspects that staff development should focus on is the assessment of the patient and the prescription of nursing regimes.
- * Because of areas in which the staff is not competent, staff development programs need to be instituted, be it an orientation program or in-service education or even a formal course.

6.3.5.3. Psycho-social aspects of the care.

6.3.5.3. (a) Discussion.

There is a dramatic variation in the scores in the competence of the staff in dealing with psychosocial aspects of nursing care, as can be seen from tables 5.24 and 5.25.

The scores centered around three (3) and four (4) for the staff's ability to support and give advice to the patients, family and colleagues.

Reassuring the patients [See table 5.25.], seemed to be an activity which the staff could do slightly better, as the scores were between four (4) and five (5).

The staff is not competent in creating a safe emotional environment, as only seven (7 or 9.6%) of the respondents gave themselves a score of five (5) [See table 5.31.].

The extent to which the staff felt that they were competent in communicating with others is reflected in the fact that they scored four (4) and five (5).

6.3.5.3. (b) Conclusion.

One can therefore come to the conclusion that the staff in the intensive care units are not competent in creating a safe emotional environment for the patients, their families and the other staff.

Possible causes for this lack in psycho-social abilities may be a deficit in the training of the staff, but it could also be a personality trait of the type of nurse who is attracted by intensive care nursing.

6.3.5.3. (c) Recommendation.

- * Further studies can be undertaken to determine the exact cause of the poor psycho-social performance of the nurses in the intensive care units.
- * Possible corrective measures such as awareness training, practicing of communication skills and

group therapy should be considered and implemented. This can be done by means of staff development programs.

6.3.6. Findings on the validity of the questionnaire.

6.3.6.1. Discussion.

One of the problems associated with the use of questionnaires is the lack of established validity of the questionnaire.

The various questions of the 'Competence Questionnaire' were analysed for validity by means of the statistical method of factor analysis [See 5.4].

The factor grouping that emerged was in keeping with logical reasoning. For example, [See 5.4.9.] the factor analysis on the question referring to the maintenance and supervision of fluid and electrolyte balance brought out two (2) factors. The first factor included all the physical activities, such as setting up for intravenous lines or bladder catheterisation, while the second factor comprised the interpretative procedures.

6.3.6.3. Recommendation.

The questionnaire to measure the competence of the staff has been validated statistically. The questionnaire should be tested more widely to enhance its validity.

6.3.7. Summary of the findings of the 'Competence Questionnaire'.

Overall, the physical activities could be carried out by the staff, but when it came to reassuring the patients, or communicating with others, the number of nurses who felt that they were competent, dropped markedly.

These facts all indicate that the nursing staff in these intensive care units were not competent in the psychosocial aspects of patient care.

In summarising the results from the factor analysis, one (1) or two (2) factors emerged, and these were in keeping with logical reasoning. For example activities related to ventilation were grouped in a common factor, while basic hygiene activities formed another factor.

6.4. Findings on the correlation between activities and competence.

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6.4.1. Discussion of the results of the correlation.

Although there are other factors involved, it can be postulated that if there is a relation between the frequency with which an activity is carried out and the competence of the staff, the nursing care they give should be of a higher standard.

If however, the activity is carried out frequently and the staff is not competent, the nursing care will possibly be of a lower standard.

It is however not expected that the staff should be fully competent in activities which are carried out infrequently.

6.4.1.1. Assessment.

Every patient should have a physical examination done on admission and therefore all the staff should be proficient in taking a health history and doing a relevant nursing physical examination.

As has been mentioned previously, there is only a small percentage (16.4%) of the staff who feel they are competent in taking a history from a patient, and no one is competent in doing a full physical examination [See table 5.34.].

On the linear regression, there is no correlation between age, length of time since the basic registration or the period of time in the present employment and the

ability of the nursing staff to assess the health care needs of the patients [See table 5.59].

6.4.1.2. Resuscitation.

Although cardio-pulmonary-cerebral resuscitation comprises only 1.4 percent of the nursing regimes mentioned in this study, every nurse should be competent to carry out this life-saving procedure, but only 23.3 percent of the respondents felt that they were competent in cardio-pulmonary-cerebral resuscitation [See table 5.35.].

There is a positive statistical correlation between the training of the respondents, as well as the frequency with which they read professional journals and their ability to perform resuscitation procedures [See table 5.62.].

6.4.1.3. Nursing regimes.

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Suctioning was carried out frequently (54.4%), but less than half (49.3%) of the respondents were fully competent in carrying out this procedure.

Naso-gastric feeding was done less frequently (9.3%) and 57.5 percent of the respondents felt that they were competent.

Peritoneal dialysis was done very seldom (0.6%) and only 19.2 percent of the respondents were competent to carry out this procedure [See table 5.35.].

There is a positive statistical correlation between both age and training and the competence with which the staff execute prescribed treatments [See table 5.63.].

The prescription and promotion of hygiene is done frequently [See table 5.40.], and nearly 80 percent of the staff were competent.

The procedures of limb and breathing exercise, [See table 5.41.], were carried out 52.1 percent and 47.9 percent of the time respectively. There were however only thirteen (13 or 17.8%) of the respondents who were competent in doing limb exercises for the patients and only sixteen (16 or 21.9%) of the respondents were competent in performing breathing exercises.

The frequency with which the staff supervises and maintains fluid and electrolyte balance corresponds fairly well to the competence level of the staff [See table 5.43.].

There is a positive statistical correlation between the ability to interpret results and the training as well as the length of time the nurse is in her present work position.

6.4.1.4. Observation.

Temperature, pulse and respiration (TPR) and blood pressure (BP) observations are done frequently, that is 47.7 percent of all the observations, and 72.6 percent of the staff felt that they were fully competent in this procedure.

On the whole, the less frequently performed observations correlated with lesser competence from the staff [See table 5.38.].

Once again, training has a positive affect on the competence with which the observations are carried out. It is interesting to note that there is a positive statistical correlation between the number of years since the basic training and the competence in doing advanced observations, while no such statistical correlation exists for the basic observation techniques [See tables 5.66 and 5.67.].

6.4.1.5. Psycho-social aspects.

As has been said before, nurses working in intensive care units are not competent in creating a safe emotional environment for the patient [See table 5.46.]. Two (2) of the seven (7) respondents who said that they were competent, were trained in intensive nursing care.

It seems as though the intensive nursing care training does not emphasise the psycho-social aspects. These nursing sisters are competent in the physical aspects of nursing care, but this cannot be said of the psycho-social activities.

This is emphasised by the fact that there is no positive statistical correlation between the ability to give

support or communicate and the nurses' age or training or experience [See tables 5.68 and 5.75.].

6.4.2. Conclusion.

There is no consistent relationship between the frequency of occurrence of the activity and the perceived competence, or the infrequency of activity with incompetence.

6.4.3. Recommendation.

- * An educational program to make the staff competent in cardio-pulmonary-cerebral resuscitation should therefore be instituted.
- * This emphasises the need for teaching the staff the routine procedures in an intensive care unit.
- * Communication skills is another aspect in which the staff is not competent [See table 5.48.], and remedial action should be undertaken.

6.4.4. Summary of the statistical correlation.

The following emerges from the statistical correlations when one looks at the affect of the five (5) independent variable (for example : age, training) on the ten (10) dependent variable (for example : observations, nursing regimes).

- * Age has a positive correlation with the execution of treatments prescribed by registered persons. As age only correlates positively with one (1) of the ten (10) dependent variables, it would seem that age has a minimal effect on competence.
- * There is a positive correlation between training and the following dependent variables : ventilation techniques, resuscitative procedures, maintenance care, treatments prescribed by registered persons and, basic and advanced observations. It is thus obvious that training does improve competence in various skills.

- * The length of time since the completion of the basic training of the nurses, correlates positively with ventilatory techniques and the performance of advanced observations. It can be concluded that experience does affect competence positively.
- * The period of time the respondents spent in their present work situation correlates positively with resuscitative procedures and the analysis of blood gas results. The length of time in a certain work situation has a minimal affect on improved competence and therefore ongoing or repeated staff development programs are essential.
- * The frequency with which the staff read professional journals resulted in a positive correlation with resuscitative procedures and maintenance care, but the staff need guidance in the use of professional literature to improve their knowledge.

6.5. Findings on the educational programs.

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6.5.1. Discussion on the findings from the pre- and posttest for the 'Cardio-pulmonary-cerebral resuscitation' program.

The posttest scores were higher than the pretest scores, although the difference was very small (pretest = 10.5, posttest = 10.8).

A possible explanation for the small difference could be the language problem. The majority of participants were Afrikaans-speaking. The lecture and demonstration was in Afrikaans, but the test was in English.

The other aspect that needs to be highlighted is that a once-off education program is of little value in increasing the competence of the staff. The participants in the program also did not have the opportunity to practice the skills.

6.5.2. Discussion of the findings of the pre- and posttest for the 'Physical assessment' program.

The posttest scores were higher than the pretest scores as can be seen from table 5.76.

Two (2) people scored higher on the pretest. These two (2) participants indicated that they thought they were competent in doing a physical assessment (pretest), but as the lecture progressed, they realised that they were not so competent and therefore scored themselves lower on the posttest.

It was to be expected that the participants should score better on the posttest than on the pretest.

If the participants could have practiced the taught skills, the difference between the two sets of scores might have been greater.

All in all, the educational program was beneficial to the participants.

6.5.3. Conclusion.

It is evident that there is a need for staff development programs and in the next chapter the researcher will devise a model for staff development.

6.5.4. . Recommendations.

- * An ongoing staff development program is essential to attain and then to maintain the competence of the nursing staff.
- * Every nurse who is employed should get a competence test before starting work in a specific area. This will determine the nurse's ability, but it can also serve as a baseline need analysis for the orientation program or future education programs.

6.6. General recommendations.

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Based on the analysis of the findings and a review of the literature, the following recommendations are made :

6.6.1. Quality assurance.

- * Standards be set for minimum levels of competence. This will enable objective evaluation of staff competence and ensure safe practice.
- * Quality assurance programs to be started in order to monitor the quality of care which the nursing staff gives to the patients.

6.6.2. Research.

Further research is recommended in the following areas :

- * The minimum level competencies (cognitive, psychomotor and affective) necessary to ensure safe practice.
 - * Evaluation methods and instruments which will provide valid and reliable measures of competence in intensive care nursing.
-
- * The structural components that are required to effect a valid intensive nursing care education process.
 - * Patient care outcomes which correlate positively with competence.
 - * The extent to which various institutions, the profession and the individual affect the provision of education.
 - * The time that is spent on the various activities with each skill level.

6.6.3. Education.

* A discrepancy was evident between the frequency with which some activities were carried out and the competence of the staff. Therefore educational programs in the following areas are recommended :

- cardio-pulmonary-cerebral resuscitation;
- physical assessment;
- psycho-social aspects; and
- breathing and limb exercise.

There are of course other areas that should also receive attention, but the four (4) aspects mentioned, emerged as requiring the most urgent attention.

- * Existing educational programs must be advertised, or the staff must be made aware of these programs so that they, the staff, can utilise the existing programs.
- * The nurse managers must become increasingly involved in staff development and actually show their commitment in order for the programs to be successful.
- * A model for collaboration and co-operation in staff development should be established in order to pool resources from the various institution for optimal use.

From the discussion of the fact in this chapter, it is evident that there is a need for staff development amongst all categories of staff working in the intensive care units.

In the next chapter a model will be proposed for staff development in the private hospitals.

CHAPTER SEVEN

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A STAFF DEVELOPMENT MODEL FOR THE NURSES WORKING IN
INTENSIVE CARE UNITS IN PRIVATE HOSPITALS.

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7.1. Introduction.

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The research has shown that the nursing staff do not feel competent in numerous aspects in the nursing care. These aspects include :

- cardio-pulmonary-cerebral resuscitation;
- breathing and limb exercises;
- physical assessment;
- prescription of nursing regimes; and
- psycho-social aspects.

[Also see 5.3.19.].

The fact that the nursing staff does not feel competent could lead to a lower standard of care with adverse consequences for the patient as well as the private hospital industry at large.

To ensure that the hospitals do provide quality patient care, a quality assurance program must be instituted in each of the hospitals [See 2.3].

The purpose of these quality assurance programs is to measure the quality of care that is given. If the analysis shows that there are aspects which do not meet the required standard, staff development programs must be planned to improve the skill and knowledge of the staff in these specific areas [See 3.2.].

Another reason for implementing staff development programs is to ensure that the staff keeps up to date in a field such as intensive care nursing which is forever changing because of the advances in medical technology.

Some nurses are self-directed in obtaining education. The desire to maintain clinical proficiency motivates them to seek meaningful and continuous learning experiences. This has been indicated by the number of professional nurses who voluntarily attended a short course on 'Cardio-pulmonary-cerebral resuscitation' or 'Physical assessment' [See 5.7.].

Many other nurses rely heavily on the service institution for assistance [Alspach, 1982 : 11].

It is the responsibility of the individual nurse to seek staff development programs suitable to her educational needs. The institution however, has the responsibility to assist in the provision of the necessary educational facilities.

Staff development is thus the dual responsibility of the employee and employer [3.5.2.].

The aim of these programs is to assist registered nurses to competently provide the nursing component of critical care. This means that the nursing care should be based on knowledge and skill, with understanding, judgement and humanity.

With the above in mind, the researcher proposes the following model for staff development for the nurses working in the intensive care units in the private institutions.

The study was limited to the intensive care units in the private hospitals on the Witwatersrand. There were sixteen (16) private hospitals with intensive care units and many of the hospitals belong to one (1) of the three (3) big private companies [Engelhardt, Ed. 1985 : 85].

Although the study was limited to intensive care units, the proposed model can be applied to any other clinical setting.

Figure 7.1 illustrates the structure of the proposed model and each different aspect will be discussed.

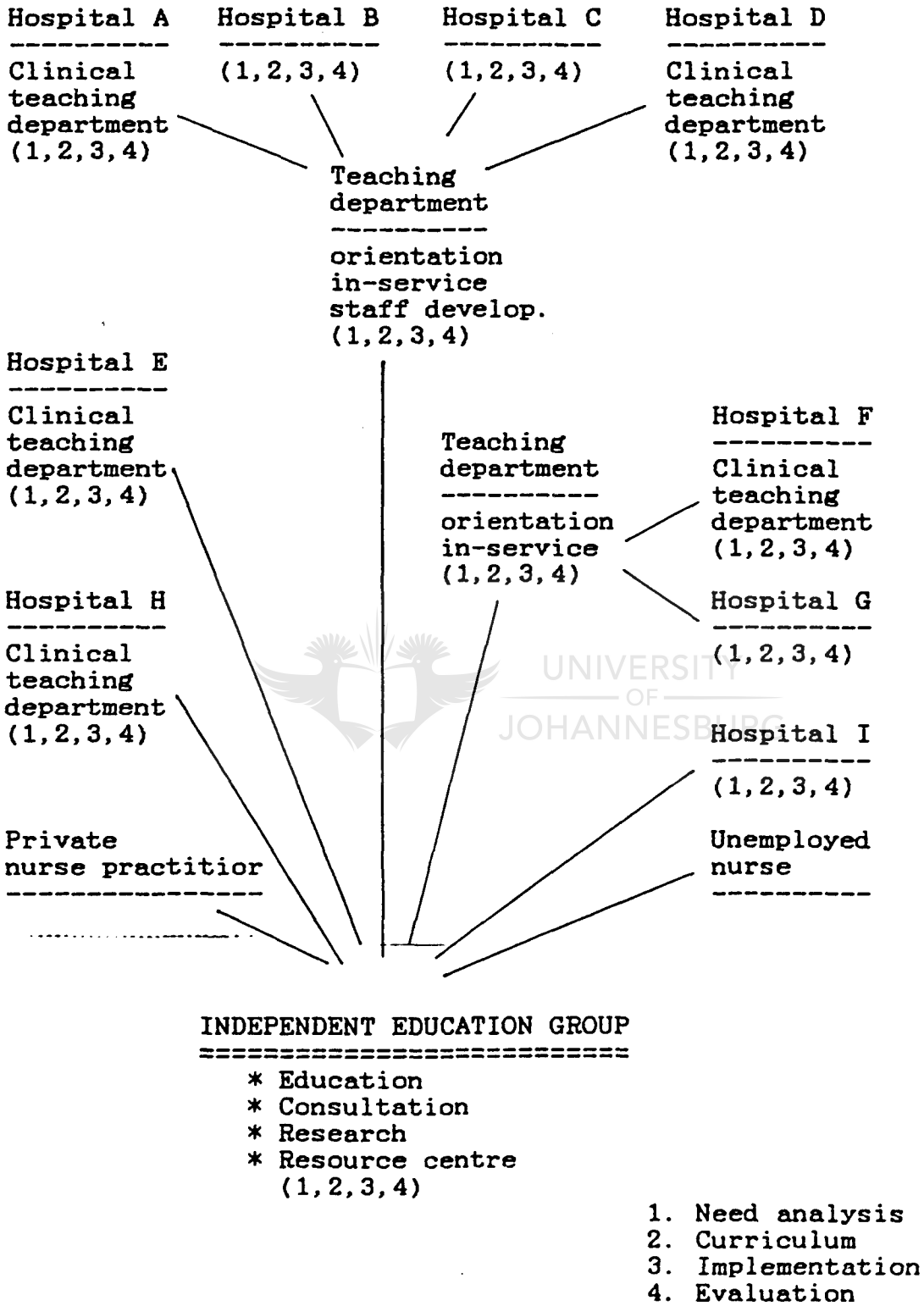


Figure 7.1. Model for staff development for the nurses in the private institutions.

7.2. Proposed model.

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The researcher has shown that there is a need for staff development programs in private institutions.

It is however not cost-effective for each of these institutions to individually run all the necessary programs. This is particularly relevant in terms of formal courses such as the Diploma in Intensive Nursing Science or the Diploma in Operating Theatre Nursing Science.

The private hospitals may have the need for such educational courses and in actual fact even have the clinical facilities [De Villiers, 1974 : 17].

To overcome this problem, the researcher proposes the development of an 'Independent Education Group'.

7.2.1. 'Independent Education Group'.

As can be seen from this model, the various private institutions and in some cases private nurse practitioners or unemployed nurses can liase in different ways with this group to develop or to take part in staff development programs.

The 'Independent Education Group' could be an existing institution such as a university or college, or it could be a private enterprise.

The 'Independent Education Group' can play a number of roles, such as education, research or resource centre, in the field of private nursing.

The personnel in such an 'Independent Education Group' will consist of experts in various specialities, such as educationalists, intensive care nurse specialists or clinical consultants.

The main focus will be education and therefore the staff will be responsible for the educational need assessment [See 3.2.1.], the curriculum design [See 3.2.4.], the implementation and the evaluation [See 3.6.] of the educational programs.

They will also be consulted by the clinical teaching departments and centralised teaching departments and possibly supervise programs in those hospitals.

They could assist in providing formal education courses such as the Diploma in Intensive Nursing Science.

This group could also become a centralised resource centre for information, and teaching and learning aids, as well as for media production.

As consultants, the staff of the 'Independent Education Group' will be involved in the quality assurance programs and will assist in the setting of standards and performance appraisal [See 2.4.2. and 2.5.].

This 'Independent Education Group' can also play a very important role in research, by either initiating research projects or participating in research.

One of the most important roles however will be to act as resource personnel for each of the institutions so as to enable them to carry out their orientation and in-service functions.

One can thus see that the role of the 'Independent Education Group' will be varied. Their specific role in relation to each institution will be determined by the specific needs of the institution.

The researcher wishes to make it quite clear that it is not intended that the 'Independent Education Group' takes away the autonomy of the teaching function of the institutions. It is only there to assist in making the staff development programs more cost-effective.

Each hospital will still offer some form of education even if this is only an orientation program.

It is the responsibility of each institution to determine its own philosophy and theory regarding intensive care nursing and nursing education. This philosophy will have to be consistent with the philosophy of their own institution, with that of the company to which the hospital belongs, as well as with the registering body, the South African Nursing Council. If a hospital or company wishes to affiliate to an 'Independent Education Group', the philosophy will also have to be congruent with that group [For a short summary on philosophy, see 2.2.].

It does however seem feasible that the philosophy of both the education area and the service area will revolve around the provision of high quality patient care.

It is thus of benefit to both if they co-operate and together set realistic and up-to-date goals for patient care. More appropriate standards will then be set and the educational goals will be more relevant to the work situation.

The hospital will therefore be involved in the entire curriculum cycle. Firstly they will need to carry out a needs analysis. This could be determined from the results of a quality assurance program (QA) [See 2.3. and 2.5] or they could be assessed by means of a 'Competence Questionnaire'(CQ), an instrument which has been proved reliable in this study [See 4.4.2.3. (b)].

Once the needs have been analysed it is essential that the curriculum be determined. The institutions may do this alone or they may seek assistance from the 'Independent Education Group'.

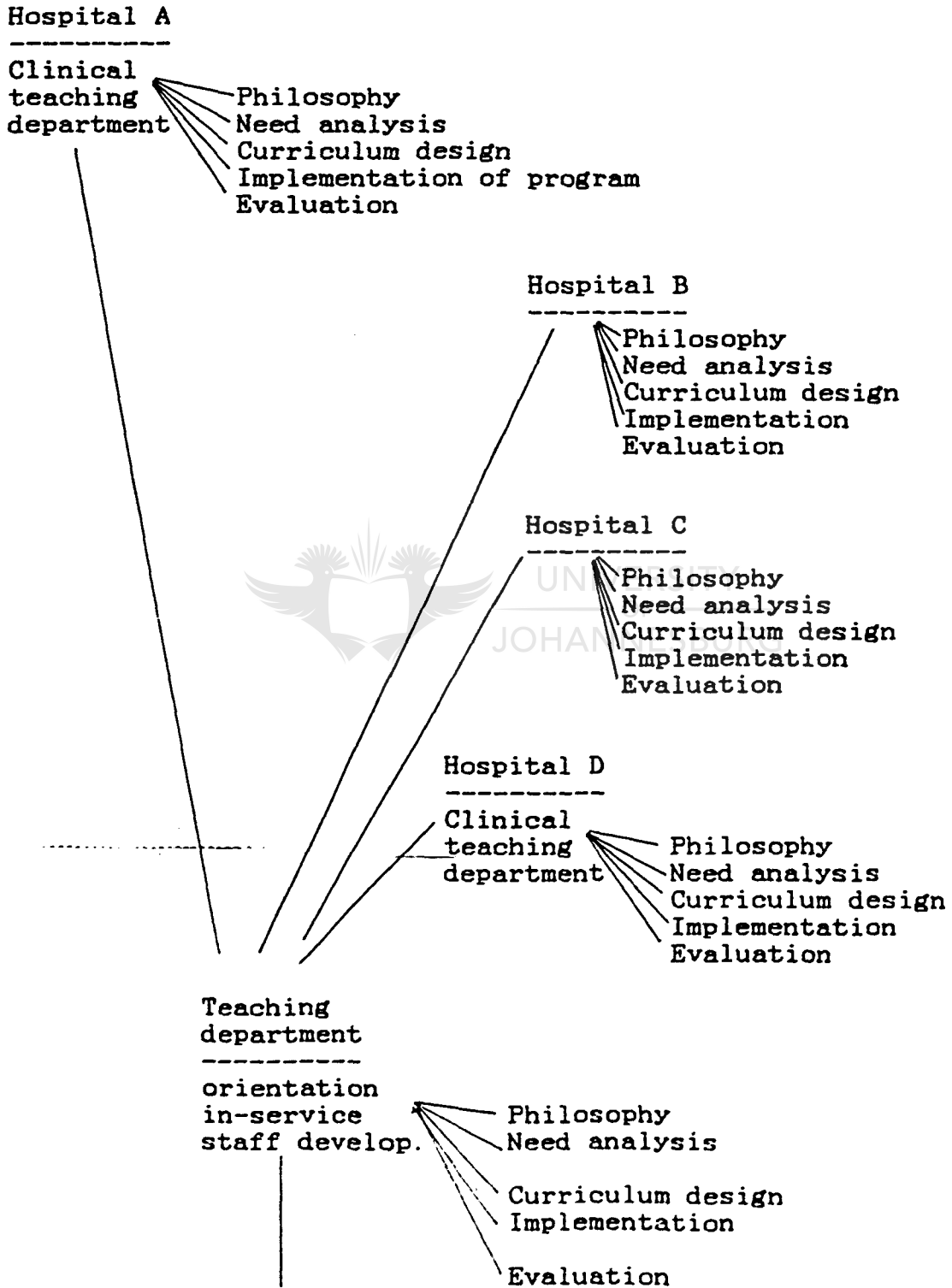
The implementation is an extremely important aspect which must be taken into consideration. The method of implementation may however vary from hospital to hospital depending on their size and locality. The input from the 'Independent Education Group' will vary depending on the situation. Different situations will be analysed later in this chapter [See 7.2.2., 7.2.3. and 7.2.4.].

The effectiveness of the program may be evaluated in various ways by both the individual hospitals and the 'Independent Education Group'. These could include the use of the quality assurance programs [See 2.3. and 2.5.], reassessment on the 'Competence Questionnaire' and formal and informal methods of evaluating individual participants.

One can thus see that this would once again involve both the 'Independent Education Group' and the individual hospitals.

The 'Independent Education Group' will also require an administrative infra-structure to help with the routine administration such as typing, record keeping and control of the library [See 3.5.5.].

7.2.2. Use of the model in hospitals belonging to the same company.



INDEPENDENT EDUCATION GROUP

FIGURE 7.2. Hospitals belonging to the same company.

The researcher has indicated that many of the hospitals may belong to the same private company.

This situation is depicted on the model as hospitals A, B, C and D.

These hospitals however may be of different sizes. For the purpose of this model, hospitals A and D are large and therefore have their own clinical teaching departments. These clinical teaching departments can offer orientation programs, in-service education programs or courses that are specific to the needs of the staff in those particular institutions.

In this group of hospitals, some of the hospitals (B + C) are small and do not have clinical teaching facilities. Therefore the orientation of new personnel is left to the sister-in-charge of the unit. The nurses in these institutions do however also need in-service education and staff development programs.

The model proposes that these hospitals belonging to a specific company should affiliate to a central teaching department.

Each of these hospitals should still retain most of their orientation and perhaps some of their in-service education functions. If these revolve around common policies, they can be given together.

The teaching department would however be responsible for the staff development programs of all the hospitals within the company [See figure 7.2.].

This teaching department can employ tutors and clinical teaching staff to co-ordinate and implement programs for the affiliated institutions.

This means that the teaching department must utilise the entire curriculum cycle, with a situation analysis, setting of objectives, implementation and evaluation [3.2.4.].

This centralisation of resources can be cost-effective and efficient. The benefits of pooled expertise are thus dispersed to all the hospitals in the group.

If this central teaching department cannot satisfy one-or-other aspect of the learning needs of the staff or consultation services are required, the department could call on the expertise or services of an 'Independent Education Group'.

It is also possible for each one of the hospitals to individually consult the 'Independent Education Group'.

Depending on the clinical facilities, the various hospitals may need to train their staff in the speciality areas, such as for example, intensive care nursing.

It is also possible that a group of hospitals as

illustrated in figure 7.2., would have the facilities between them to meet the requirements to train students for formal courses such as the Diploma in Intensive Nursing Science.

In the past, these nurses had to go to the State hospitals to attend the relevant course.

However with the assistance of the 'Independent Education Group' structure, it would now be possible to offer a formal post-registration course.

The 'Independent Education Group' could supply the formal aspect of courses, such as the Diploma in Intensive Nursing Science, while the practical component of the course could be supervised by the staff from the teaching department and the clinical teaching department.

This would of course require close collaboration between the hospital staff, teaching personnel and the 'Independent Education Group', but with the necessary administrative staff, budget and curriculum design skills to implement the program, it should not create any problems [See chapter three].

The clinical facilities of the individual hospitals could be used by all the affiliated hospitals. The nurses who are involved in the formal course could rotate amongst the different institutions and learn the required skills. An exchange system could be instituted, and therefore there should be no loss of manpower in any of the hospitals.

The staff in the clinical teaching department, as well as in the bigger teaching departments may not have the educational or administrative skills necessary to develop staff development programs or assist student in the clinical situation.

These members of the teaching staff could attend the relevant educational programs offered by the 'Independent Education Group', in order to gain the required knowledge and skills to develop and implement staff development programs.

A committee must be formed to structure this co-operative agreement, if such an agreement is to be effective [See 3.5.].

A representative from each of the hospitals, the teaching departments and the 'Independent Education Group' should form the co-ordinating committee.

7.2.3. Use of the model in independent hospitals.

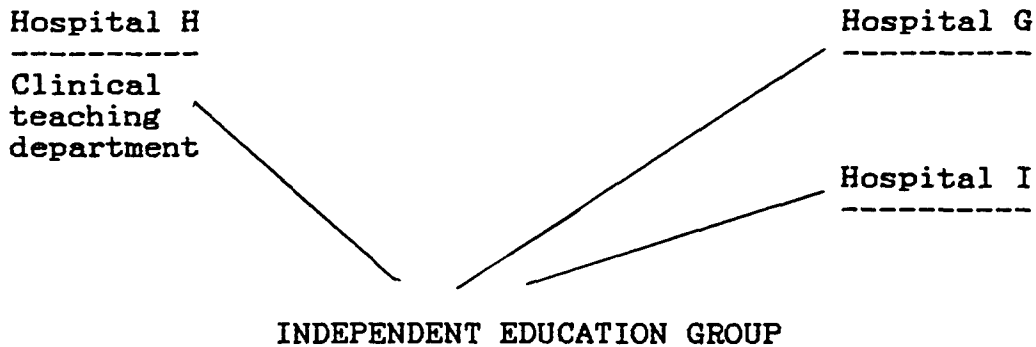


FIGURE 7.3. Independent hospitals.

There are also independent institutions in the area, with or without clinical teaching departments.

These hospitals, for example G, H and I can also liaise with the 'Independent Education Group', for any educational requirements of their staff, be it orientation, in-service or a formal course.

These institutions can also utilise the 'Independent Education Group' as consultants if they want to start their own clinical teaching department or programs.

7.2.4. Use of the model for the private nurse practitioner and unemployed nurse.

These nurses depict a different category because they have different needs.

Any individual nurse, whether employed in a hospital or working as a private practitioner or unemployed, can utilize the 'Independent Education Group' directly, for courses, self-study programs, audio-visual programs or request specific education programs.

One can thus see that the researcher has constructed a model which can be used by a heterogeneous group of institutions and nurses who all have different need, but all need staff development.

Each institution should retain it's individuality but resouces could be shared more effectively for the benefit of a large group.

7.3. Conclusion.

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A result of co-operation between education and service will lead to an improved work environment, increased staff morale and a sense of self-satisfaction and achievement and there will be greater team effort [Alspach, 1982 : 12].

The advantage of such an open, non-traditional model of learning is that it enables the curriculum to be adapted to the characteristics of the individual student and can allow entry and exit at various points in the program. The program will award academic credentials solely on the basis of performance [Lenburg, 1975 : 131].

Education is expensive, as it requires human resoures such as teaching staff (clinical and educational experts) and candidates to attend the programs, and then material resources (media, classrooms, study guides) are required.

As education is directly related to competence, the greater the input on the educational side, the greater the competence.

This is an important consideration for the private hospital management as competence is related to profit making.

Competent staff makes fewer mistakes at work as is evidenced by a decrease in damaged equipment, and fewer claims from the patients for negligence or damages. Improved patient care is indicated by increased patient turnover which is linked to profit for both the patient and the hospital.

Even though the initial outlay for education may be costly, in the long-term, the monetary benefits should be worthwhile for the company, in terms of patient turnover and quality of care and most certainly the staff will experience increased job satisfaction.

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ACTS AND REGULATIONS

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Health Act, no 63 of 1977.

Nursing Act, no 50 of 1978, as amended.

Regulations relating to the scope of practice of persons who are registered or enrolled under the Nursing Act, no 2598 of 1984, as amended.

Regulation for the course for the diploma in intensive nursing, no 85 of 1970, as amended.



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ANNEXURE A

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2598

30 November 1984

THE SOUTH AFRICAN NURSING COUNCIL

REGULATIONS RELATING TO THE SCOPE OF PRACTICE OF PERSONS WHO ARE REGISTERED OR LICENSED UNDER THE NURSING ACT, 1978

Minister of Health and Welfare has, on the recommendation of the South African Nursing Council, in terms of section 45 (1) (q) of the Nursing Act, 1978 (Act 50 of 1978) made the regulations as set out in the Schedule

SCHEDULE

CHAPTER I.—DEFINITIONS

In these regulations "the Act" shall mean the Nursing Act, 1978 (Act 50 of 1978), and any expression to which a meaning has been assigned in the Act, shall bear such meaning and, unless the context otherwise indicates—

"co-ordination" shall mean the bringing together of the acts of members of the health team to meet the specific needs of identified health needs of an individual or a group;

"diagnosing" shall mean the identification of, and the differentiation between physical, psychological and social signs and symptoms in man;

"health needs" shall mean those signs, symptoms and processes which denote the individual's interaction with his actual or potential health problem and which require nursing intervention;

"nursing regimen" shall mean the regulation of those matters which, through nursing intervention have an influence on the preventive, promotive, curative or rehabilitative aspects of health care and includes the provision of nursing care plans, their implementation and evaluation thereof and recording of the course of the health problem, the health care received by a patient and its outcome whilst a patient is in the charge of the nurse;

"prescribing" shall mean giving the written directions regarding those treating, nursing care, co-ordinating, collaborating and patient advocacy functions essential to the effective execution and management of the nursing regimen;

"registered person" shall mean a person who is registered as a nurse or as a midwife in terms of the Act or as a medical practitioner or dentist in terms of the Medical, Dental and Supplementary Health Service Professions Act, 1974 (Act 56 of 1974);

"treatment" shall mean selection and performance of those therapeutic measures essential to the effective execution and management of the nursing regimen.

CHAPTER 2.—THE SCOPE OF PRACTICE OF REGISTERED NURSES

The scope of practice of a registered nurse shall entail the following acts or procedures, which may be performed by scientifically based physical, chemical, psychological, social, educational and technological means applicable to health care practice:

No. R. 2598

30 November 1984

DIE SUID-AFRIKAANSE RAAD OP VERPLEGING

REGULASIES BETREFFENDE DIE BESTEK VAN PRAKTYK VAN PERSONE WAT KRAGTENS DIE WET OP VERPLEGING, 1978, GEREJISTREER OF LIGESKRYF IS

Die Minister van Gesondheid en Welsyn het, op aanbeveling van die Suid-Afrikaanse Raad op Verpleging, kragtens artikel 45 (1) (q) van die Wet op Verpleging, 1978 (Wet 50 van 1978), die regulasies in die Bylae hiervan uitgevaardig.

BYLAE

HOOFSTUK 1.—WOORDOMSKRYWINGS

1. In hierdie regulasies beteken "die Wet" die Wet op Verpleging, 1978 (Wet 50 van 1978), en het enige uitdrukking waaraan 'n betekenis in die Wet geheg is, daardie betekenis, en tensy uit die samehang anders blyk, beteken—

"behandeling" die selektering en uitvoering van sodanige terapeutiese maatreëls wat noodsaaklik is vir die doeltreffende uitvoering en bestuur van die verpleegregime;

"diagnosering" die identifisering van, en onderskeiding tussen fisiese, psigiese en sosiale tekens en simptome by die mens;

"gerejistreerde persoon" 'n persoon wat kragtens die Wet as verpleegkundige of as vroedvrou gerejistreer is of wat as geneesheer of tandarts kragtens die Wet op Geneesheer, Tandartse en Aanvullende Gesondheidsdiensberoep, 1974 (Wet 56 van 1974), gerejistreer is;

"gesondheidsbehoefte" daardie tekens, simptome en prosesse wat die individuele interaksie met enige werklike of potensieë gesondheidsprobleem aandui en wat verpleegtussentrede vereis;

"ko-ordinering" die saamsnoering van die handeling van lede van die gesondheidspan om te voldoen aan die spektrum van geïdentifiseerde gesondheidsbehoefte van 'n individu of 'n groep;

"verpleegregime" die regulering van sodanige aanleenthede wat deur verpleegtussentrede 'n invloed het op die voorkomende, bevorderende, kuratiewe of rehabilitatiewe aspekte van gesondheidsorg en behels dit die voorsiening van verpleegsorgplanne, die implementering en evaluering daarvan, die aantekening van die verloop van die gesondheidsprobleem, die gesondheidsorg wat deur 'n pasiënt ontvang is en die resultaat daarvan terwyl 'n pasiënt in die sorg van die verpleegkundige verkeer.

"voorskryf" die gee van skriftelike aanwysings betreffende die funksies ten opsigte van behandeling, verpleegsorg, ko-ordinering, samewerking en pasiëntvoorspraak wat noodsaaklik is vir die doeltreffende uitvoering en bestuur van die verpleegregime.

HOOFSTUK 2.—DIE BESTEK VAN PRAKTYK VAN GEREJISTREERDE VERPLEEGKUNDIGES

2. Die omvang van die praktyk van 'n gerejistreerde verpleegkundige behels die volgende handeling van prosedures wat deur middel van wetenskaplik gefundeerde fisiese, chemiese, psigiese, sosiale, opvoedkundige en tegnologiese metodes op gesondheidsorgpraktyk uitgevoer kan word:

(a) The diagnosing of a health need and the prescribing, provision and execution of a nursing regimen to meet the need of a patient or group of patients or, where necessary, referral to a registered person;

(b) the execution of a program of treatment or medication prescribed by a registered person for a patient;

(c) the treatment and care of and the administration of medicine to a patient, including the monitoring of the patient's vital signs and of his reaction to disease conditions, trauma, stress, anxiety, medication and treatment;

(d) the prevention of disease and promotion of health and family planning by teaching to and counselling with individuals and groups of persons;

(e) the prescribing, promotion or maintenance of hygiene, physical comfort and re-assurance of the patient;

(f) the promotion of exercise, rest and sleep with a view to healing and rehabilitation of a patient;

(g) the facilitation of body mechanics and the prevention of bodily deformities in a patient in the execution of the nursing regimen;

(h) the supervision over and maintenance of a supply of oxygen to a patient;

(i) the supervision over and maintenance of fluid, electrolyte and acid base balance of a patient;

(j) the facilitation of the healing of wounds and fractures, protection of the skin and the maintenance of sensory functions in a patient;

(k) the facilitation of the maintenance of bodily regulatory mechanisms and functions in a patient;

(l) the facilitation of the maintenance of nutrition of a patient;

(m) the supervision over and maintenance of elimination in a patient;

(n) the facilitation of communication by and with a patient in the execution of the nursing regimen;

(o) the facilitation of the attainment of optimum health of the individual, the family, groups and the community in the execution of the nursing regimen;

(p) the establishment and maintenance, in the execution of the nursing regimen, of an environment in which the physical and mental health of a patient is promoted;

(q) preparation for and assistance with operative, diagnostic and therapeutic acts for the patient;

(r) the co-ordination of the health care regimens provided to the patient by other categories of health personnel;

(s) the provision of effective patient advocacy to enable the patient to obtain the health care he needs;

(t) care of the dying patient and the care of a recently deceased patient within the execution of the nursing regimen.

(a) Die diagnosering van 'n gesondheidsbehoefte en die voorskryf, voorsiening en uitvoering van 'n verpleegregimen om in die behoefte van 'n pasiënt of groep pasiënte te voorsien of, waar nodig, deur verwysing na 'n geregistreerde persoon;

(b) die uitvoering van 'n program van behandeling of medikasie wat deur 'n geregistreerde persoon vir 'n pasiënt voorgeskryf is;

(c) die behandeling en versorging van en toediening van medikasie vir 'n pasiënt met inbegrip van die monitor van die vitale tekens en reaksie op siektetoestande, trauma, spanningsdruk, angs, medikasie en behandeling;

(d) die voorkoming van siekte en die bevordering van gesondheid en gesinsbeplanning deur voorligting aan en raad met individue en groepe persone;

(e) die voorskryf, bevordering of instandhouding van higiëne, fisiese gemak en gerusstelling van die pasiënt;

(f) die bevordering van oefening, rus en slaap met die oog op genesing en rehabilitasie van 'n pasiënt;

(g) die bevordering van liggaamsmeganika en die voorkoming van liggaamsmisvorming by 'n pasiënt in die uitvoering van 'n verpleegregimen;

(h) die toesig oor en instandhouding van suurstofvoorsiening aan 'n pasiënt;

(i) die toesig en instandhouding van vloeistof-, elektroliet- en suurbasisbalans van 'n pasiënt;

(j) die bevordering van die genesing van wonde en frakture, die beskerming van die vel en die instandhouding van sensoriese funksies in 'n pasiënt;

(k) die bevordering van die instandhouding van liggaamsregulerende meganismes en funksies in 'n pasiënt;

(l) die bevordering van die instandhouding van voeding van 'n pasiënt;

(m) die toesig oor en instandhouding van uitskeiding by 'n pasiënt;

(n) die bevordering van kommunikasie deur en met 'n pasiënt in die uitvoering van 'n verpleegregimen;

(o) die bevordering van die bereiking van optimale gesondheid vir die individu, die gesin, groepe en die gemeenskap in die uitvoering van 'n verpleegregimen;

(p) die skepping en instandhouding in die uitvoering van 'n verpleegregimen, van 'n omgewing waarin die fisiese en geestesgesondheid van 'n pasiënt bevorder word;

(q) voorbereiding vir en bystand met operatiewe, diagnostiese en terapeutiese behandeling van 'n pasiënt;

(r) die ko-ordinering van die program van behandeling voorsien vir 'n pasiënt;

(s) die voorsiening van doeltreffende pasiëntvoorspraak om die pasiënt in staat te stel om die nodige gesondheidsorg te verkry;

(t) versorging van die sterwende pasiënt en versorging van 'n pasafgestorwene binne die uitvoering van 'n verpleegregimen.

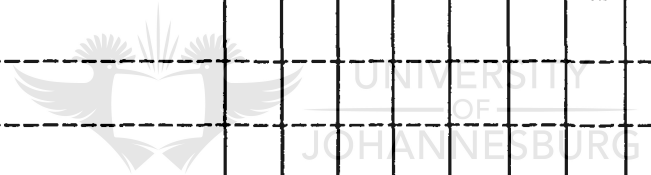
Questionnaire :

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Hospital : _____

Unit : _____

Patient' diagnosis																				
<u>Is the patient :</u>																				
Fully conscious																				
Restless + confused																				
Unco-operative																				
Unconscious																				
<u>General activities :</u>																				
Admission of patient																				
Transfer of patient																				
C.P.R.																				
Last offices																				
<u>Hygiene :</u>																				
Cleaning excessive soiling																				
Full bed wash																				
Mobilising a patient																				
Limb exercise																				
Mouth care																				
Eye care																				
Pressure part care + turning																				
Setting of trays																				
Empty suction bottles																				
Care of traction																				



Nutrition :

Feeding a patient

Passing a N/G tube

N/G feeding

Observations :

T.P.R. + BP

Pedal pulses

Urine measurement +
testing

Neurological obs.

Dextrostix

Swan-Ganz monitor.

CVP monitoring

Pacemaker obs.

N/G measurement

Chest drain obs.

IABP monitoring

Minor treatments :

Take an ECG

Help with X-rays

Obtain a CSU

Take venous blood

Take arterial blood

Peritoneal dialysis

Bladder catheterisat.

Assist 'c cardioversion

Assist 'c Swan-Ganz

Assist 'c CVP line

Assist 'c chest drain

Assist/c IABP insert.

Assist/c arterial line

Removal of lines

Remove chest drain

Sponge bath/fan

Ventilation :

Assist/c intubation

Intubation

Extubation

Change trachy. tube

Trachy. dressing

Suctioning

Setting up ventilator

Changing vent. tubes

Setting up CPAP

Cuff pressure

Chest exercise

Birds therapy

Nebulisation

Obtaining sputum spec.

Medication :

Give oral medication

Give N/G medication

Give IV medication

Changing drug infusion

Set up for TPN

Intravenous therapy :

Insertion of IV line

Change IV lines



Change vacolitres

Blood/FFP transfusion

Fluid challenge

Surgery :

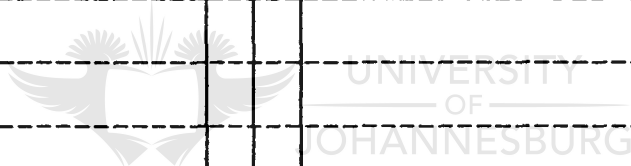
Prepare pt. for theatre

Receive patient back

Wound dressing

Wound irrigation

Wound specimen



ANNEXURE C

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Activity Questionnaire with skill levels.

A committee of experts in the field, assigned a score (referring to the level of skill required to perform the activity) to each of the activities listed in the 'Activity Questionnaire'.

- Score 5 = intensive care trained nursing sister
 4 = sister working in an intensive care unit for longer than 1 year
 3 = sister working in ICU between 6 and 12 months
 2 = sister working in ICU for less than 6 months
 1 = nursing assistant

Activity	Skill score
Patient's diagnosis	-
<u>Is the patient :</u>	
Fully conscious	2
Restless + confused	4
Unco-operative	4
Unconscious	4
<u>General activities :</u>	
Admission of patient	5
Transfer of patient	3
C.P.R.	5
Last offices	2
<u>Hygiene :</u>	
Cleaning excessive soiling	3
Full bed wash	3
Mobilising a patient	3
Limb exercise	3

Mouth care	2
Eye care	2
Pressure part care + turning	3
Setting of trays	2
Empty suction bottles	1
Care of traction	2
<u>Nutrition :</u>	
Feeding a patient	1
Passing a N/G tube	3
N/G feeding	2
<u>Observations :</u>	
T.P.R. + BP	5
Pedal pulses	3
Urine measurement + testing	3
Neurological obs.	4
Dextrostix	2
Swan-Ganz monitor.	5
CVP monitoring	4
Pacemaker obs.	4
N/G measurement	2
Chest drain obs.	3
IABP monitoring	5
<u>Minor treatments :</u>	
Take an ECG	2
Help with X-rays	1
Obtain a CSU	2
Take venous blood	2

Take arterial blood	4
Peritoneal dialysis	4
Bladder catheterisat.	2
Assist % cardioversion	5
Assist % Swan-Ganz	4
Assist % CVP line	2
Assist % chest drain	2
Assist % IABP insert.	4
Assist % arterial line	3
Removal of lines	2
Remove chest drain	2
Sponge bath/fan	1
<u>Ventilation :</u>	
Assist % intubation	3
Intubation	5
Extubation	5
Change trachy. tube	5
Trachy. dressing	3
Suctioning	4
Setting up ventilator	
Changing vent. tubes	3
Setting up CPAP	4
Cuff pressure	3
Chest exercise	3
Birds therapy	3
Nebulisation	3
Obtaining sputum spec.	2

Medication :

Give oral medication	2
Give N/G medication	2
Give IV medication	5
Changing drug infusion	5
Set up for TPN	2
<u>Intravenous therapy :</u>	
Insertion of IV line	3
Change IV lines	2
Change vacolitres	2
Blood/FFP transfusion	3
Fluid challenge	4
<u>Surgery :</u>	
Prepare pt. for theatre	5
Receive patient back	5
Wound dressing	2
Wound irrigation	2
Wound specimen	2

ANNEXURE D

=====

Number of activities carried out per hospital.

Activity	<u>Hospitals</u>						
	<u>A</u>	<u>B₁</u>	<u>B₂</u>	<u>C</u>	<u>E</u>	<u>F</u>	<u>G</u>
2	65	60	58	65	33	59	48
3	5	1	3	6	2	8	6
4	3	2	2			8	8
5	10		3	1	1	5	
6	26	37	24	27	14	12	11
7	23	29	20	30	11	3	7
8	3		3	16	1		
9	1					1	
10	4		16	35	32	5	29
11	92	62	38	74	36	83	34
12	23		6	19	13	30	30
13	144	41	11	164	78	80	31
14	271	155	99	210	166	227	79
15	132	39	42	87	30	50	1
16	304	156	133	330	132	271	141
17	29		13	31	11	13	2
18	35	57	15	32	8	42	3
19	6			1			
20	38	78	3	1	58		3
21	15			2	1	2	1
22	43		1		8	17	14
23	750	1392	733	496	469	738	407
24	144	1250	347	70		35	34
25	434	1235	260	216	170	395	417
26	199			6	45	53	
27	59	266	23	33	25	44	8
28	18		63	7		10	
29	76	1440	12	69	47	1	
30	30	1440	61	1			
31	33	72	13	19	6	59	7
32		1464	90	6			
33		312	12				
34	54	61	73	24	41	12	14
35	24	62	14	13	16	18	4
36	2	1	2	2	1	1	1
37	6		61	38		31	10
38	9	374	42	24	12	23	2
39							
40	14		3	4	3	5	29
41	1	5	1			1	2
42	1			1			
43	1		3	2	2		
44				1			

ANNEXURE D

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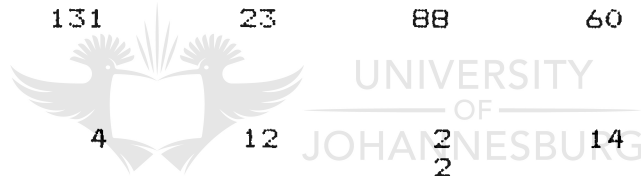
Number of activities carried out per hospital.

<u>Activity</u>	<u>Hospitals</u>						
	<u>A</u>	<u>B₁</u>	<u>B₂</u>	<u>C</u>	<u>E</u>	<u>F</u>	<u>G</u>
2	65	60	58	65	33	59	48
3	5	1	3	6	2	8	6
4	3	2	2			8	8
5	10		3	1	1	5	
6	26	37	24	27	14	12	11
7	23	29	20	30	11	3	7
8	3		3	16	1		
9	1					1	
10	4		16	35	32	5	29
11	92	62	38	74	36	83	34
12	23		6	19	13	30	30
13	144	41	11	164	78	80	31
14	271	155	99	210	166	227	79
15	132	39	42	87	30	50	1
16	304	156	133	330	132	271	141
17	29		13	31	11	13	2
18	35	57	15	32	8	42	3
19	6			1			
20	38	78	3	1	58		3
21	15			2	1	2	1
22	43		1		8	17	14
23	750	1392	733	496	469	738	407
24	144	1250	347	70		35	34
25	434	1235	260	216	170	395	417
26	199			6	45	53	
27	59	266	23	33	25	44	8
28	18		63	7		10	
29	76	1440	12	69	47	1	
30	30	1440	61	1			
31	33	72	13	19	6	59	7
32		1464	90	6			
33		312	12				
34	54	61	73	24	41	12	14
35	24	62	14	13	16	18	4
36	2	1	2	2	1	1	1
37	6		61	38		31	10
38	9	374	42	24	12	23	2
39							
40	14		3	4	3	5	29
41	1	5	1			1	2
42	1			1			
43	1		3	2	2		
44				1			

	<u>A</u>	<u>B₁</u>	<u>B₂</u>	<u>C</u>	<u>E</u>	<u>F</u>	<u>G</u>
45			1			1	
46		3	2	4			
47	23	86	15	24	8	1	4
48	3	53	5				
49	7		5	10		6	
50	2		1		1	1	
51	3			1	1	1	
52	3	53	1	3			1
53							
54	1						
55	128	281	32	56	36	104	15
56	15	54	2	7	4	3	1
57	3		12	5		1	
58	12	1069	166	22	6	16	
59	254	84	10	101	63	100	3
60	25	98	4			2	8
61	63	8		95	13	20	15
62	2	1	1	1	2		
63	85	199	102	61	113	94	89
64	38	149	1	8		192	7
65	217	220	104	133	67	50	67
65	217	220	104	133	67	50	67
66	26	5	17	42	19	3	67
67	2	2	2			10	
68	30		17	13	16	8	11
69	53		23	11	3	68	3
70	123	177	48	77	50	5	58
71	1	113	8	22	15	1	2
72	20	23	3	10	10	1	4
73	1	1	3	3	1	2	1
74	11	50	8	23	2	29	8
75	16	60	5	17	11		17
76	4			2			9
77						3	
78							
79							
80	4298	12880	2901	2914	1913	3064	1713
81							

	<u>H</u>	<u>I</u>	<u>J</u>	<u>D₁</u>	<u>D₂</u>	<u>Total</u>
2	23	62	57	58	46	634
3	4	25			6	66
4	2	17		1	7	50
5		6	4	1	1	32
6	20	15	20	34	20	260
7	9	15	20	18	17	202
8	1		1			25
9			2	1		5
10	29	24	2	5	1	182
11	25	61	36	30	25	596
12	37	2	1	10	19	190
13	53	131		26	11	770
14	86	183	24	84	9	1593
15	15	88	3	2	2	491
16	124	375	122	103	53	2244
17	13	8	1	2	2	125
18	20	33	2	7	1	255
19	1	4				12
20		40		12	14	247
21	1	1		2	3	28
22	1	82				166
23	243	892	373	234	285	7012
24	9	57	1			1947
25	261	322	88	141	97	4036
26	27	735	3	8		1076
27	18	20	19		4	519
28						98
29	15			34	1	1695
30			26			1558
31	1	150		5	3	368
32				13		1573
33		36				360
34	1	3	52	7	18	360
35	1	4	3	2	9	170
36		2	1	1		14
37	17	15	2	26	25	231
38	2	19	4	31	6	548
39					1	1
40		9		17	2	86
41						10
42			1			3
43		3			3	14
44				2		3
45						

	<u>H</u>	<u>I</u>	<u>J</u>	<u>D₁</u>	<u>D₂</u>	<u>Total</u>
46		5		2		2
47	2	11	2	5	4	185
48			1			62
49	8	7		1		44
50	1		1		1	8
51	1				1	8
52	1			4		66
53						0
54	20					21
55	54	226	6	17	8	963
56	5			4	1	96
57						21
58	13			8	1	1313
59	37	21		30	6	709
60				11		148
61	13	23		46	22	318
62		1	1			9
63	4	138	97	23	52	1057
64		56		1		452
65	96	131	23	88	60	1256
66		4	12	2	14	151
67				2		18
68		2	16	7	20	140
69	1	2		11	1	176
70	89	57	31	68	36	819
71	4		7	13	4	190
72				18	4	93
73	1	2	1		2	18
74	11	13	1	23	5	184
75	40	25		3	3	197
76	14	8				37
77				12		15
78						
79						
80	1474	4171	1067	1316	936	38647
81						



ANNEXURE E

=====

ACTIVITIES IN INTENSIVE CARE UNITS

Total number of activities and percentages.

Skill score = the skill required to perform the activity, from 1 to 5.

Number = raw score, the number of times the activity was actually performed by all the units.

Percentage = the raw score is converted into a percentage of the total number of activities performed.

	Skill score	Number	Percentage
Patient' diagnosis	-	-	-
<u>Is the patient :</u>			
Fully conscious	2	634	1.64
Restless + confused	4	66	0.17
Unco-operative	4	50	0.12
Unconscious	4	32	0.08
<u>General activities :</u>			
Admission of patient	5	260	0.67
Transfer of patient	3	202	0.52
C.P.R.	5	25	0.06
Last offices	2	5	0.01
<u>Hygiene :</u>			
Cleaning excessive soiling	3	182	0.47
Full bed wash	3	596	1.54
Mobilising a patient	3	190	0.49
Limb exercise	3	770	1.99

Mouth care	2	1593	4.12
Eye care	2	491	1.27
Pressure part care + turning	3	2244	5.80
Setting of trays	2	125	0.32
Empty suction bottles	1	255	0.65
Care of traction	2	12	0.03
<u>Nutrition :</u>			
Feeding a patient	1	247	0.63
Passing a N/G tube	3	28	0.07
N/G feeding	2	166	0.42
<u>Observations :</u>			
T.P.R. + BP	5	7012	18.14
Pedal pulses	3	1947	5.03
Urine measurement + testing	3	4036	10.44
Neurological obs.	4	1076	2.78
Dextrostix	2	519	1.34
Swan-Ganz monitor.	5	98	0.25
CVP monitoring	4	1695	4.38
Pacemaker obs.	4	1558	4.03
N/G measurement	2	368	0.95
Chest drain obs.	3	1573	4.07
IABP monitoring	5	360	0.93
<u>Minor treatments :</u>			
Take an ECG	2	360	0.93
Help with X-rays	1	170	0.43
Obtain a CSU	2	14	0.03
Take venous blood	2	231	0.59

Take arterial blood	4	584	1.41
Peritoneal dialysis	4	1	0.00
Bladder catheterisat.	2	86	0.22
Assist % cardioversion	5	10	0.02
Assist % Swan-Ganz	4	3	0.00
Assist % CVP line	2	14	0.03
Assist % chest drain	2	3	0.00
Assist % IABP insert.	4	2	0.00
Assist % arterial line	3	16	0.04
Removal of lines	2	185	0.47
Remove chest drain	2	62	0.16
Sponge bath/fan	2	44	0.11
Ventilation :			
Assist % intubation	3	8	0.02
Intubation	5	8	0.02
Extubation	5	66	0.17
Change trachy. tube	5	0	0.00
Trachy. dressing	3	21	0.05
Suctioning	3	963	2.49
Setting up ventilator			
Changing vent. tubes	3	96	0.24
Setting up CPAP	4	21	0.54
Cuff pressure	3	1313	3.39
Chest exercise	3	709	1.83
Birds therapy	3	148	0.38
Nebulisation	3	318	0.82
Obtaining sputum spec.	2	9	0.02

Medication :

Give oral medication	2	1057	2.73
Give N/G medication	2	452	1.16
Give IV medication	4	1256	3.24
Changing drug infusion	4	151	0.39
Set up for TPN	2	18	0.04

Intravenous therapy :

Insertion of IV line	3	140	0.36
Change IV lines	2	176	0.45
Change vacolitres	2	819	2.11
Blood/FFP transfusion	3	190	0.49
Fluid challenge	4	93	0.24

Surgery :

Prepare pt. for theatre	5	18	0.04
Receive patient back	5	184	0.47
Wound dressing	2	197	0.509
Wound irrigation	3	37	0.09
Wound specimen	2	15	0.03

ANNEXURE F

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Distribution of skill levels per hospital (raw scores)

Hospital	Skill level					Total
	1	2	3	4	5	
A	104	1065	1586	484	1059	4298
B1	197	1381	5666	3561	2075	12880
B2	37	596	1131	171	966	2901
C	56	747	1181	179	751	2914
D1	22	330	469	110	385	1316
D2	24	210	281	34	387	936
E	82	513	591	153	574	1913
F	110	681	1061	205	1007	3064
G	10	400	764	35	504	1713
H	29	326	641	104	374	1474
I	84	927	1039	1028	1093	4171
J	5	293	294	44	431	1067
	760	7444	14704	6108	9606	38647

ANNEXURE G

=====

QUESTIONNAIRE to the STAFF in ICU

=====

This questionnaire is part of the research project for a doctoral study.

Could you please complete the following questionnaire.

Please complete all the questions as honestly as possible.

The questionnaire is anonymous and all the information will be kept confidential.

Please hand the completed questionnaire to the sister-in-charge, if you wish, put the questionnaire in a sealed envelope.

Mark the appropriate box with an 'x'.

Thank you for your co-operation.

1. Number of questionnaire
2. Hospital _____
3. ICU : Medical
 Surgical/Trauma
 General
 Pediatric
 Cardio-thoracic
 Neurosurgery
4. Sex : Female
 Male
5. Age in years : 21 - 25
 26 - 30
 31 - 35
 36 - 40
 41 - 45
 46 - 50
 51 - 55
 55 +
6. Marital status : Single
 Married
 Divorced
 Widowed

7. Ethnic group : White
 Black
 Coloured
 Indian
8. Highest level of education :
- 8.1 Nursing : Diploma
 Baccalaureate degree
 Masters degree
- 8.2 Non-nursing (specify) : Diploma in _____
 Baccalaureate degree in _____
 Masters degree in _____
9. Nursing registration : Nursing assistant
 Enrolled nurse
 General nursing
 Midwifery
 Psychiatry
 Intensive care
 Pediatrics
 Theatre technique
 Other _____
10. How long ago did you complete your basic training ?
 Less than 1 year
 1 - 5 years
 6 - 10 years
 11 - 15 years
 16 - 20 years
 20 +
11. Present position : Nursing assistant
 Enrolled nurse
 Sister - junior
 senior
 Sister-in-charge
12. Employment : Full-time
 Part-time
 Sessions



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13. Period of time in current position :

- 0 - 2 years
- 2 - 4 years
- 4 - 6 years
- 6 - 10 years
- 10 - 15 years
- 15 +

14. How often do you read professional journals ?

- Never
- Sometimes
- Daily
- Weekly
- Monthly
- Annually

15.

15.1 Are you studying for a nursing qualification ?

- Yes
- No

15.2 Specify which one: _____

16. Which of the following education facilities does your hospital offer ?

- Orientation program
- Inservice education program
- Study leave facilities
- Congress attendance opportunities
- Official course (specify) _____
- Other (specify) _____
- None _____

17. Which of the following manuals are available in your unit ?

- Procedure manual
- Hospital policy manual
- Unit policy manual
- SANC Acts and regulations
- None
- Do not know
- Other

18. What clinical advancement opportunities are available to you, in your hospital ?

Senior sister
 Charge sister
 Matron
 Clinical sister
 Other (specify) _____

19. The following is a list of activities carried out in most intensive care units.

In the column provided, write the number appropriate to your level of competence. Please use the key provided.

Please be honest and complete all the questions accurately.

The answers are no reflection on your competence. The results will only be used as a guide, to determine which educational facilities could possible be introduced into your unit.

Key :

- 0 = not applicable, do not use the activity in the unit.
 1 = not competent at all.
 2 = can only carry out the procedure poorly.
 3 = can do activity fairly well.
 4 = competent in carrying out the procedure.
 5 = can carry out the procedure excellently.

For example:

Activity	Score
Admission of patient	3
Discharging a patient	4
C.P.R.	3

Score

1. How well can you diagnose the health care needs of your patients ?

Taking a history	
Physical assessment	
- observations	
- palpation	
- percussion	
- auscultation	

2. Can you prescribe nursing regimes ?

How well can you execute the following nursing regimes ?

N/G feeding	
Changing tracheostomy tubes	
Setting up ventilator	
Setting up CPAP	
Suctioning	
Commence a IV line	
Doing CPR	
Doing an ECG	

3. With regards to the execution of treatments prescribed by a registered person, are you competent in :

Inserting a N/G tube	
Treating hypothermia	
Treating hyperthermia	
Peritoneal dialysis	

Intubating		
Extubating		
Caring for traction		

4. With regards to the administration of medication, how competent are you in :

Giving oral medication		
Giving N/G medication		
Giving IV medication		

5. In monitor the patients reaction to disease conditions, medication and treatment, how well can you do the following ?

T.P.R + BP		
Recognising dysrhythmias		
Neurological observations		
Intracranial pressure monitoring		
Dextrostrix		
Swan-Ganz monitoring		
CVP monitoring		
Chest drainage observations		
Direct RA + LA monitoring		
IABP monitoring		
Pacemaker observations		
Taking venous blood		
Taking arterial blood		

6. How well can you give support and advise to :

Individual patients		
Groups / Families		
Staff		

7. With regards to prescribing and promoting hygiene and comfort of the patient, how well can you do the following :

Full bed wash		
Mouth care		
Reassuring the patient		

8. In promoting exercise, how competent are you in giving :

Limb exercise		
Chest exercise		

9. With regards to the maintenance of a supply of oxygen to the patient, how competent are you in doing the following :

Handling oxygen masks		
Caring for a pt. on a ventilator		
Bird therapy/nebuliser		

10. In supervising and maintaining fluid and electrolyte balance, to what extent can you :

Set up an IV line		
Change IV lines		
Blood/FFP transfusion		
Bladder catheterisation		
Analyse blood gasses		

11. How well can you facilitate the healing of wounds and fractures ?

Wound dressing		
Wound irrigation		

12. With regard to the nutrition of patients, how competent are you in doing the following ?

Setting up for TPN		
N/G feeding		

13. To what extent can you create a safe environment ?

Physical environment		
Emotional environment		

14. Are you competent in preparing a patient for :

Surgery		
Diagnostic procedures		

15. How well can you co-ordinate health care regimes provided for the patient by other categories of health personnel ?

--	--	--

16. How well do you communicate with :

Patients		
Relatives		
Nursing staff		
Other personnel		

Thank you for your time and co-operation.

G.Dannenfeldt.

ANNEXURE H

=====

Competence Questionnaire raw scores and percentages.

	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<i>Total</i>
1 <u>staff competence</u>							
2	<u>5</u>					<u>11</u>	<u>71</u>
3 history				12	43		
4	.0704225			.1690141	.6056338	.1549296	1
5	.0684932			.1643836	.5890411	.1506849	
6 observ.			2	10	44	16	72
7			.0277778	.1388889	.6111111	.2222222	1
8			.0273973	.1369863	.6027397	.2191781	
9 palpat.	4	6	7	38	15		70
10	.0571429	.0857143	.1	.5428571	.2142857		1
11	.0547945	.0821918	.0958904	.5205479	.2054795		
12 percus.	3	8	10	31	13	6	71
13	.0422535	.1126761	.1408451	.4366197	.1830986	.0845070	1
14	.0410959	.1095890	.1369863	.4246575	.1780822	.0821918	
15 auscul.	3	5	6	32	18	5	69
16	.0434783	.0724638	.0869565	.4637681	.2608696	.0724638	1
17	.0410959	.0684932	.0821918	.4383562	.2465753	.0684932	
18							
19 regime	1		1	12	25	3	42
20	.0238095		.0238095	.2857143	.5952381	.0714286	1
21	.0136986		.0136986	.1643836	.3424658	.0410959	
22							
23 NG feed		1		1	29	42	73
24		.0136986		.0136986	.3972603	.5753425	1
25		.0136986		.0136986	.3972603	.5753425	
26 trachy	4	3	3	15	28	17	70
27	.0571429	.0428571	.0428571	.2142857	.4	.2428571	1
28	.0547945	.0410959	.0410959	.2054795	.3835616	.2328767	
29 ventil.		3	2	10	24	32	71
30		.0422535	.0281690	.1408451	.3380282	.4507042	1
31		.0410959	.0273973	.1369863	.3287671	.4383562	
32 CPAP	10	5	4	15	18	14	66
33	.1515152	.0757576	.0606061	.2272727	.2727273	.2121212	1
34	.1369863	.0684932	.0547945	.2054795	.2465753	.1917808	
35 suction.				4	32	36	72
36				.0555556	.4444444	.5	1
37				.0547945	.4383562	.4931507	
38 IV line		2	1	6	29	33	71
39		.0281690	.0140845	.0845070	.4084507	.4647887	1
40		.0273973	.0136986	.0821918	.3972603	.4520548	
41 CPR		1	1	13	39	17	71
42		.0140845	.0140845	.1830986	.5492958	.2394366	1
43		.0136986	.0136986	.1780822	.5342466	.2328767	
44 ECG				1	28	43	72
45				.0138889	.3888889	.5972222	1
46				.0136986	.3835616	.5890411	
47							
48 NG tube				2	32	39	73
49				.0273973	.4383562	.5342466	1
50				.0273973	.4383562	.5342466	
51 hypo	1		1	5	37	26	70
52	.0142857		.0142857	.0714286	.5285714	.3714286	1
53	.0136986		.0136986	.0684932	.5068493	.3561644	
54 hyper	1			2	38	30	71
55	.0140845			.0281690	.5352113	.4225352	1

56		.0136986			.0273973	.5205479	.4109589	
57	PD	6	3	8	15	25	14	71
58		.0845070	.0422535	.1126761	.2112676	.3521127	.1971831	1
59		.0821918	.0410959	.1095890	.2054795	.3424658	.1917808	
60	intub.	2	11	18	21	17	1	70
61		.0285714	.1571429	.2571429	.3	.2428571	.0142857	1
62		.0273973	.1506849	.2465753	.2876712	.2328767	.0136986	
63	extub.	1	1	3	10	29	27	71
64		.0140845	.0140845	.0422535	.1408451	.4084507	.3802817	1
65		.0136986	.0136986	.0410959	.1369863	.3972603	.3698630	
66	tract.	14	2	5	21	22	7	71
67		.1971831	.0281690	.0704225	.2957746	.3098592	.0985915	1
68		.1917808	.0273973	.0684932	.2876712	.3013699	.0958904	
69								
70	o meds			1	5	20	46	72
71				.0138889	.0694444	.2777778	.6388889	1
72				.0136986	.0684932	.2739726	.6301370	
73	NG meds	1				23	47	71
74		.0140845				.3239437	.6619718	1
75		.0136986				.3150685	.6438356	
76	IV meds	1				24	46	71
77		.0140845				.3380282	.6478873	1
78		.0136986				.3287671	.6301370	
79								
80	TPR					18	53	71
81						.2535211	.7464789	1
82						.2465753	.7260274	
83	dysrhyth			3	10	38	20	71
84				.0422535	.1408451	.5352113	.2816901	1
85				.0410959	.1369863	.5205479	.2739726	
86	neuro	2	1	3	13	39	14	72
87		.0277778	.0138889	.0416667	.1805556	.5416667	.1944444	1
88		.0273973	.0136986	.0410959	.1780822	.5342466	.1917808	
89	ICP	15	5	4	16	22	9	71
90		.2112676	.0704225	.0563380	.2253521	.3098592	.1267606	1
91		.2054795	.0684932	.0547945	.2191781	.3013699	.1232877	
92	dextro					24	48	72
93						.3333333	.6666667	1
94						.3287671	.6575342	
95	S-G	8	4	4	12	29	14	71
96		.1126761	.0563380	.0563380	.1690141	.4084507	.1971831	1
97		.1095890	.0547945	.0547945	.1643836	.3972603	.1917808	
98	CVP	1	2	2	7	29	31	72
99		.0138889	.0277778	.0277778	.0972222	.4027778	.4305556	1
100		.0136986	.0273973	.0273973	.0958904	.3972603	.4246575	
101	chest	2			6	36	27	71
102		.0281690			.0845070	.5070423	.3802817	1
103		.0273973			.0821918	.4931507	.3698630	
104	RA + LA	11	4	8	14	23	11	71
105		.1549296	.0563380	.1126761	.1971831	.3239437	.1549296	1
106		.1506849	.0547945	.1095890	.1917808	.3150685	.1506849	
107	IABP	16	4	10	16	17	8	71
108		.2253521	.0563380	.1408451	.2253521	.2394366	.1126761	1
109		.2191781	.0547945	.1369863	.2191781	.2328767	.1095890	
110	pacemak.	6	4	7	9	30	15	71

111		.0845070	.0563380	.0985915	.1267606	.4225352	.2112676		1
112		.0821918	.0547945	.0958904	.1232877	.4109589	.2054795		
113	venous		1		4	28	38		71
114			.0140845		.0563380	.3943662	.5352113		1
115			.0136986		.0547945	.3835616	.5205479		
116	arterial	2	1	2	13	32	19		69
117		.0289855	.0144928	.0289855	.1884058	.4637681	.2753623		1
118		.0273973	.0136986	.0273973	.1780822	.4383562	.2602740		
119									
120	patient				13	45	13		71
121					.1830986	.6338028	.1830986		1
122					.1780822	.6164384	.1780822		
123	groups			2	23	40	6		71
124				.0281690	.3239437	.5633803	.0845070		1
125				.0273973	.3150685	.5479452	.0821918		
126	staff		1	1	25	36	7		70
127		.0142857	.0142857	.0142857	.3571429	.5142857	.1		1
128		.0136986	.0136986	.0136986	.3424658	.4931507	.0958904		
129									
130	wash				1	13	58		72
131					.0138889	.1805556	.8055556		1
132					.0136986	.1780822	.7945205		
133	mouth				1	14	57		72
134					.0138889	.1944444	.7916667		1
135					.0136986	.1917808	.7808219		
136	reassur.				7	35	30		72
137					.0972222	.4861111	.4166667		1
138					.0958904	.4794521	.4109589		
139									
140	limb			3	10	43	13		69
141				.0434783	.1449275	.6231884	.1884058		1
142				.0410959	.1369863	.5890411	.1780822		
143	chest			4	12	37	16		69
144				.0579710	.1739130	.5362319	.2318841		1
145				.0547945	.1643836	.5068493	.2191781		
146									
147	oxygen				2	25	44		71
148					.0281690	.3521127	.6197183		1
149					.0273973	.3424658	.6027397		
150	ventil.			2	10	34	25		71
151				.0281690	.1408451	.4788732	.3521127		1
152				.0273973	.1369863	.4657534	.3424658		
153	Birds		1	1	9	36	23		70
154		.0142857	.0142857	.0142857	.1285714	.5142857	.3285714		1
155		.0136986	.0136986	.0136986	.1232877	.4931507	.3150685		
156	set up			1	1	31	34		67
157		.0149254	.0149254	.0149254	.4626866	.5074627			1
158		.0136986	.0136986	.0136986	.4246575	.4657534			
159	change				1	28	40		69
160					.0144928	.4057971	.5797101		1
161					.0136986	.3835616	.5479452		
162	blood				2	27	33		62
163					.0322581	.4354839	.5322581		1
164					.0273973	.3698630	.4520548		
165	cath.	1	1		4	25	38		69
166		.0144928	.0144928		.0579710	.3623188	.5507246		1
167		.0136986	.0136986		.0547945	.3424658	.5205479		
168	gasses	2	1	1	17	30	18		69
169		.0289855	.0144928	.0144928	.2463768	.4347826	.2608696		1
170		.0273973	.0136986	.0136986	.2328767	.4109589	.2465753		

ANNEXURE I

=====

Competence Questionnaire - comparison between intensive care trained staff and untrained staff.

It was of interest to see whether the intensive care trained nursing staff felt more competent in performing the various procedures in the units than the staff who were not trained in intensive care nursing.

The scores which the two groups gave themselves (scores of 4 and 5) are compared in the following tables.

Key :

ICU = intensive care trained nursing staff

All = all registered nurses in the intensive nursing units

4 = nursing sister working for more than one year in an intensive care unit

5 = nursing sister trained in intensive nursing care



		4		5		Total	
		ICU	All	ICU	All	ICU	All

1. How well can you diagnose the health care needs of your patients ?

Taking a history	26	43	7	11	45	71
Physical assessment						
- observations	28	44	9	16	44	72
- palpation	11	15			42	70
- percussion	11	13	6	6	44	71
- auscultation	13	18	5	5	44	69

2. Can you prescribe nursing regimes ?

18	25	1	3	25	42
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How well can you execute the following nursing regimes ?

N/G feeding	15	29	30	42	45	73
Chang. trache. tubes	19	28	16	17	45	70
Set up ventilator	16	24	28	32	45	71
Setting up CPAP	16	18	14	14	43	66
Suctioning	15	32	29	36	45	72
Commence a IV line	16	29	26	33	45	71
Doing CPR	28	39	14	17	45	72
Doing an ECG	15	28	30	43	45	72

3. With regards to the execution of treatments prescribed by a registered person, are you competent in :

Insert. a N/G tube	20	32	25	39	45	73
Treat hypothermia	24	37	17	26	44	70
Treat hyperthermia	27	38	16	30	45	71
Peritoneal dialysis	18	25	13	14	45	71
Intubating	13	17	1	1	45	70
Extubating	22	28	22	27	45	71
Caring for traction	16	22	4	7	45	71

4. With regards to the administration of medication, how competent are you in :

Give oral meds.	13	20	32	46	45	72
Give N/G meds.	14	23	31	47	45	71
Give IV meds.	15	24	30	46	45	71

5. In monitor the patients reaction to disease conditions, medication and treatment, how well can you do the following ?

T.P.R + BP	10	18	35	53	45	71
Recog. dysrhythmias	29	38	14	20	45	71
Neuro. observations	27	39	8	14	45	72
ICP monitoring	17	22	8	9	45	71
Dextrostrix	12	24	33	48	45	72
Swan-Ganz monitor.	23	29	13	14	45	71
CVP monitoring	19	29	26	31	45	72
Chest drain. obs.	23	36	22	27	45	71
RA + LA monitor.	18	23	10	11	43	71
IABP monitoring	13	17	7	8	45	71
Pacemaker obs.	24	30	14	15	44	71
Taking venous blood	16	28	27	38	45	71
Take artery blood	23	32	18	19	45	69

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6. How well can you give support and advise to :

Individual patients	29	45	9	13	44	71
Groups / Families	28	40	2	6	44	71
Staff	24	36	3	7	44	71

7. With regards to prescribing and promoting hygiene and comfort of the patient, how well can you do the following :

Full bed wash	8	13	36	58	45	71
Mouth care	9	14	35	57	45	72
Reassure patient	21	35	17	30	45	72

8. In promoting exercise, how competent are you in giving :

Limb exercise	27	43	8	13	43	69
Chest exercise	26	37	12	16	43	69

9. With regards to the maintenance of a supply of oxygen to the patient, how competent are you in doing the following :

Handling O2 masks	15	25	28	44	44	71
Pt. on ventilator	22	34	20	25	44	71
Bird therapy	24	36	16	23	44	70

10. In supervising and maintaining fluid and electrolyte balance, to what extent can you :

Set up an IV line	21	31	21	34	44	67
Change IV lines	17	28	26	40	44	69
Blood transfusion	17	27	26	33	44	62
Bladder catheter.	15	25	27	38	44	69
Analyse blood gas	21	30	16	18	44	69

11. How well can you facilitate the healing of wounds and fractures ?

Wound dressing	30	41	11	24	44	70
Wound irrigation	29	43	8	15	44	70

12. With regard to the nutrition of patients, how competent are you in doing the following ?

Set up for TPN	24	39	9	11	42	68
N/G feeding	19	30	24	37	44	70

13. To what extent can you create a safe environment ?

Physical environ.	29	41	8	14	44	69
Emotional environ.	18	30	2	7	43	68

14. Are you competent in preparing a patient for :

Surgery	25	36	16	29	45	70
Diagnos. prosedures	33	46	9	20	44	71

15. How well can you co-ordinate health care regimes provided for the patient by other categories of health personnel ?

24	35	2	7	37	63
----	----	---	---	----	----

16. How well do you communicate with :

Patients	22	35	15	24	40	64
Relatives	24	39	7	13	40	65
Nursing staff	20	36	14	22	40	65
Other personnel	26	29	9	17	39	64

ANNEXURE J

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PRE- AND POSTTEST FOR CARDIO-PULMONARY-CEREBRAL
RESUSCITATION

Multiple Choice. For each of the test questions, there is one correct or best answer. Indicate the answer you have selected.

1. All but one of the following events happen when a person suffers a cardiac arrest. Which one does not apply?
 - a. The person's circulation stops.
 - b. The pulses in the body are absent.
 - c. Systolic pressure is 100 and diastolic is zero.
 - d. All respirations cease.
2. "Cardiac arrest" is a term that means all but which one of the following?
 - a. Any death when the heart stops.
 - b. Death due to a heart attack.
 - c. An immediate and unexpected death.
 - d. Sudden death.
3. Brain tissue is less able to tolerate a lack of oxygen than some other body tissues. Permanent damage results when the brain is deprived of oxygen for more than
 - a. 20 to 40 seconds.
 - b. 1 to 2 minutes.
 - c. 2 to 4 minutes.
 - d. 4 to 6 minutes.
4. If you are called to assist a person who has collapsed and lost consciousness, the first thing you should do is to
 - a. look for injuries from the fall.
 - b. establish an open airway.
 - c. determine if the victim is unresponsive.
 - d. provide warmth and treat for shock.
5. In many cases, the simplest method for opening the airway is
 - a. tilting the victim's head back.
 - b. wiping out the mouth and throat.
 - c. striking the victim on the back.
 - d. turning the head to one side.
6. When opening the airway of an infant, do not hyperextend the neck by tilting the head back because it
 - a. causes the tongue to block the back of the throat.
 - b. may obstruct or collapse the trachea.
 - c. prevents making an effective seal around the mouth.
 - d. leads to the accumulation of salivary secretions.

7. In giving mouth-to-mouth resuscitation to an adult, the recommended position for the patient is
 - a. with the head tilted backward and the lower jaw raised.
 - b. lying prone on a hard surface.
 - c. lying supine on a soft surface.
 - d. in Sims' position with the head turned to the side.
8. The basic underlying cause of cardiac arrest is believed to be
 - a. infection of the lungs.
 - b. lack of oxygen.
 - c. blood clot in the brain.
 - d. any disease of the heart.
9. Following a cardiac arrest, the clinical signs of death are seen within
 - a. 20 to 40 seconds.
 - b. 1 to 2 minutes.
 - c. 2 to 4 minutes.
 - d. 4 to 6 minutes.
10. The purpose of cardiopulmonary resuscitation is to
 - a. give artificial ventilation.
 - b. give artificial circulation.
 - c. provide basic life support.
 - d. stimulate the central nervous system.
11. When giving artificial ventilation, signs that the air passages are open include all of the following *except*
 - a. air can be felt rushing out of the victim.
 - b. you can hear the air escape when the lungs deflate.
 - c. the sternum is depressed 1½ to 2 inches.
 - d. the chest rises with each ventilation.
12. The number of ventilations used to inflate the lungs at the beginning of CPR is
 - a. one breath.
 - b. two breaths.
 - c. three breaths.
 - d. four breaths.
13. The indication for starting artificial circulation is
 - a. contracted pupils.
 - b. blood pressure of 100/0.
 - c. absence of respirations.
 - d. absence of carotid pulse.

14. As a result of external chest compression, the blood flow to the brain is
 - a. fully restored.
 - b. one-half of normal.
 - c. one-fourth of normal.
 - d. diverted to the heart.
15. While performing artificial circulation, the CPR rescuer applies pressure to what portion of the chest?
 - a. the xiphoid process of the sternum
 - b. the lower half of the sternum
 - c. the left side of the chest
 - d. the right side of the chest
16. When giving CPR to an infant, the rescuer would compress the chest using
 - a. the index and middle fingers.
 - b. the heel of one hand.
 - c. the fleshy, bottom part of the fist.
 - d. both hands as with an adult.
17. A force of 80 to 120 pounds is required during artificial circulation in order to compress the adult's chest how much?
 - a. $\frac{1}{2}$ to $\frac{3}{4}$ inches
 - b. $\frac{3}{4}$ to $1\frac{1}{2}$ inches
 - c. $1\frac{1}{2}$ to 2 inches
 - d. 2 to 4 inches
18. When CPR is performed by one rescuer, after the initial ventilation the ratio of breaths to compression is
 - a. 1 breath, 5 compressions.
 - b. 2 breaths, 5 compressions.
 - c. 1 breath, 15 compressions.
 - d. 2 breaths, 15 compressions.
19. The ratio of compressions to ventilations when CPR is given by two people is
 - a. 1 breath, 5 compressions.
 - b. 1 breath, 15 compressions.
 - c. 2 breaths, 5 compressions.
 - d. 4 breaths, 15 compressions.
20. The hospital CPR team is highly skilled and trained in the use of
 - a. basic CPR methods.
 - b. advanced CPR methods.
 - c. cardiac drugs and equipment.
 - d. all of the above.
 - e. all but a.

ANNEXURE K

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OUTLINE of the EDUCATIONAL PROGRAM :

CARDIO-PULMONARY-CEREBRAL RESUSCITATION

MAIN OBJECTIVE

On completion of this lecture/demonstration, the student must be able to :

- * recognise a cardio-pulmonary arrest; and
- * perform effective cardio-pulmonary-cerebral resuscitation on individuals of all ages.

RATIONALE

SPECIFIC OBJECTIVES

- DEFINITION - cardio-pulmonary arrest
- cardio-pulmonary-cerebral resuscitation

PATHOPHYSIOLOGY

CAUSES

RESUSCITATION EQUIPMENT

DIAGNOSIS/ASSESSMENT

IMPLEMENTATION - BASIC LIFE SUPPORT

- position
- ventilation
- cardiac massage
- co-ordination
- evaluation

IMPLEMENTATION - ADVANCED LIFE SUPPORT

- intravenous therapy
- medication
- ECG
- defibrillation
- intubation

INDICATIONS FOR STOPPING CPR

COMPLICATIONS

CONCLUSION



ANNEXURE L

=====

RAW SCORES OF THE PRE- AND POSTTEST FOR CPCR LECTURE

CANDIDATE	PRETEST	POSTTEST
1	6	9
2	13	13
3	15	12
4	8	10
5	10	14
6	11	11
7	13	12
8	10	11
9	15	16
10	4	10
11	5	10
12	10	11
13	9	10
14	11	13
15	8	10
16	9	6
17	11	14
18	7	9
19	12	14
20	9	12
21	13	12
22	11	14
23	9	11
24	6	10
25	4	10
26	4	9
27	3	7
28	13	10
29	14	16
30	9	8
31	7	13
32	11	14
33	7	9
34	7	11
35	12	14
36	14	14
37	8	12
38	7	10
39	5	6
40	8	8
41	8	8
42	6	12
43	6	4
44	10	10

45	7	10
46	10	10
47	10	12
48	11	11
49	7	11
50	8	10
51	6	10
52	10	12
53	11	14
54	11	11
55	9	12
56	14	13
57	11	13

Higher pretest scores	=	8
Equal score for both	=	9
Higher posttest scores	=	40
Total	=	57



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ANNEXURE M

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Evaluation instrument for the performance of a nursing physical
assessment and nursing prescriptions.

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STANDARD

Every patient is to have a physical examination done by a nurse within 12 hours of admission, followed by a written record of the results, together with a nursing diagnosis and relevant nursing prescriptions.

OBJECTIVES

The nurse must be able to:

- elicit the patient's history,
- carry out a full physical examination,
- request or carry out laboratory investigations,
- derive at a nursing diagnosis,
- plan individualised nursing care/prescribe nursing regimes.

The evaluation instrument is designed to evaluate a nurse with regards to her competence in assessing a patient and planning the relevant nursing care.

The evaluator can observe the nurse while admitting a patient or a retrospective chart audit can be done.

Score each item according to the scale below.

Add up all the scores.

Multiply the number of NAs by 3 and add them to the score.

Convert the total to a percentage.

Rating scale

-
- NA - not applicable
 - 0 - not observed
 - 1 - not competent, poorly carried out and lacks insight
 - 2 - competent, needs more practice, not sure of rationale
 - 3 - fully competent with insight

EVALUATION INSTRUMENT
=====

1. PHYSICAL ASSESSMENT

The nurse must be able to:

		Score
1	Elicit relevant identification data from the patient or secondary sources	
2	Observe the patient's general appearance	
3	Attain and maintain rapport	
4	Formulate a chronological summary of the patient's present illness	
5	Identify relevant aspects of the patient's past medical history	
6	Ask relevant questions about the patient's family and social history	
7	Demonstrate the ability to carry out the vital observations	
8	Validate the subjective data with objective data by inspection	
9	Reassure the patient	
10	Ensure the patient's safety and comfort	
11	Protect the patient's right to privacy	
12	Palpate the relevant body areas	
13	Percuss the relevant body areas	
14	Demonstrate skill in auscultation of the relevant organs	
15	Request or carry out laboratory investigations	
16	Complete the record	
TOTAL		

2. NURSING DIAGNOSIS

The nurse must be able to:

		Score
17	Analyse and interpret the findings	
18	Identify the patient's problems with regards to every body system	
19	Synthesise a needs list	
20	Correctly formulate a nursing diagnosis	
21	Communicate the findings	
TOTAL		

3. PLANNING NURSING REGIMES

The nurse must be able to:

		Score
22	Determine priorities	
23	Involve the patient in the planning of his care	
24	Prescribe nursing orders related to the physicians prescriptions	
25	Prescribe nursing orders related to hygiene care	
26	Prescribe nursing orders related to environmental adjustments	
27	Prescribe nursing orders related to assistance needed by the patient	
28	Prescribe nursing orders related to the patient's safety	
29	Prescribe nursing orders related to prevention of complications	
30	Prescribe nursing orders related to elimination	
31	Prescribe nursing orders related to rehabilitation	

32	Prescribe nursing orders related to patient and family teaching	
33	Prescribe nursing orders related to psychological support	
34	Prescribe nursing orders related to referral	
35	Write the nursing orders on the care plan	
TOTAL		

$$\text{Total} = \frac{\quad}{105} \times \frac{100}{1} = \quad \%$$

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ANNEXURE N

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GUIDELINES FOR EVALUATION OF A PHYSICAL ASSESSMENT AND
THE PRESCRIPTION OF NURSING REGIMES

1. Elicit relevant identification data.
 - Obtain data from patient, relatives, accompanying person, other records.
 - Data - name, age, sex, race, marital status, address, religion, occupation, educational level, weight, length, prostheses, allergies, immunisation.

2. Observe the patient's general appearance.
 - Cleanliness
 - Nutritional status
 - Level of consciousness
 - Non-verbal communication - facial expression
 - body language
 - degree of distress

3. Attain and maintain rapport.
 - Greet the patient, introduce yourself
 - Avoid medical terminology, ensure examiner's words are understood
 - Accept patient, make eye contact
 - Identify patient's communication problem
 - Encourage patient to give an account of the problem
 - Listen, give the patient your full attention
 - Confidentiality
 - Mutual trust, respect.

4. Formulate a chronological summary of patient's present illness.
 - Summary must be chronological, include the patient's words (subjective data)
 - Interview, observe, use secondary sources
 - Enquire about all systems
 - CVS - chest pain, oedema, dysrhythmias, claudication, dyspnoea, cyanosis,
 - Resp. - smoking, pain, dyspnoea, trauma,
 - CNS - infection, altered mentation, trauma, surgery,
 - Renal - oedema, dysuria, altered amount of output,

GIT - malnutrition, food intolerance, abdominal pain,
 trauma, bleeding, diet,
 Blood - acute blood loss, infection, anaemia,
 Psychological - surgery, exacerbation of chronic
 illness, terminal illness,
 Drugs
 Occupation
 Travel

5. Identify relevant aspects of the patient's past medical history.
- Childhood illnesses, operations, injuries, inherited disorders, medication, allergies,
 Enquire about all systems -
 CVS - myocardial infarction, hypertension, rheumatic fever, diabetes mellitus,
 Resp. - asthma, infection, surgery, smoking,
 CNS - tumour, CVA, head injury, spinal injury, alcohol, drugs,
 Renal - drugs, systemic lupus, diabetes mellitus, hypertension,
 GIT - oesophageal varices, recent weight loss, liver disease,
 Blood - blood transfusion, occupation, neoplasm, trauma, diet,
 Psychosocial - mental disorder, ethnicity, coping strategy,
6. Ask relevant questions about the family and social history.
- Inherited disorders, health of family members,
 Travel, hobbies,
 Occupation, education, environment,
 Habits,
 Relationship with relevant others,
 Diseases in the family -
 CVS - myocardial infarction, hypertension, pacemaker,
 Resp. - emphysema, asthma,
 CNS - Berry aneurysm, seizures, CVA,
 Renal - polycystic kidneys, diabetes mellitus,
 GIT - ulcers, gall stones, liver disease, bleeding,
 Blood - Christmas disease, sickle cell anaemia, thrombo-embolic disease,
 Psychosocial - home environment, economic considerations, culture.
7. Carry out the vital observations.
- Pulse - rhythm, rate, apex beat, peripheral pulses,
 BP - systolic, diastolic, pulsus paradoxus,
 Resp. - rate, rhythm,
 Temp. - shivering, sweating, hydration,
 CNS - Glasgow coma scale,
 Renal - urine output,

Perfusion - cerebral, renal, peripheral,
 Use the apparatus correctly
 Relate the anatomy and physiology to the findings
 Relate findings to the course of the disease
 Instruct the patient.

8. Utilize inspection to obtain objective data.
 - Validate subjective data with observations (objective)
 - Correct lighting, position,
 - Observe systematically,
 - CVS - precordium, neck veins, pulses (location, rate),
 - Resp. - rate, patterns, chest movement, tracheal deviation,
 - CNS - pupil reaction, corneal reflex, paralysis, convulsions,
 - GIT - skin (pallor, jaundice, rash, spider naevi), abdominal distension, scars, striae, peristalsis, oedema,
 - Blood - skin colour, epistaxis, petechia, melena, tachycardia, dyspnoea,
 - Range of motion
 - Hair distribution
 - General appearance
 - Psychosocial
9. Reassure the patient.
 - Establish the extent of the patient's fears
 - Reassure and encourage the patient
 - Make eye contact
 - Allow the patient to give an account of his problems
 - Support the patient
 - Clarify points, give the patient explanations
10. Ensure patient's safety and comfort.
 - Show trust, acceptance,
 - Patient must receive instructions
 - Patient must be in the correct position
 - Have working instruments
 - Know how to use the instruments
 - Have warm hands, warm solutions etc.
11. Protect the patient's right to privacy.
 - Confidentiality
 - Treat patient with dignity and respect
 - Screening, covering, draping where necessary.
12. Palpate the relevant body areas.
 - Interpret what is felt
 - Place hands correctly

Position patient correctly
 CVS - apical beat, pulses,
 Resp. - tracheal position, chest movement,
 CNS - muscle strength,
 Renal - bladder,
 GIT - liver, spleen, pain,
 Blood - bruising,
 General - masses, pain, oedema.

13. Percuss the relevant body areas.
 Interpret the sounds (dull, resonant, hyperresonant)
 Place hands correctly
 Organs - heart, lungs, liver, bladder,
 reflexes

14. Demonstrate skill in auscultation of relevant organs.
 Describe the sounds heard (pitch, intensity, quality)
 Use the stethoscope correctly
 CVS - murmurs, valves, bruits,
 Resp. - breath sounds, adventitious sounds,
 CNS - voice, speech defects,
 GIT - peristalsis, vascular sounds,

15. Request and carry out laboratory investigations.
 Request test
 Carry out test correctly
 Know the normal values
 Interpret the results
 Tests - blood (enzymes, FBC, U+E, glucose)
 - urine (SG, amount, protein, glucose)
 - ECG
 - X-Rays
 - Swan-Ganz readings, arterial line monitoring

16. Complete the record.
 Accurate
 Use medical terminology
 Use patients words where applicable
 Communicate the findings.

18. Analyse and interpret the findings.
 Validate and confirm subjective data with objective data.
 Differentiate between cues and inferences.
 Compare
 Classify the findings
 Relate the findings to each other
 Ensure completeness

19. Identify the patient's problems with regards to every body system.
 Clearly state the problem

Accurately label the problem

- Systems - CVS - altered tissue perfusion
activity intolerance
- Resp. - ineffective breathing pattern
- impaired gas exchange
- CNS - altered level of consciousness
- Renal - fluid volume alteration
- GIT - altered state of nutrition
- pain

19. Synthesise a needs list.

- State the problems
- Identify priorities
- Validate the needs
- Record the needs list

20. Correctly formulate a nursing diagnosis.

- Utilise medical terminology
- State the diagnosis clearly
eg. potential injury due to immobility
disturbed sleep pattern
alteration in nutrition

21. Communicate the findings.

- Write the findings in the correct place
- Verbally communicate the findings to colleagues (nursing and medical)

22. Determine priorities.

- Identify goals
- Identify interventions
- Identify alternatives
- State regimes in terms of outcome criteria (patient goals)
- Set nursing goals (desired nursing actions)
- Select viable alternatives
- Base the regimes on scientific principles
- Individualise the regimes
- Include utilisation of appropriate resources
- Validate decisions

23. Involve the patient in the planning of his care.

- Communicate with the patient
- Allow the patient to verbalise/indicate his wishes

24. Prescribe nursing orders related to physicians prescriptions.

- Medication precautions
- Nutritional requirements
- Determination of vital signs

25. Nursing orders related to hygiene care.
 - Type of bath
 - Skin lubrication
 - Type of care needed eg. mouth, eye, hair
26. Nursing orders related to environmental adjustment.
 - Control heating, lighting, noise
27. Nursing orders related to assistance needed by the patient.
 - Preparation of meals
 - Ambulation
 - Means of effective communication
28. Nursing orders related to safety precautions.
 - Assess level of consciousness
 - Safe bed-sides
29. Nursing orders related to the prevention of complications.
 - Maintenance of open airway
 - Provision of good bodily alignment
 - Prevention of fluid and electrolyte imbalance
 - Prevention of cross infection
30. Nursing orders related to elimination.
 - Observe for abdominal distension
 - Appropriate fluids and diet
 - Care of an indwelling catheter
31. Nursing orders related to rehabilitation.
 - Passive and active exercise
 - Consultation with physio- and occupational therapist
 - Self help where possible
32. Nursing orders related to patient and family teaching.
 - Employ teaching-learning opportunities for the patient and family
 - Give information about symptoms which require attention
 - Provision of written instruction
33. Nursing orders related to psychological support.
 - Detection of psychological problems
 - Explain medical terminology
 - Ensure patient's active involvement in his care
 - Respectful, trusting nurse-patient relationship
34. Nursing orders related to referral.
 - Consultation with resource personnel
 - Working knowledge of referral agencies
 - Collaboration with team members
 - Include utilisation of appropriate resources

35. Write the nursing orders on the care plan.

Complete prescription - date, precise action verb,
specify - who, what, where, how, how
much, when,
modification in standard therapy
signature



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ANNEXURE O

=====

OUTLINE of the EDUCATIONAL PROGRAM on :

PHYSICAL ASSESSMENT

OBJECTIVES

- At the end of the course the student must be able to :
- * formulate a practical concept of the nursing process;
 - * conduct a structured interview;
 - * elicit information about the patient's present and past health history;
 - * compare and contrast inspection, palpation, percussion and auscultation;
 - * integrate the findings from each of the body systems.

- NURSING PROCESS - assessment
- planning
 - implementation
 - evaluation

PHYSICAL ASSESSMENT -

The physical assessment is carried out for all the body systems - respiratory system

- cardiovascular system
- nervous system
- renal system
- gastro-intestinal system
- endocrine system
- integumentary system
- haematological system.

Assessment :

- * subjective data - health history -
 - biographical data
 - chief complaint
 - history of present illness
 - past health history
 - family history
 - psychosocial history
 - activities of daily living
- * objective data - vital observations
 - respiration
 - pulse
 - blood pressure
 - temperature

- level of consciousness
- perfusion
- inspection
- palpation
- percussion
- auscultation
- laboratory investigations
 - X-ray
 - blood tests
 - ECG

NURSING DIAGNOSIS

NURSING PRESCRIPTIONS



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ANNEXURE P

=====

RAW SCORES OF THE PRE- AND POSTTEST OF THE EDUCATIONAL
PROGRAM ON PHYSICAL ASSESSMENT

=====

For each candidate the first group of scores are the pretest scores and the second group of scores are the posttest scores.

Candidate	Assessment	Diagnosis	Prescription	Total
1	35	6	29	70
	40	12	35	87
2	42	12	42	96
	45	14	40	99
3	33	12	42	81
	39	10	33	82
4	29	7	32	68
	21	3	18	42
5	40	13	32	85
	46	14	36	96
6	25	7	27	59
	41	11	41	93
7	45	14	42	101
	46	14	42	102
8	37	9	32	78
	44	11	32	87
9	34	10	34	78
	43	12	35	90
10	47	7	32	86
	48	15	42	105
11	38	7	30	75
	35	8	29	72
12	37	6	26	69
	48	15	42	105

ANNEXURE Q
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LETTER OF PERMISSION
=====

111 Pandora Str
Malvern East 1401.
15th July 1986.

&title& &fname& &lname&
&hospital&
&box&
&town& &code&

Dear &title& &lname&,

re Research

I am presently enrolled at the Rand Afrikaans University in the Department of Nursing, reading for a doctorate (D.Cur).

My topic is 'A Staff Development Model for Nurses in Intensive Care Units in Private Institutions on the Witwatersrand.'

This is in response to the fact that, over the years more and more nurses are employed in the private sector, but there are very few formal staff development facilities for these nurses.

There is thus scope in the private sector for staff development programs, which are essential to achieve and maintain a high quality of patient care.

I intend doing a situation analysis (record audit and task analysis) in the intensive care units of the various private hospitals, including your hospital.

The second aspect of the research involves a questionnaire to the sisters in the units, to determine their educational needs.

Then I propose to implement an educational program and measure its success in terms of a second task analysis.

I herewith ask permission to do this research at your hospital.

The detail of time and exactly how the research will be conducted, I will discuss with matron and nursing staff, so that it suits your hospital.

I am sending a similar letter to the matron asking her co-operation.

Of course all the information will be confidential and no names of hospital or staff will be mentioned.

Thank you.
Yours sincerely,

Miss G. Dannenfeldt.



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