



A descriptive survey of rural emergency room nurses knowledge and role perception of advanced cardiac life support
by Daniel Joseph Ellis

A thesis submitted in partial fulfillment of the requirements for the degree of MASTER OF NURSING
Montana State University
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Abstract:

The purpose of the study was to determine: (1) the knowledge "base of Advanced Cardiac Life Support among registered nurses working in rural hospitals of Western Montana; (2) how nurses perceive their roles as providers of Advanced Cardiac Life Support; (3) possible role problems encountered in the delivery of Advanced Cardiac Life Support in the rural hospital; and (4) if nurses perceive a need for further education in the area of emergency cardiac care. Data were collected from 36 nurses in 16 different rural hospitals. The sample of nurses consisted of 22 diploma graduates, 11 baccalaureate graduates, and two associate degree graduates. There was no difference between the initial nursing educational preparation and the degree held at the time of the interview. Nurses surveyed were required to work at least part time in their hospital's emergency room. Data were collected using an open ended interview guide, a demographic data questionnaire and a multiple choice test. Findings indicated that nursing knowledge of Advanced Cardiac Life Support was deficient according to standards established by the American Heart Association. The nurses' role perceptions in providing Advanced Cardiac Life Support ranged from Basic Life Support only, to include all elements of Advanced Cardiac Life Support. Role conflict, role ambiguity, role incompetence, role incongruity and role overload were identified stressors experienced by nurses as providers of Advanced Cardiac Life Support. All of the nurses interviewed expressed the need for further education in the area of emergency cardiac care.

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A DESCRIPTIVE SURVEY OF RURAL EMERGENCY ROOM NURSES' KNOWLEDGE
AND ROLE PERCEPTION OF ADVANCED CARDIAC LIFE SUPPORT

by

DANIEL JOSEPH ELLIS

A thesis submitted in partial fulfillment
of the requirements for the degree

of

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Abstract

The purpose of the study was to determine: (1) the knowledge base of Advanced Cardiac Life Support among registered nurses working in rural hospitals of Western Montana; (2) how nurses perceive their roles as providers of Advanced Cardiac Life Support; (3) possible role problems encountered in the delivery of Advanced Cardiac Life Support in the rural hospital; and (4) if nurses perceive a need for further education in the area of emergency cardiac care. Data were collected from 36 nurses in 16 different rural hospitals. The sample of nurses consisted of 22 diploma graduates, 11 baccalaureate graduates, and two associate degree graduates. There was no difference between the initial nursing educational preparation and the degree held at the time of the interview. Nurses surveyed were required to work at least part time in their hospital's emergency room. Data were collected using an open ended interview guide, a demographic data questionnaire and a multiple choice test. Findings indicated that nursing knowledge of Advanced Cardiac Life Support was deficient according to standards established by the American Heart Association. The nurses' role perceptions in providing Advanced Cardiac Life Support ranged from Basic Life Support only, to include all elements of Advanced Cardiac Life Support. Role conflict, role ambiguity, role incompetence, role incongruity and role overload were identified stressors experienced by nurses as providers of Advanced Cardiac Life Support. All of the nurses interviewed expressed the need for further education in the area of emergency cardiac care.

Chapter I

Introduction

Heart disease ranks as the number one cause of death in the United States. According to the American Heart Association (1980, p. 24), about 638,000 persons die each year from heart attack, and approximately 350,000 of these die before they reach a hospital. The delivery of Advanced Cardiac Life Support (ACLS) to the patient with a heart attack may prevent a cardiac arrest, while the delivery of Advanced Cardiac Life Support to a person in cardiac arrest may result in the individual's making a complete recovery and returning as a useful member of society. There could be many lives saved each year if Advanced Cardiac Life Support was administered to the heart attack victim (Sladen, 1975, p. 2).

With recent advances in the field of Emergency Cardiac Care, the role of the registered professional nurse has been in a state of change. In 1974, the American Heart Association developed standards which were designed for health care providers of Emergency Cardiac Care. These standards were implemented into a program which the American Heart Association designed to update health care providers, including nurses. Subsequent modifications of the American Heart Association's program and standards were included in various continuing education programs for nurses around the country. Many of these programs were designed for the sole purpose of updating the nurses' knowledge and skills in the coronary care unit. The use of

the materials for educational purposes seems to have reached only those nurses who were involved in coronary care units, emergency rooms, and other critical care areas. A general lack of the information is found in most basic nursing curricula and inservice education programs for general staff nurses. Recent advances have been the implementation of Basic Cardiac Life Support courses for all nurses in both basic nursing programs and continuing education programs in hospitals. Only very recently have registered nurses had the opportunity to attend the American Heart Association's course on Advanced Cardiac Life Support. Inclusion of nurses would seem a logical step to take if the American Heart Association's standards are a nationwide set of standard protocols which the nurse should be using in a cardiac emergency.

A disregard for the continuing inadequacies in emergency nurse education, as well as in basic nursing education, in the area of emergency care has serious implications for the overall quality of patient care. According to Romano (1978, pp. 27-28), managers involved in emergency medical services casually assume that even the most basic level hospital has adequate primary resuscitation capabilities because there is a nurse on duty 24 hours a day. This notion is meaningless unless that nurse has the knowledge and skills to initiate definitive airway and cardiac care, and has the sanction of the physician and hospital to administer definitive treatment in emergency

situations. "In fact, in a rural hospital, the nurse should function just like the paramedic in the field, providing definitive care while in contact with a physician, or while under specific standing orders. Until this is a reality, true resuscitative care in hospitals without full-time physician coverage is only an illusion" (Romano, 1978, pp. 27-28).

Unfortunately, there are a number of discrepancies which exist in cardiac care. In some hospitals, there may be standing orders and physician support for the nurse, but not enough training for the nurses. In others, the situation may be reversed in that the nurses have had extensive training in emergency cardiac care, but they don't have the support of the physician or hospital administration to function in an expanded role. Discrepancies in nursing role, nursing knowledge, and the support of nurses may have a detrimental effect on the overall quality of emergency cardiac care.

Need for the Study

To be successful in cardiac resuscitation, there are many factors which must be taken into consideration. Of primary concern is the timely intervention of appropriate life-saving measures. "Coordination of all phases of resuscitation is necessary. Education is the key. An in-depth understanding of the underlying pathophysiological processes and the consequences of delay in resuscitation is of the utmost importance" (Bander, 1979, pp. xi-xii).

If professional nurses are going to be responsible for initiating Advanced Cardiac Life Support, there should be better means of obtaining the necessary training, and of having medical support for their involvement in providing cardiac emergency care. It is important to know if nurses who are responsible for initiating Advanced Cardiac Life Support possess the knowledge required to be effective in its implementation. It is also of importance to know if nurses who do have knowledge of Advanced Cardiac Life Support are able to practice its implementation without conflict of the medical profession and hospital administration. These factors, along with other variables, may be helpful in determining needs for further improvement in the overall management of a patient requiring emergency cardiac care (specifically, Advanced Cardiac Life Support). Ideally, there should be a coordinated effort on the parts of nursing educators, hospital administrators, and the medical community to insure competent delivery of Advanced Cardiac Life Support by nurses. Competent delivery is especially required in areas where the physician is not present during the first five minutes following a cardiac arrest.

The concept of providing Advanced Cardiac Life Support in the community setting has led to a significant decrease in the mortality rate of myocardial infarction. The assumption which led to the creation of this type of prompt care still holds today: "Many deaths

from myocardial infarction can be prevented by early intervention" (Stewart, 1979, pp. 11-15).

Of the 400,000 to 600,000 persons who die each year of sudden death, most have been attributed to ventricular dysrhythmias (Rogove, 1979, p. 23). When a patient with myocardial infarction develops a cardiac arrest, the dysrhythmia is usually ventricular fibrillation (Sladen, 1975, p. 2). Ventricular fibrillation has been described as an uncoordinated, disorderly, and extremely bizarre contractile process (Granefield, 1973, p. 732). Ventricular fibrillation results in ineffective pumping action of the heart with resulting inadequate tissue perfusion. Ventricular fibrillation was found in 72 percent of over 400 cases of pre-hospital cardiac arrests (Bander, 1979, p. 87). The treatment for ventricular fibrillation is by electrical defibrillation. Kouwenhoven (1969, p. 449) has demonstrated a 98 percent survival rate in animals if defibrillation is performed not more than 30 seconds after the onset of ventricular fibrillation, as opposed to only 27 percent if defibrillation is delayed two minutes. He also has shown that it is much more difficult to defibrillate a heart the longer it has been in fibrillation. In a similar example of the time element involved, Cobb (1977, p. 12) reported that the outcome of patients with out-of-hospital ventricular fibrillation was related to response times of the primary units.

Rockwell (1969, p. 41) notes with regard to hospital coronary care units: "When ventricular fibrillation occurs, the condition must be treated within 240 seconds after onset to prevent irreversible damage to the patient (e.g., brain death). If a physician is not already at the patient's bedside, there simply isn't enough time to summon him before administering treatment". Lemire and Johnson (1972, pp. 970-972), in one of the largest studies done on cardiac resuscitation, found that over a ten year period of time and 1204 patients resuscitated, a cardiac resuscitation service can save one out of five patients undergoing resuscitation in a teaching hospital. The success of the approach was partially due to an organized, quick response to the particular emergency.

Basic Life Support, which consists of mouth-to-mouth breathing and external cardiac compression, must be initiated as soon as possible in the case of cardiac arrest. Basic Life Support measures, however, are only considered a holding operation and are unlikely to convert ventricular fibrillation to a normal sinus rhythm. Therefore, Basic Cardiac Life Support measures must be supplemented with Advanced Cardiac Life Support measures as soon as it is feasible to do so. This will increase the chances of conversion from ventricular fibrillation to normal sinus rhythm.

In the rural areas, it may take an indefinite period of time before the nurse on duty at a hospital can obtain physician support.

The nurse must be capable of dealing with a cardiac arrest situation, if the morbidity and mortality of the nation's leading cause of death is to be reduced.

Statement of the Problem

The purpose of this study is to determine possible nursing problems encountered in the delivery of Advanced Cardiac Life Support in the rural hospital.

Specifically, the following areas will be explored:

1. The knowledge base of Advanced Cardiac Life Support among registered nurses;
2. Nurses' perceptions of their roles in providing Advanced Cardiac Life Support;
3. Possible stressors involved in the delivery of emergency cardiac care, such as role conflict, role ambiguity, role overload, role incongruity, and role incompetence;
4. Is there a perceived need by the nurses for further education in Advanced Cardiac Life Support?

Description of nursing problems encountered in delivering Advanced Cardiac Life Support in rural hospitals can provide valuable information to nurse educators as well as administrators of rural hospitals, both in relation to evaluating educational programs and planning for care.

Chapter II

Review of the Literature

The study of the relationships between the knowledge base of nurses and perceptions of their roles in a specialized area of nursing is clearly related to the broader conceptual framework often referred to as role theory. Conway (1978, p. 23) refers to the complexity of knowledge that is subject to increased role changes and accompanied stress due to advances in technology and complexity of health systems. Nurses are continually faced with the problem of realigning and redefining their roles.

Therefore, the purpose of this chapter is twofold. Literature related to the broad conceptual framework of role theory will be reviewed to provide the theoretical background of the study; and, secondly, literature related specifically to the roles of nurses in providing emergency cardiac care will be reviewed.

Conceptual Framework of Role Theory

Role theory has a broad and diverse conceptual background dating back to the early 20th Century. There have been many sociologists, psychologists, and anthropologists in the past who have contributed to the concept of "role". Historically, the term "role" comes from the French where it was used to describe a round, wooden spool used as a book or scroll-type device. With the emergence of the theater in the early 16th Century, the term role was used to describe the part an actor played or that from which he or she read his/her "part"

(Moreno, 1960, p. 80). The term role was not used in this country until the 1930's. It was about this time that George Mead's work became known. Mead's (1934) work on "Mind, Self, and Society" was published in 1934, posthumously. His contributions to role theory were recognized by others as they reviewed his notes, which had been used in his years as a teacher. Mead used the developmental sequence through which a child moves in the process of socialization to describe a role. He described role development as a process of adopting attitudes and providing one's self with the appropriate stimuli associated with another's role. "When a child does assume a role he has in himself the stimuli which call out that particular response or group of responses" (Mead, 1934, p. 150).

Mead's work served as the foundation of role theory. Other formulations of role, primarily developed by social psychologists, were derived from Mead's work.

Since the concept of status or position is frequently presented as a prior concept in many role formulations, it seems appropriate to define these terms as they relate to role definitions. A status is simply a collection of rights and duties. A role represents the dynamic aspect of status, meaning that when the individual puts the rights and duties which constitute the status into effect, he is performing a role (Gross, 1966, p. 12). There are no roles without statuses or statuses without roles. In short, role apparently has

reference not to actual behavior of an occupant of a position, but to behavioral standards. It consists of attitudes, values, and behavior ascribed by the society to any and all persons occupying a certain status (Gross, 1966, p. 12). Bennett and Tumin (1948, p. 96) define a role as "what the society expects of an individual occupying a given status. This implies that any status is functionally defined by the role attached to it."

Parsons and Shils (1951) describe a different concept of role. Their concept centers around the idea that action is behavior which is geared toward the establishment of goals in which there is a given amount of energy or effort expended.

Each action is the action of an actor, and it takes place in a situation consisting of objects. The objects may be other actors or physical or cultural objects. Each actor has a system of relation-to-objects; this is called his system of orientations. The objects may be goal objects, resources, means, conditions, obstacles, or symbols. They may become cathected (wanted or unwanted), and they may have different significances attached to them. (That is, they may mean different things to different people.) Objects, by the significances and cathexes attached to them, become organized into the actor's system of orientations. (Parsons and Shils, 1951, p. 54)

In this context, a role is a mode of organization of the actor's orientation to the situation. Sarbin (1954, p. 223) defines role as "a patterned sequence of learned actions or deeds performed by a person in an interaction situation." Newcomb (1951, p. 280) defines role as "the ways of behaving which are expected of any individual who

occupies a certain position." Newcomb's definition of role is an appropriate one for incorporation into the conceptual framework of this study. One common concept which comes through rather clearly in each of these role definitions is that each includes something which alludes to the fact that individuals in a social setting will behave with reference to either their own expectations or the expectations of others.

Some expectations of role behavior are dependent on an individual's identity; i.e., male, female, teacher, nurse, physician, or priest. But, it is necessary to specify what location and position in a social system the individual is in before we can place any expectations on that person.

To summarize what has been discussed in terms of role definitions, it can be seen that the term role has been used to denote prescription, description, evaluation, and action; it has referred to covert and overt processes, to the behavior of the self and others, and to the behavior an individual initiates versus that which is directed to him. Perhaps the most common definition is that role is the set of prescriptions defining what the behavior of a position member should be (Biddle and Thomas, 1966, p. 29). The one common denominator which is present in all of these definitions of role, centers around the behavior of an individual in a given setting. Throughout this study, the role of the nurse will be evaluated in

terms of the behavior he or she perceives as appropriate to the role of the professional nurse involved in a given social setting. The specific setting is that of providing Advanced Cardiac Life Support in a hospital emergency room.

With these definitions of the term role in mind, the role concept will be further described to bring the focus of this study into perspective. Role stress and role strain have been seen as major determinants of social behavior in response to the social structure (Hardy, 1978, p. 78). Hardy describes the stress-strain formulation as that of a problematic social condition (stress) leading to individual internal responses (strain). The subjective response of the individual to stress is termed role strain, whereas role stress refers to the demands or external pressures which contribute to role strain. If the problematic condition is one of conflicting, confusing, irritating, or impossible role demands, the condition is role stress. If the role occupant exposed to external demands experiences tension or frustration, the resulting condition is role strain.

Hardy has identified six general problem areas which are stress-strain related. The areas include role ambiguity, role conflict, role incongruity, role overload, role incompetence, and role over-qualification. These problem areas, described by Hardy, have significant meaning in nursing roles as well as many other health-related roles. The focus of this study will primarily address areas of role

ambiguity, role conflict, role overload, role incompetence, and role incongruity as they relate to the role of the nurse.

Role ambiguity has been described by many investigators in many different social settings. Arndt and Laeger (1970, p. 498) investigated directors of nursing services and used "vague or unclear role demands" as a definition of role ambiguity. Bible and McComas (1963, p. 225) studied teachers and used "lack of congruity or consensus on role demands" as their definition. Hardy (1976, p. 24), in her study of hospital nurses, uses the definition of role ambiguity as a "lack of clarity in role expectations." Hardy's definition of role ambiguity may best fit the needs of this study.

The literature related to role conflict has a variety of definitions, as well. Arndt and Laeger (1970, p. 497), in their study of directors of nursing, termed role conflict "conflicting role demands." Hardy's (1976, p. 10) study of hospital nurses described role conflict as "contradictory role expectations." Corwin (1961, p. 664) and Kramer (1968, p. 115, 1969, p. 196) studied hospital nurses and described role conflict as a "disparity between role norms and behavior." Johnson and Stinson (1975, p. 329), in their study of military and civilian personnel, described a "disagreement over role expectations" as a causative factor in role conflict. Simmon's (1968, p. 482) study of first-line supervisors, defined role conflict as "conflicting role expectations."

Role overload may be a factor which relates to stressful work environments. Hardy (1971, p. 16, 1976, p. 18) describes two definitions of role overload as they relate to male college students and hospital nurses. These are "lack of time to meet role demands," and "not enough time to carry out role obligations," respectively.

Role incompetence may result when there are not enough resources available to meet job demands. This can be seen in nurses who have been out of the field for some time and re-enter with a feeling of incompetence due to lack of skills and knowledge to perform competently in the role of a nurse. The increased stress would probably lead to role strain (a subjective response to role stress).

Role incongruity may serve as a source of difficulty in fulfilling role obligations. The role occupant may find that expectations for his performance run counter to his own disposition, attitudes, or values (Hardy, 1976, p. 5). Role incongruity has also been defined by Davis and Olesen (1963, p. 89) as seen when norms in a new role conflict with the occupant's values. Such may occur when role occupants undergo role transition, and when student nurses are faced with learning role expectations and behaviors which conflict with their values.

In conclusion, some of the basic concepts which related to role theory have been presented here. The role of the professional nurse in providing emergency cardiac care will be evaluated in the analysis

of data in terms of role theory and presented in Chapter IV. If the nurse is going to be expected to provide quality intervention in dealing with any emergency situation, it should also be expected that the individual be given the appropriate training to be able to function effectively in an expanded role. The stress and strain which are produced by the problems of role conflict, role ambiguity, role overload, role incompetence, and role incongruity might be less if there were greater recognition of role problems by educators, administrators, and others in the health care field. Role problems will be investigated to gain a more clear and concise picture of how nurses feel and think about their roles.

Literature Related to Nursing Roles

In reviewing nursing literature related to the nurse's role in providing emergency cardiac care, the researcher experienced great difficulty in locating materials relevant to nursing involvement in Advanced Cardiac Life Support.

With the advent of the coronary care units in the 1960's, the role of the professional nurse has been expanded in terms of making more complex judgements and assuming more complicated physician-delegated responsibilities in management of critically ill patients. Nurses no longer make observations, report them, and stand by until their efforts are needed in active resuscitation. Nurses are becoming more active in physical assessment based on sound nursing

frameworks and are able to make sound nursing interventions based on these assessments (Simoneau and Pura, 1978, p. 80).

Nurses are involved in providing ACLS under physician standing orders in a variety of settings. In the state of California mobile intensive care nurses (MICNs) provide direct patient care in a community setting. These same MICNs provide indirect supervision of paramedics via telemetry communication units in the emergency room. The nurse directs the paramedic's management of ACLS procedures, using standard protocols established by the medical staff (Simoneau, 1978, p. 19).

Nurses in other areas of the country are involved in pre-hospital emergency care through air and ground transportation units based at central hospitals. These nurses deliver ACLS while under medical direction (physician's standing orders). Examples of such programs are the "ALERT" program in Kalispell, Montana, and the "Mobile Intensive Care" program in Billings, Montana (Miller, 1980).

For a number of years nurses have been involved in administering ACLS while under direct physician orders. Only recently have the same nurses been given greater autonomy by the medical community in proceeding in certain instances to initiate definitive emergency cardiac care without the physician being present. An example of such a change has taken place in the special care unit of a western Montana hospital (VanDamme, 1980).

With recent advances in basic nursing education in ACLS material, nurses are now graduating from nursing programs more familiar with the usual management of cardiac emergencies than in previous years. Nursing textbooks have reflected increasing emphasis in emergency cardiac care since the advent of the American Heart Association's Standards for emergency cardiac care. Some examples of medical-surgical nursing texts demonstrating these changes are Phipps, Long, and Wood (1979) and Beyers and Dudas (1977).

In conclusion, there were limited materials available to document the involvement by nurses in the area of providing ACLS, especially in the hospital setting. Those references which were cited demonstrate that nurses are accepting increasing responsibility for initiating ACLS in a variety of settings.

Chapter III

Methodology

The purpose of the study was to determine possible problems encountered in the delivery of Advanced Cardiac Life Support in the rural hospitals by registered nurses. Secondly, nurses' knowledge base of Advanced Cardiac Life Support was assessed and finally, possible stressors which are involved in the delivery of Advanced Cardiac Life Support were identified along with the nurses' perceived needs for education in the area of Advanced Cardiac Life Support. The research design utilized for the study was a descriptive, exploratory survey design. The design proved to be very useful to the researcher in exploring problems in the areas mentioned above. An exploratory design was selected because little was found in the literature on the subject matter of problems encountered in the rural hospital and especially in the area of nursing and Advanced Cardiac Life Support.

Definition of Terms

Advanced Cardiac Life Support (ACLS), as defined by the American Heart Association: "ACLS consists of (1) continuing effective basic life support, (2) establishment of intravenous fluid lifelines, (3) more effective ventilation by use of endotracheal intubation or mouth-to-mask ventilation, (4) cardiac monitoring, (5) recognition of certain basic dysrhythmias, (6) defibrillation when necessary, and (7) drug therapy for the primary life-threatening dysrhythmias"

(Carveth, Burnap, Bechtel, McIntyre, Donegan, Buchman, and Reese, 1976, p. 2311).

Basic Life Support (BLS), consists of recognizing respiratory and cardiac arrest and starting the appropriate applications of obstructed airway procedures, or cardiopulmonary resuscitation.

Rural: Living outside a metropolitan area (under 50,000 population).

Rural hospitals: Hospitals of 60 beds and under.

Role ambiguity: A lack of clarity in role demands or expectations.

Role conflict: A disagreement over role demands or expectations.

Role incongruity: Where role performance expectations run counter to one's own disposition, attitude, or value system.

Role incompetence: Inadequate resources available to meet job demands.

Role overload: A lack of time in which to meet role demands.

Role perception: The interpretations the individual makes of the expected functions of a position.

Educational level: Type of preparatory program from which the nurse received her original education in nursing.

Baccalaureate Degree nurse: Graduate of a collegiate nursing program with a Bachelor of Science degree in nursing.

Associate Degree nurse: Graduate of a junior college or community college program with an Associate Degree in nursing.

Diploma nurse: Graduate of a hospital-based training program in nursing.

Population

The population studied consisted of registered nurses working in the rural hospitals of western Montana with bed counts of 60 and under. Each nurse was required to have worked at least part time in their hospital's emergency room.

The number of hospitals contacted was 17, representing all hospitals of 60 beds and under in the western half of Montana, with the exception of a pilot group of hospitals (7) which were excluded from the study. The population surveyed then represents all rural hospitals in western Montana, with the exception of the pilot group of seven hospitals.

The director of nursing at each hospital was contacted by phone to explain the study and ask permission and cooperation in participating with the study. Arrangements were made with each director to meet with as many of the eligible nursing staff as possible on a given date and time. This approach yielded a convenience sampling of each hospital's registered nurses (meaning those nurses who were available on the date arranged and who were willing to voluntarily participate in the study). Approximately 25 percent of the total number of nurses eligible participated in the study. All hospitals

were visited during the day, with the exception of two, which were done in the evening hours.

Collection of Data

After arranging a date and time with the director of nursing at each hospital, the researcher travelled by automobile to the hospital. Some days were arranged so that more than one hospital could be contacted. The average number of hospitals contacted each day was two. Each participant was interviewed individually, and at this time, the researcher fully explained the procedure of collecting the data and emphasized that each person would remain anonymous. A signed consent form for permission to do the study was also obtained at this time (Appendix A). The interviews were done in privacy at a site in the hospital which was most convenient for each staff member, or which was reserved by the director of nursing. Each participant was interviewed using an open ended interview guide (see instrument explanation). Two other instruments were left with each participant to complete and return via mail to the researcher. The last two instruments were the American Heart Association's Advanced Cardiac Life Support Pre-test, along with a demographic data questionnaire. A total of 53 nurses were interviewed, with a total response of 36 questionnaire/tests returned via mail. Those not returning the last two instruments were excluded from the study.

Instruments

Data were collected through the use of three types of instruments. The first was an open ended interview guide designed by the researcher. The instrument consisted of eight items (Appendix B). The purpose of the interview guide was to obtain more information than would be possible in a closed ended, written questionnaire, since no previous similar study was found and the variables which might influence the test scores (second instrument, Appendix C) were unknown. The rationale for each question on the interview follows.

Question 1. How do you perceive your role as a nurse in providing Advanced Cardiac Life Support? This question was designed to explore the degree of involvement that each nurse had in the delivery of ACLS. The question was supplemented with the statement: "What would you do as the nurse in charge of a patient who had just had a cardiac arrest? Tell me exactly what involvement you would have and what you would do as the nurse in this situation." The responses were divided into the following six categories. (These categories are used by the American Heart Association as elements of ACLS.)

- a. Basic Life Support
- b. Use of adjunctive equipment for ventilation and circulation
- c. Cardiac monitoring for dysrhythmia recognition and control
- d. Defibrillating
- e. Establishment of an intravenous infusion
- f. Employing definitive therapy, including drug administration

Question 2. What kinds of frustrations have you had in dealing with cardiac emergencies? This question was designed to elicit responses which might be used to determine possible role stressors, such as role conflict, role ambiguity, role overload, role incongruity, and role incompetence, as well as other problem areas which may have effects on the quality of emergency cardiac care given in the rural areas. The operational definitions of the role terms were used as defined by Hardy (1978), in Chapter II.

Question 3. Generally, how confident do you feel in providing ACLS? This question was used to determine the level of confidence as perceived by each nurse in the delivery of ACLS. The responses were categorized into five areas, ranging from "not very confident" or "poor" to "very confident".

Question 4. Would you say that the experiences you have had in dealing with cardiac emergencies have been more positive or negative?

In what way? Can you give me any examples? A positive-negative response was expected from this question to give the researcher a better idea of how comfortable or worthwhile the total experience of being involved in providing ACLS was to each. The reasons why and examples given will be reported descriptively in Chapter IV.

Question 5. What should the nurse's role ideally be in providing ACLS in your hospital? This question was designed to determine if there was a difference between how nurses perceived their role and what they

thought the ideal role should be. The same categories used in Question 1 were used for comparison of the two answers.

Questions 6 and 7. Do you think ACLS training should be a requirement for professional nurses? The rationale for this question was to determine if the nurses thought ACLS material was important to their functioning as nurses in dealing with cardiac emergencies. If the response was "no", they were asked why. The reasons why are reported in descriptive form in Chapter IV.

Question 8. (If the answer to Number 6 was "yes") Where should this training be taught? This question was not a typical open ended question because there were four responses:

- a. Undergraduate education
- b. Inservice education department, i.e., at the time of orientation to the hospital
- c. Both a and b
- d. Other

The second instrument used was the American Heart Association's pre-test for their Advanced Cardiac Life Support course (Appendix C). This tool was chosen because it covered all areas of Advanced Cardiac Life Support content. As far as the researcher could determine, the pre-test has not been checked for validity and reliability (Britton, 1980). The pre-test consisted of 73 multiple-choice questions which were questions relating to the different elements of Advanced Cardiac Life Support. The questions cover the content which would be

utilized by the nurse if he or she were involved in delivery of ACLS in the rural hospital setting. Raw scores were used in reporting the data and were used as the basis of knowledge for ACLS. Permission to use the tool was obtained in writing from the American Heart Association.

The third instrument used was a closed ended questionnaire designed by the researcher to collect demographic data on each participant (Appendix D). A total of 15 questions was included in the instrument. The information was used in making comparisons between scores for the participants and some of the demographic data collected.

Chapter IV will cover the reporting of data analysis and discussion of the findings.

Chapter IV

Analysis of Data

This chapter will present the data which was collected from 36 nurses in 16 different rural hospitals of western Montana during the Fall of 1979.

Organizationally, the findings have been divided into the following four basic areas which the project was designed to explore:

- (1) the knowledge base of registered nurses in the area of ACLS;
- (2) the nurses' perceptions of their roles as providers of ACLS;
- (3) the identification of possible role stressors, such as role conflict, role ambiguity, role overload, role incongruity, or role incompetence; and
- (4) whether there is a perceived need by the nurses for further education in ACLS. A description of the population sampled is given preceeding the data analysis.

Demographic Data

The sample of 36 registered nurses consisted of two associate-degree graduates, 22 diploma graduates, and 11 baccalaureate graduates. All participants were female. The range in years of nursing experience was from one to over 20, with the largest group having over 20 years of experience. Of the nurses sampled, 78 percent worked full-time, and 61 percent completed their nursing education in Montana. There were no ages used in the demographic data collection tool. Of the 36 respondents, only three had completed the American Heart Association's course in ACLS. Most of the respondents

had received some form of training in cardiac care. However, four had never received any special training in emergency cardiac care.

There was no difference between the basic nursing preparation received and the educational level which each nurse presently held. In terms of education received in emergency cardiac care (demographic data, Question 7), exactly 50 percent had received some form of training in the past year. Twenty-two percent had received training within the past two years, and 8 percent had received training within the past three to four years. There were another 8 percent who had not received any training in emergency cardiac care for over four years, and 11 percent had never received any formal training in emergency cardiac care.

Data Analysis

Part 1. Knowledge base of ACLS among the 36 registered nurses in the sample. (The highest possible score was 73.)

The mean raw score for the group was 34.78, with a standard deviation of 10.83. The scores ranged from 14 to 67, with a mode of 36. The American Heart Association considers a score of 85 percent on their post-test for the ACLS course a passing score. If the 85 percent passing figure were used as the criteria for a passing score on the pre-test, it would mean a raw score of 62 or greater. Only two participants in the survey population scored above 62, and there were 14 of the 36 participants who ranked above 50 percent

on the test. A grouped frequency distribution of raw scores is shown in Table 1:

Table 1. Grouped frequency distribution of raw scores on ACLS pre-test for 36 registered nurses

<u>Class Interval</u>	<u>f</u>
65-69	2
60-64	0
55-59	0
50-54	0
45-49	1
40-44	5
35-39	10
30-34	5
25-29	9
20-24	1
15-19	2
10-14	1
	<hr/>
Total	36

Analysis of Variance for the raw scores and the three educational backgrounds of associate degree, baccalaureate, and diploma were done. This yielded an f-ratio of 0.49, indicating that there was no significant difference between raw scores and basic nursing educational preparation at the .05 level of confidence. The f-ratio would have had to be 8.59 or greater to be considered significantly different.

Analysis of Variance for raw scores and the number of years worked in any emergency room was also done. The f-ratio for the group was 0.12. There was no significant difference between raw

scores and the number of years worked in any emergency room. The range of experience in any emergency room was from under one year to over 20 years, with the largest concentration of experience falling into the two-to-five-year category (33 percent). The largest number of nurses interviewed were graduates of diploma nursing programs. Table 2 indicates the relationships between length of time worked in any emergency room and the educational preparation of the population sampled.

Table 2. Educational level of all respondents and the number of years worked in any emergency room

Educational Level	Number of years worked in any emergency room						Total
	Under 1 year	1-2 years	2-5 years	5-10 years	10-20 years	Over 20 years	
Associate			2				2
Diploma	2	1	5	7	4	3	22
Baccalaureate	1	2	5	1	2	1	12
Raw Totals	3	3	12	8	6	4	36

Part 2. Data collected from interviews.

Question 1 from the interview was: How do you perceive your role as a nurse in providing Advanced Cardiac Life Support (ACLS)?

The question yielded answers which were categorized into the six

basic elements of ACLS. The six basic elements (categories) of ACLS are as follows:

1. Basic Life Support
2. Use of adjunctive equipment for ventilation and circulation
3. Cardiac monitoring for dysrhythmia recognition and control
4. Defibrillation
5. Establishing and maintaining an intravenous infusion lifeline
6. Employing definitive therapy, including drug administration

Of the 36 respondents, 69 percent indicated they would provide basic life support (Category 1), and 64 percent would use some form of airway equipment to assist in ventilation (Category 2).

Cardiac monitoring and dysrhythmia recognition and control (Category 3) were mentioned by 83 percent of the respondents as an area they would get involved in. Fifty-six percent of the respondents would utilize defibrillation, if needed. A large percentage (83 percent) of the respondents would start an intravenous infusion. Only 52 percent of the 36 nurses would employ definitive therapy, including drug administration. This last figure was probably due to lack of standing orders in terms of the nurses' responsibility for initiating definitive therapy.

Table 3 demonstrates each nurses' response to their perceived role involvement as providers of ACLS. Many of the nurses did not mention basic life support as part of their perceived role involve-

ment. The researcher questions whether or not nurses understood that Basic Life Support is an element of Advanced Cardiac Life Support. (these findings are illustrated in Table 3).

The second question on the interview asked: What kinds of frustrations have you had in dealing with cardiac emergencies? This was analyzed by grouping the data gathered into six categories relating to role stressors (i.e., (1) role conflict, (2) role ambiguity, (3) role incompetence, (4) role incongruity, (5) role overload, and (6) other). Each of the role categories are presented separately.

1. The operational definitions of role conflict as used by Hardy (1976) and Simmons (1968) will both be used in this categorization of role stressors. Hardy (1976, p. 10) refers to a "disagreement over role demands," and Simmons (1968, p. 482) refers to "conflicting role expectations" in defining role conflict. Some of the responses which would fit into this category are as follows: confusing role expectations, no consistency in demands made by physicians for the amount of involvement in terms of providing emergency cardiac care, not enough or unclear standing orders for ACLS, feelings of too much responsibility, and too much demanded of the nurse in emergency cardiac care by peers and physicians.

The answers related to role conflict are a grouped response and reflect the attitude of more than one respondent. It is interesting to note that some of the nurses expressed a strong feeling of too

Table 3. Distribution of each nurses' response and perceived role involvement in each ACLS element (N = 36)

Indiv.	Respondents	I	II	III	IV	V	VI
	1	x	x		x		x
	2	x			x		
	3	x					
	4			x	x		x
	5	x	x	x	x	x	x
	6	x	x	x	x	x	x
	7		x	x	x	x	x
	8	x	x	x	x	x	x
	9	x	x	x	x		
	10	x		x	x	x	
	11	x	x	x	x	x	x
	12			x			
	13	x		x		x	
	14	x		x		x	
	15	x	x	x	x	x	x
	16	x	x	x	x	x	x
	17		x	x		x	
	18		x	x	x	x	x
	19		x	x	x	x	x
	20	x		x		x	
	21	x	x	x	x	x	x
	22	x	x				
	23	x	x	x		x	
	24	x	x	x		x	
	25	x	x	x		x	x
	26		x	x		x	
	27	x		x	x	x	x
	28	x				x	
	29			x	x	x	x
	30		x	x	x	x	x
	31	x		x		x	x
	32	x		x	x	x	x
	33		x	x	x	x	
	34	x	x	x		x	
	35	x	x	x			
	36	x	x	x	x	x	x

Identification of Categories:

- | | |
|---|------------------------|
| I Basic Life Support | IV Defibrillation |
| II Ventilation and Circulation Adjuncts | V Intravenous Infusion |
| III Cardiac Monitoring | VI Drug Therapy |

much involvement being expected of them, while others stated that they should be involved in ACLS, but were uncertain what expectations their peers or physicians had of their role involvement with ACLS. The latter group would fall into the definition "conflicting role expectations," as noted by Simmons (1968, p. 482).

2. The operational definition of role ambiguity used will be Hardy's (1976, p. 24) reference to the "lack of clarity in role demands," or role expectations which are unclear, ill-defined, or vague. Role ambiguity differs from role conflict in that role conflict refers to conflicting role expectations and not vague or ill-defined roles.

Frustrations mentioned during the interview which fall into the role ambiguity category are as follows: confusing role demands, not enough help to do what the nurse perceives as her role, not enough clear standing orders (unclear norms), and inconsistency of medical treatment in ACLS, altering the nurse's stress level by making her role unclear and ill-defined. These frustrations mentioned contribute to the overall level of stress and may not be conducive to providing quality health care to the patient. One of the nurses interviewed, mentioned the inconsistency among physicians in their standards of treatment in providing ACLS. Other frustrations mentioned by the same nurse were the lack of clearly defined standing orders to function effectively during cardiac emergencies, and the quality of care given to cardiac patients was seen as

inadequate because of insufficient training among both nurses and physicians as providers of ACLS.

3. The operational definition of role incompetence as defined by Hardy (1978, p. 83) was utilized. "Role incompetence exists whenever a role occupant's resources are inadequate relative to the demands of his position." The responses which fell into this category were mainly concerns of inadequate training and skill degradation. Feelings of incompetence and the lack of confidence in terms of providing ACLS were also mentioned as frustrations which the nurses perceived. A number of reasons were expressed explaining role incompetence. The reasons included lack of specialized educational preparation and inservice education, with apparent feelings of incompetence and inadequate training in ACLS education. These reasons will be discussed further in the implications section of the last chapter.

4. Role overload is defined as both the "lack of time to meet role demands" and the "lack of time to carry out role obligations" (Hardy, 1978, p. 89). Responses which were included in this category related primarily to not having enough help to carry out role obligations; for example, the time element involved in trying to be two places at once and not getting the job done at all, or only being able to do a fair job. In the rural hospital, there are many times when there is only one registered nurse available in the hospital to

meet the many role demands which exist. An example of one of the more common situations which arise is when the nurse is busy with a patient in the delivery room and is called to the emergency room for assisting in the management of an acute illness or injury. The nurse is really overloaded with too many demands and not enough time to carry out the activities that each situation demands.

5. Role incongruity refers to the difficulty one finds in fulfilling role obligations which may be incompatible with the attitudes, values, and disposition of the role occupant (Hardy, 1978, p. 82). Responses of the nurse interviewed revealed a number of interesting examples of role incongruity. Many of the nurses felt very uncomfortable in helping with the management of a person with whom they were acquainted. This situation is not uncommon in the small-town rural hospital, since the chances are far greater of being acquainted with the people of a small town as compared with a large community. Other areas mentioned were feelings of disinterest in dealing with cardiac emergencies or attitude-related frustrations. The emotional ethical issue of providing ACLS are problematic for some nurses. Many of the respondents mentioned their feelings of apathy and disagreement with the amount of lifesaving efforts that were provided for people whom they felt should have been left to die. The people they referred to were usually elderly or terminally ill patients.

6. Other problem areas which contributed to frustrations in providing ACLS were related to poor, outdated equipment and inadequate

emergency room space. Unorganized approaches in the delivery of emergency cardiac care, along with poor communication between the nursing staff and physicians were other frustrations expressed.

Interview Question 3: Generally, how confident do you feel in providing ACLS? These responses were divided into the following five categories:

1. Not very confident, or poor
2. Fair
3. Average, or good
4. Confident
5. Very confident

Table 4 represents each confidence category, the mean scores, and the percentage of respondents for each of these categories. It is interesting to note that the mean scores of those respondents in the very confident category are higher than the mean scores in the other categories. The very confident category consisted of 14 percent of the total population sampled. The largest portion of the sample (36 percent) indicated their level of confidence as average or good in terms of providing ACLS.

Interview Question 4: Would you say that the experiences you have had in dealing with cardiac emergencies have been more positive or negative? In what way? Can you give me any examples? Responses were positive, negative, and 50/50, the latter indicating an

Table 4. Mean scores on the ACLS pre-test and percentages of the sample by levels of confidence in providing ACLS (N = 36. Raw scores range from 14-67.)

Confidence Categories	Mean Scores	Percentages
1. Not very confident	26.1	19.4%
2. Fairly confident	36.14	19.4%
3. Average, or good	32.14	36.0%
4. Confident	40.5	11.0%
5. Very confident	42.6	14.0%

ambivalent, or having had both some positive and negative experiences.

Of the 36 nurses, the large majority (86 percent) responded with a positive answer, as opposed to 11 percent negative and three percent in the 50/50 category. The figures point out the fact that most of the nurses sampled expressed that the total experience of providing ACLS had been perceived as positive. Most stated that it was always a learning experience. The nurses usually reported that although the results did not always have the desired outcome, the experience was viewed as positive in terms of learning more about ACLS.

The negative responses to Question 4 were primarily directed toward the unsuccessful results obtained, and feelings of inadequacy. It is possible that there may be some guilt feelings on the part of some of the nurses because of their lack of expertise in dealing with cardiac emergencies, however, such feelings were not expressed.

Interview Question 5: What should the nurse's role ideally be in providing ACLS in your hospital? Interview Question 5 was designed to note any possible variation in how each nurse perceived her own role as a provider of ACLS as compared to the ideal role of the nurse. The majority of respondents did not perceive any difference in comparing their roles with the ideal role. Others had a variety of responses which could not be categorized, but will be

discussed here. One very clear feeling of frustration became evident to the researcher during this part of the interview. That feeling seems to be one of increasing pressure by either peers or the medical community to become more responsible for providing ACLS, and yet, some nurses are not interested in taking on any more responsibilities. They feel as though they are overwhelmed with responsibility without getting any further into another expansion of their role. The feelings of frustration just mentioned are primarily limited to nurses who have been practicing for about 20 years and seem to resist change in their roles as nurses. The large majority of nurses interviewed were interested in ACLS and expressed a need for greater autonomy in terms of providing ACLS. In general, however, there were very few perceived differences in responses between perceived roles (Interview Question 1) and ideal roles (Interview Question 5).

Interview Question 6/7 asked: Do you think ACLS training should be a requirement for professional nurses? If no, why? Responses to the question were either "yes" or "no." Eighty-one percent of the sample stated that ACLS training should be a requirement of all professional nurses. The 19 percent who disagreed gave the following two reasons: (1) basic life support should be all that is required of a nurse when involved with a cardiac emergency, or (2) ACLS may not apply to all registered nurses because of the variety of areas of nursing practice.

Interview Question 8: If yes to Question 6, where should this training be given or taught? This was a closed ended question with answers given in four areas; a) undergraduate, b) inservice education department, i.e. at the time of hospital orientation, c) both a and b, and d) other.

Out of 36 respondents, 81 percent answered yes to Question 6, indicating they were in favor of ACLS training as a requirement for all professional nurses. These respondents are further divided here to indicate their area of preference as to where ACLS training should take place. Seventeen percent thought the ACLS training should be given in the undergraduate educational programs for nurses. Eight percent thought the training should be given by the inservice education departments in each hospital or at the time of orientation to the hospital. The largest percentage of nurses (58 percent) felt the training should be given in both undergraduate programs and when the nurse begins work at a given hospital. Another area mentioned as an alternative plan for education in ACLS was to have each nurse attend a workshop in one of the larger cities where there might be more opportunity for receiving the material.

It was noted that inservice education programs were not meeting the needs of the nursing staff in terms of providing emergency training. Seventy-two percent of the nurses stated the needs were not being met. One hundred percent of the nurses stated they could

use further education in updating their skills in emergency cardiac care.

With regard to the nurses' responsibility for initiating ACLS procedures (Question 13), 86 percent stated the nurse should be responsible. As far as having standing orders in each hospital to initiate ACLS (Question 14), 64 percent said they had standing orders for ACLS. Seventeen percent had no standing orders, and seven percent were unsure of their hospitals' standing orders.

In terms of experience in initiating ACLS (Question 15), 64 percent had initiated ACLS at one time or another.

Summary of Findings

It would seem rather obvious, if we use the American Heart Association's (AHA) standards for a passing score of 85 percent on the pre-test, that only a small portion of the nurses who participated in the study were able to attain this figure (only two). Lower than desirable scores among this group of nurses would indicate that the knowledge base among this group was not within an acceptable range, if we use the AHA standards as the guideline for acceptance.

Sixty-nine percent of the nurses stated they would provide basic life support as part of their role in the management of a cardiac emergency. Other elements of ACLS which were presented show a great deal of discrepancy from one nurse to another as to their perceived

roles as providers of ACLS. The discrepancy may be due to the fact that some hospitals have better defined roles and more clearly defined standing orders for the nurses to operate under than others.

The data, thus far, serves to demonstrate the number of frustrations experienced by nurses in providing emergency cardiac care (ACLS) in the rural hospitals. The following chapter (V) will give a clearer picture to the reader, who may be unfamiliar with the rural areas of Montana and their problems. Chapter VI will give the study's implications and summary.

Chapter V

Context of the Study

The purpose of this chapter is to give more insight into the problems which may be unique to rural hospitals, and to report some observations which were collected in addition to the information already presented in Chapter IV. The researcher believes that the information gathered will further increase the awareness of health care professionals to the special needs which are created in rural areas.

As mentioned earlier, the data collected during the interviews were obtained by travelling via automobile to each rural hospital. The journey proved to be very valuable to the researcher. The amount of information gathered could never have been accomplished through a mailed questionnaire and gave the study's purpose more meaning. The researcher was surprised at the number of new hospitals found in the rural areas. In the "highline" area of northwestern Montana, there are a number of newer hospitals located within 30-40 miles of each other. The pattern in this area seems to be one hospital located in each county.

Most of the nurses interviewed were quite interested in expressing their views on the problems which were encountered in their hospitals. A large number of the directors of nursing in each hospital chose to participate in the study, and were very helpful in identifying problems which they had experienced in the rural area.

One of the most overwhelming impressions which the researcher experienced after the hospital visits was the lack of paramedical personnel in each hospital. It is hard to imagine that there are no orderlies, respiratory therapists, X-ray technicians, and other health care specialists working in some of these small, rural hospitals. The nurses working in the rural hospitals have increased obligations, as opposed to nurses working in larger institutions. In some rural hospitals the nurses must assume roles traditionally held in larger institutions by other health care specialists. As a result, most nurses perceive their roles as generalists and not as specialists in any area of nursing.

The hospital facilities themselves were varied, ranging from six hospital beds in one to 50 in another. The large majority of hospitals were small--15-20 beds--and were older structures. The emergency room in each hospital varied from a well-equipped area with two or three rooms, to an emergency room which had one old run-down operating table and hardly enough supplies to treat a minor laceration. It is not surprising that the nurses in these hospitals mentioned their facilities were lacking in space as well as modern up-to-date equipment with which to work. Another interesting point with regard to emergency rooms in several hospitals, was the recent purchase of an expensive electrocardiogram monitor-defibrillator unit. These units were purchased by the local (regional) emergency medical

service for each of the rural hospitals in its area. The interesting point is that the nurses were not familiar enough with the new equipment to use it effectively. (This remark was made by more than one nurse.) The researcher believes there could be improvement in both emergency room facilities and the training of nurses who work in the emergency rooms.

The directors of nursing interviewed expressed concern about difficulty in recruiting nurses to the rural areas. They wished there were more flexibility in basic nursing programs to allow for some exposure and clinical experience in rural hospitals. They believed that by giving student nurses some exposure to the rural hospitals, the students might be more likely to consider a rural hospital when looking for employment as registered nurses. Along these same lines, the directors mentioned that one of their other big problems was trying to keep staff updated on current nursing material. It is often difficult to send nurses to the workshops which were given in their areas by the larger hospitals because of staffing problems. They simply did not have enough staff to cover the hospital and still allow others to attend the out-of-town workshops. Suggestions made by the directors regarding this problem were to attempt to increase the amount of inservice education that could be done in each hospital, both by utilizing each hospital's own staff, as well as bringing in outside resources in specialized

areas to meet nursing needs. By providing education to the nurses in their own hospitals, the directors expressed the belief that the nurses would have a better chance of obtaining the information needed to keep informed.

Many of the staff interviewed expressed feelings of frustration with the physicians with whom they had to work. The majority of nurses stated that even though their training is lacking in ACLS material, they still perceive themselves as providers of ACLS to some degree and have difficulty in working with a physician whose skills in this area are equal to or even less than the nurse's. The nurses emphasized that there should be a greater standardization of protocol so that the health care team could be better prepared to deal with cardiac emergencies. The researcher believes that there could be a better coordinated effort on the part of emergency medical services to provide both physicians and nurses with the skills required to deal with cardiac emergencies. It must be very frustrating for the physician as well as the nurse, to try and cope with inadequately trained members of the health care team, especially if one or the other is convinced that quality patient care is not being provided.

Another area in which nurses expressed feelings of frustration was in dealing with physicians who were resistant to the changing role of the nurse as a provider of ACLS. An example of resistance

to change was given by a nurse who started an intravenous infusion in a patient who had a cardiac arrest. The physician responsible for the same patient did not believe the rôle of a nurse included the initiation of an intravenous infusion. Feelings not conducive to a relaxed, controlled environment in which to provide quality patient care in an emergency situation were thus created. Problems of this sort could easily be resolved through proper communication between the nurse and physician.

Summary

Problems of staffing, skill degradation among nurses, and inadequate training are among those most frequently cited by nurses in rural hospitals. Lack of facilities, including inadequate provision of space and lack of equipment, were also among frequently mentioned problems. With increased efforts on the part of nursing educators, emergency medical planners, and hospital administrators, there could be an improvement in the overall effectiveness of providers of ACLS in rural hospitals. Recommendations for the improvement of emergency cardiac care in the rural areas will be discussed in the next chapter.

Chapter VI

Summary, Limitations, Implications and Recommendations

Summary

The purpose of this study was to determine possible nursing problems encountered in the delivery of Advanced Cardiac Life Support (ACLS) in the rural hospital. Specifically the following areas were explored: (1) The knowledge base of ACLS among registered nurses; (2) Nurses perceptions of their roles in providing ACLS; (3) Possible role stressors involved in the delivery of emergency cardiac care, such as role conflict, role ambiguity, role overload, role incongruity, and role incompetence; and (4) Is there a need by nurses for further education in ACLS?

The study was based on data collected from 36 registered nurses working in 16 rural hospitals in the western half of Montana (Appendix E). The data collected revealed a general need for increased knowledge of ACLS among the respondents. The American Heart Association suggests a passing score of 85 percent on the ACLS post-test. Only two respondents scored above 85 percent on the test. There were no significant differences between scores on the ACLS test and basic nursing preparation. A comparison between scores on the ACLS test and years of experience in any emergency room also revealed no significant statistical difference.

In the area of role perception, the respondents indicated a wide variety of responses to their perceived nursing roles as providers of ACLS. Most of the nurses did not perceive themselves as providing all elements of ACLS. Conflicting role demands, or unclear role demands (i.e., lack of clear standing orders to provide definitive emergency cardiac care), could be contributing factors to the variety of responses received. There were many role problems identified by the nurses. Among the more common responses were concerns and frustrations with role overload, role incompetence and role ambiguity.

Eighty-six percent of the nurses interviewed expressed the opinion that their experiences with cardiac emergencies were of a positive nature. Most nurses did not perceive any difference between the ideal role of the nurse as a provider of ACLS, and how they perceived their own roles as providers of ACLS. Eighty-six percent of the nurses stated that the professional nurse should be responsible for initiation of ACLS, and 64 percent of the nurses stated they had experience in initiating ACLS.

Limitations

The following areas are identified as limitations of the study:

1. The motivation required to complete the lengthy questionnaire/test.
2. Honesty in completing the questionnaire/test.

3. The respondents' openness and spontaneity in answering the interview questions.

4. Wording of the interview questions to elicit the desired response may have been confusing. The validity of the interview guide was not tested by the researcher prior to its use.

5. The sample size.

6. The inability to generalize results to a larger population i.e., other rural areas of the United States.

Implications

The results of the study imply a need for increased training in ACLS among the population studied. Evidence has been cited which suggests that the nursing knowledge base in ACLS is deficient. If nurses are to assume greater responsibilities in the delivery of ACLS, there should be better training programs to meet their educational needs. Advanced Cardiac Life Support training could be included in basic nursing education as well as inservice education programs in hospitals to help meet the educational needs of nurses.

The evidence presented in Chapter IV on nursing role perceptions, implies a need for further clarification of nursing roles as providers of ACLS.

Problem areas which were identified by the nurses (Chapter IV), should be addressed by hospital administrators to help reduce the amount of frustration experienced by nurses delivering ACLS in the rural hospitals.

More awareness on the part of emergency medical service planners, nursing educators, the medical community, and others involved in training nurses, would be indicated to make the needs (which were identified by the researcher) of rural emergency room nurses known.

Training programs designed for rural nurses should take into consideration the need for this training to be given in each rural hospital, as opposed to having the nurses travel to another community.

Recommendations

The following recommendations are made as a result of this study:

1. Nurses should have more clearly defined roles as providers of ACLS. Role clarification needs to be addressed specifically in relation to standing orders from physicians. Consistency with the national standards which have been established by the American Heart Association for the delivery of emergency cardiac care (American Medical Association, 1974) is recommended.

2. Additional studies need to be done to determine physicians' role expectations of the nurse, and the public's role expectations of the nurse in providing emergency cardiac care.

3. A similar study should be undertaken in the larger hospitals for comparison with the findings of this study. It is also recommended that the wording of question 1 on the interview guide

be changed to decrease the amount of interpretation in the meaning of ACLS.

4. Replication of the study on a larger scale in rural areas to substantiate the findings is also recommended.

APPENDICES

Appendix A

Consent Form to Participate in the Study

The exploratory research project to study rural emergency department nurses' knowledge and role perceptions of Advanced Cardiac Life Support has been explained to me.

I understand I will remain anonymous. I agree to voluntarily participate in this study.

Signature _____

Appendix B

Interview Guide

1. How do you perceive your role as a nurse in providing Advanced Cardiac Life Support?
2. What kinds of frustrations have you had in dealing with cardiac emergencies?
3. Generally, how confident do you feel in providing ACLS?
4. Would you say that the experiences you have had in dealing with cardiac emergencies have been more positive or negative? In what way? Can you give me any examples?
5. What should the nurses' role ideally be in providing ACLS in your hospital?
6. Do you think ACLS training should be a requirement for professional nurses?
7. If no, why?
8. If yes, where should this training be taught:
 - a) Undergraduate?
 - b) Inservice education department, i.e. at time of orientation to hospital?
 - c) Both?
 - d) Other?

Appendix C

American Heart Association's Pre-Test

JOHN P. CONNOR, Executive Director

Phone 432-2382



MONTANA HEART ASSOCIATION, INC.

An Affiliate of the American Heart Association

Professional Building 510 1st Avenue North Great Falls, Montana 59401

September 14, 1979

Mr. Dan Ellis
2320 Bobwhite Court
Missoula, Montana 59801

Dear Mr. Ellis:

The Montana Heart Association sanctions the use of the pre-course test from the A Manual for Instructors of Advanced Cardiac Life Support, 70-034D, American Heart Association, in your project evaluating the training of Advanced Life Support to Registered Nurses in Rural Areas.

We understand the use of this material is for evaluation and no final testing or certification will be given.

Sincerely,

JOHN P. CONNOR
Executive Director

JPC/eh

ADVANCED CARDIAC LIFE SUPPORT PRE-TEST

1. S-Tubes:
 1. provide a more effective airway seal than mouth-to-mouth ventilation
 2. reduce potential transmission of infection
 3. require training for safe and effective use
 4. may induce vomiting
 - a. (1,2,4)
 - b. (3,4)
 - c. (2,3)
 - d. (all of the above)
2. Bellows ventilation devices:
 1. assist in keeping the mouth open
 2. interfere with maintaining a patent airway
 3. induce vomiting
 4. are not effective in providing adequate ventilation
 - a. (1,3)
 - b. (3,4)
 - c. (2,3)
 - d. (2,4)
3. Esophageal obturator airway:
 1. requires visualization of the airway for insertion
 2. when removed is frequently followed by immediate regurgitation
 3. should be removed before endotracheal intubation is performed
 4. presents some potential for damage to the esophagus
 - a. (1,3)
 - b. (2,3)
 - c. (1,2)
 - d. (2,4)
4. Endotracheal intubation:
 1. should always be performed as a first step in CPR
 2. should be preceded by oxygenation of the lungs by other methods of ventilation
 3. allows adequate lung inflation without causing gastric distention
 4. makes it difficult to use a chest compression rate of 80 per minute
 - a. (1,3)
 - b. (2,4)
 - c. (1,4)
 - d. (2,3)

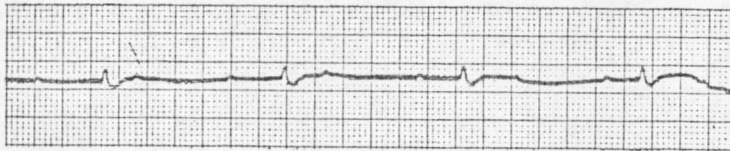
5. Oxygen-powered mechanical breathing devices for use during CPR:
1. are satisfactory only if pressure cycled
 2. are satisfactory only if manually triggered
 3. must provide flow rates of at least 100 liters/minute
 4. are not capable of delivering high concentrations of oxygen to the patient
- a. (1,4)
 - b. (2,3)
 - c. (1,2)
 - d. (3,4)
6. Open chest cardiac compression:
1. may be performed by any physician
 2. may be required in cases of internal thoracic injuries
 3. should always be performed whenever the necessary instruments are available.
 4. requires endotracheal intubation
- a. (1,2,4)
 - b. (2,3)
 - c. (2,4)
 - d. (all of the above)
7. A defibrillator shock in the unmonitored-unwitnessed arrest:
1. rarely produces serious functional damage to the myocardium
 2. may be preceded by a bolus of lidocaine
 3. may be done after anoxia and acidosis are corrected for an adult
 4. should utilize maximum energy output of the defibrillator if used for an adult on defibrillators delivering a maximum of 320-400 watt/sec.
- a. (3,4)
 - b. (1,3)
 - c. (2,4)
 - d. (all of the above)
8. Sodium bicarbonate therapy:
1. may produce metabolic alkalosis and this is of concern
 2. should be guided by blood gases and pH when available
 3. if blood gases and pH are not available, may be given as a bolus of 20 mEq/kg every 5 minutes
 4. should not be mixed with epinephrine
- a. (1,2,3)
 - b. (1,2,4)
 - c. (2,3,4)
 - d. (all of the above)
9. Epinephrine:
1. increases peripheral vascular resistance
 2. can restore electrical activity in asystole

3. can enhance defibrillation in ventricular fibrillation
 4. increases myocardial contractility
 - a. (1,2,4)
 - b. (1,3,4)
 - c. (1,2,3)
 - d. (all of the above)
10. Atropine Sulfate:
1. is of no value in ventricular tachycardia
 2. is always required if the heart rate is less than 60 beats per minute
 3. is usually given in 2 mg boluses up to a total of 10 mg.
 4. may be of value in high degree atrioventricular block
 - a. (1,4)
 - b. (2,3)
 - c. (1,3)
 - d. (2,4)
11. Lidocaine 1.0 mg/kg IV:
1. lowers the fibrillation threshold of the ventricle
 2. has no significant effect on myocardial contractility
 3. is useful in multifocal premature ventricular beats
 4. is not indicated in ventricular tachycardia
 - a. (1,4)
 - b. (2,3)
 - c. (3,4)
 - d. (all of the above)
12. Calcium chloride
1. is never dangerous in digitalized patients
 2. is especially useful in enhancing myocardial contractility
 3. is equivalent on a milligram for milligram basis to calcium gluconate
 4. may be given IV push
 - a. (2,4)
 - b. (3,4)
 - c. (1,3)
 - d. (2,3)
13. Endotracheal intubation
1. should be performed immediately after initiation of external cardiac compression
 2. reduces the risk of aspiration of gastric contents
 3. should not be attempted by persons inexperienced in this technique
 4. is always necessary for adequate lung ventilation

- a. (2,3)
 - b. (1,3)
 - c. (2,4)
 - d. (all of the above)
14. Aspiration of gastric contents
- 1. may follow removal of an esophageal airway
 - 2. is potentially lethal
 - 3. may follow removal of an endotracheal tube
 - 4. is always a complication of even correctly performed CPR
- a. (1,3,4)
 - b. (1,2,3)
 - c. (1,2,4)
 - d. (all of the above)
15. Tension pneumothorax:
- 1. can make CPR ineffective
 - 2. can be caused by a broken rib
 - 3. can be relieved only by very complex procedures
 - 4. may be detectable by tracheal shift
- a. (1,2,4)
 - b. (1,2,3)
 - c. (2,3,4)
 - d. (all of the above)
16. Cardiac Tamponade
- 1. results in inadequate filling of the heart
 - 2. results from excess fluid in the pericardium
 - 3. can be caused by the use of an intracardiac needle
 - 4. should be suspected if venous pressure is elevated and arterial pressure is low.
- a. (2,3,4)
 - b. (1,3,4)
 - c. (1,2,3)
 - d. (all of the above)
17. Attempts at tracheal intubation can result in:
- 1. laryngeal trauma
 - 2. esophageal intubation
 - 3. duodenal perforation
 - 4. tracheal stenosis
- a. (1,3)
 - b. (2,4)
 - c. (2,3)
 - d. (1,2)

18. Which of the following electrocardiographic rhythms may mimic ventricular tachycardia?
1. supraventricular tachycardia with aberration
 2. supraventricular tachycardia with left bundle branch block
 3. paroxysmal atrial tachycardia with block
 4. paroxysmal atrial tachycardia with left bundle branch block
- a. (1,2,3)
 - b. (1,2,4)
 - c. (2,3,4)
 - d. (all of the above)
19. Which of the following can directly depress the pumping function of heart muscle?
1. Metaraminol
 2. Quinidine
 3. Procainamide
 4. Calcium
- a. (1,4)
 - b. (1,3)
 - c. (2,4)
 - d. (2,3)
20. Which of the following conditions may seriously impede the conversion of ventricular fibrillation to an effective electrical-mechanical rhythm?
1. patient on long term vitamin therapy
 2. acidosis
 3. hypoxemia
 4. digitalis toxicity
- a. (1,2,4)
 - b. (2,3,4)
 - c. (1,2,3)
 - d. (all of the above)
21. Which of the following abnormalities may be effectively treated by increased ventilation?
- a. metabolic acidosis
 - b. respiratory acidosis
 - c. metabolic alkalosis
 - d. quinidine intoxication

22. Which of the following drugs may be useful in preparing the heart for electrical conversion from ventricular fibrillation to an effective rhythm?
1. oxygen
 2. sodium bicarbonate
 3. epinephrine
 4. morphine
- a. (1,2,4)
 - b. (2,3,4)
 - c. (1,2,3)
 - d. (1,3,4)
23. The percentage of deaths from myocardial infarction outside the hospital is:
- a. 20%
 - b. 40%
 - c. 60%
 - d. 80%
24. When selecting a bag valve mask device, the following are desirable features:
1. self-expanding bag
 2. a pop-off valve on pediatric models
 3. a transparent mask
 4. a non-rebreathing mask
- a. (1,3,4)
 - b. (1,2,3)
 - c. (1,2,4)
 - d. (all of the above)
25. Rhythm Strip



The above strip represents:

- a. 2:1 block
 - b. 2^o block of Wenckebach type
 - c. 3^o block (complete heart block)
 - d. sinus rhythm with PVC's
26. In the arrhythmia shown in question #25, which two drugs are commonly used to treat this entity?
1. Atropine
 2. Propranolol

3. Isoproterenol
 4. Lidocaine
- a. (1,3)
 - b. (2,3)
 - c. (1,3,4)
 - d. (all of the above)
27. An esophageal obturator airway:
1. is designed to facilitate air flow into the lungs
 2. provides passage for air to escape from an over-distended stomach via the esophagus
 3. is equipped with an inflatable cuff
 4. may be used in conjunction with an acceptable bag valve system
- a. (2,3,4)
 - b. (1,3,4)
 - c. (1,2,3)
 - d. (all of the above)
28. An S-tube is of limited use in CPR because:
1. the lumen of the tube does not allow adequate air flow
 2. it does not significantly reduce the potential of infection transmission
 3. an "airway seal" is not reliably obtained
 4. it should not be used in the conscious victim
- a. (1,2,3)
 - b. (2,3,4)
 - c. (1,3,4)
 - d. (all of the above)
29. Rhythm Strip



The arrhythmia shown in the above strip is:

1. 2^o heart block
2. Wenckebach phenomenon
3. unlikely to progress to complete AV block
4. Mobitz Type II, AV block

- a. (1,2,4)
 - b. (2,3,4)
 - c. (1,2,3)
 - d. (all of the above)
30. Bag/valve/mask devices:
- 1. should be used only by trained persons
 - 2. should be designed to deliver 100% oxygen for effective CPR
 - 3. can always be applied effectively by one trained person
 - 4. usually provides more ventilation than mouth-to-mouth
- a. (1,2)
 - b. (2,3)
 - c. (1,4)
 - d. (3,4)
31. Intubation with an endotracheal tube
- 1. should be used as the initial means of providing an open airway for an arrested victim if the necessary equipment is immediately available to trained personnel
 - 2. allows adjunctive ventilatory equipment to be used more effectively with less effort on the part of the rescuer
 - 3. reduces the risk of aspiration of gastric contents
 - 4. may be improperly performed so that only one lung is inflated
- a. (1,2,3)
 - b. (2,3,4)
 - c. (1,3,4)
 - d. (all of the above)
32. Endotracheal intubation should not be attempted by a trained individual:
- 1. unless he can routinely complete the procedures in less than 15 seconds
 - 2. in a conscious patient
 - 3. while an esophageal obturator airway is in place
 - 4. unless the victim has previously been adequately ventilated by some other method
- a. (1,2)
 - b. (1,4)
 - c. (2,3)
 - d. (all of the above)

33. Rhythm Strip



The above strip shows:

- a. multifocal PVC's
- b. left bundle branch block
- c. ventricular bigeminy
- d. escape beats

34.



The above strip most likely represents:

- a. ventricular fibrillation
- b. 60 cycle interference
- c. ventricular tachycardia
- d. sinus tachycardia

35. Atropine 0.5 mg IV

1. may abolish a sinus bradycardia
2. may decrease vagal reflexes
3. may be useful in atrioventricular block
4. may increase ventricular irritability

- a. (1,3,4)
- b. (1,4)
- c. (1,2,3)
- d. (all of the above)

36. A victim has a totally obstructing foreign object lodged in the airway just within fingertip reach but which has not become dislodged with your application of recommended efforts. As a qualified individual you should then consider:

- a. a cricothyrotomy
- b. endotracheal intubation without laryngoscope
- c. a tracheostomy
- d. none of the above

37. Isoproterenol has the following actions:

- 1. increases myocardial irritability
- 2. alpha adrenergic stimulation
- 3. increases force of contraction
- 4. speeds the heart rate

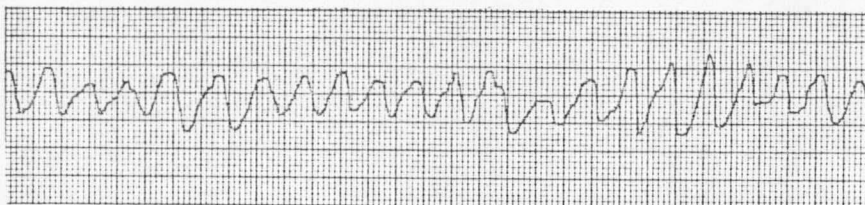
- a. (2,3,4)
- b. (1,3,4)
- c. (3,4)
- d. (all of the above)

38. Ventricular fibrillation in an adult:

- 1. should be treated with countershock using 100 watt/sec. (Joules)
- 2. is less likely to respond to countershock if the patient is acidotic
- 3. can usually be distinguished rapidly from ventricular standstill by physical examination
- 4. must be distinguished from artifact prior to countershock

- a. (1,3)
- b. (2,4)
- c. (2,3)
- d. (all of the above)

39.



The above rhythm strip may represent:

- 1. loose electrode artifact
- 2. ventricular fibrillation
- 3. ventricular tachycardia
- 4. atrial fibrillation

- a. (1,2)
- b. (1,4)
- c. (3,4)
- d. (2,4)

40. A victim needing continued external cardiac compression has had an endotracheal tube inserted. In conjunction with the endotracheal tube, it is appropriate to use:

1. a manually-triggered (time-cycled) ventilation device
 2. a pressure-cycled automatic resuscitator
 3. a bag valve system
 4. your mouth
- a. (1,2,3)
 - b. (1,3,4)
 - c. (2,3,4)
 - d. (1,2,4)
41. In the usual cardiac arrest patient of approximately 170 lbs., the initial dose of sodium bicarbonate would be approximately:
- a. 50 mEq.
 - b. 100 mEq.
 - c. 150 mEq.
 - d. 25 mEq.
42. Isoproterenol is primarily:
- a. an alpha adrenergic stimulator
 - b. a beta adrenergic stimulator
 - c. an alpha and beta adrenergic stimulator
 - d. an alpha adrenergic blocker
43. Lidocaine:
1. can cause seizures
 2. is frequently given as a 1 mg/kg bolus
 3. is frequently given as a 10cc bolus of 2% Lidocaine
 4. is frequently given as an IV infusion at a rate of 1-4 mg/minute
- a. (2,4)
 - b. (1,2,4)
 - c. (2,3,4)
 - d. (all of the above)
44. During the course of cardioversion, a patient suddenly develops ventricular fibrillation. Which of the following steps should be taken ?
- a. immediate external cardiac compression
 - b. inject 75 mg Lidocaine IV
 - c. administer a second shock instantly
 - d. turn off synchronizer switch and proceed with countershock
45. Isoproterenol:
1. may be infused in a dilution of 1.0 mg in 500 ml. of D5W
 2. should initially be given sublingually

3. decreases cardiac oxygen consumption
 4. may increase the amount of muscle death during myocardial infarction
- a. (1,3)
 - b. (1,4)
 - c. (2,3)
 - d. (2,4)
46. Following CPR efforts, a victim has a strong pulse, a satisfactory blood pressure, adequate spontaneous ventilation, but is aroused only by deep pain stimuli. Arterial blood gases are paO_2 50 torr, paCO_2 26 torr, pH 7.50. Which of the following may be useful?
1. oxygen by mask
 2. continuous EKG monitoring
 3. Dexamethasone IV
 4. measurement of serum osmolarity
- a. (1,3)
 - b. (1,2)
 - c. (2,3)
 - d. (all of the above)
47. After the initial sodium bicarbonate administration, and until effective circulation is achieved, a 150 lb. victim should receive (assume arterial blood gases and pH are not available):
- a. a second dose equal to the first dose and then one-half of the initial dose every ten minutes
 - b. one-half the initial dose every ten minutes for a total of 200 mEq.
 - c. 50 mEq. every fifteen minutes
 - d. 50 mEq. every ten minutes
48. Calcium chloride:
1. should not be mixed with sodium bicarbonate
 2. should be injected intravenously
 3. has the same effect as calcium gluconate on a volume basis
 4. decreases myocardial contractility
- a. (1,3)
 - b. (1,2)
 - c. (2,4)
 - d. (all of the above)
49. Isoproterenol:
1. is useful in increasing cardiac rate
 2. has a positive inotropic effect
 3. has a negative chronotropic effect
 4. may be used in Stokes-Adams due to heart block or cardiac standstill

- a. (1,2,4)
 - b. (1,3,4)
 - c. (2,3,4)
 - d. (all of the above)
50. You arrive at the scene of a cardiac arrest and the patient is known to have been pulseless and breathless for three minutes before CPR was begun. When the mobile unit arrived, the initial EKG showed a rhythm of ventricular fibrillation. Select your initial drug combination.
- a. Sodium bicarbonate 1 mEq/kg IV bolus and Epinephrine 1:10,000 5 ml IV push
 - b. Metaraminol 500 mg in 250 ml D5W by infusion and Sodium Bicarbonate 100 mEq IV bolus
 - c. Isoproterenol 10 mg in 250 D5W by infusion and Sodium bicarbonate 50 mEq IV bolus
 - d. Sodium bicarbonate 1 mEq/kg IV bolus and Epinephrine 1:10,000 0.5 ml IV push
51. A patient walks into the emergency room with his wife and states he has severe crushing mid-chest pain which has been present for thirty minutes with no relief from nitroglycerin. He has a history of angina. His pulse is 110; BP 110/70 mmHg, on two occasions with a fifteen-minute interval. His EKG is monitored and shows regular sinus rhythm. The first drug to administer is:
- a. Lidocaine 70 mg IV
 - b. Morphine sulfate 2-10 mg IV titrated to relieve pain
 - c. Methylprednisolone 30 mg IM
 - d. Morphine Sulphate 15 mg IM
52. A patient is seen by the mobile intensive care unit and the first impression is as follows:
- A 45 year old female with a history of angina claims to have had severe chest pain for 45 minutes. She was initially alert but is now drowsy, cool, perspiring and her pulse is 45. Her blood pressure is 85/60 mmHg, and her EKG shows varying degrees of bradycardia, first and second degree blocks. The first drug to administer is:
- a. Lidocaine 50 mg IV bolus
 - b. Atropine 1.0 mg IV bolus
 - c. Epinephrine 1.0 mg IV bolus
 - d. Atropine 0.5 mg IV bolus and repeat every three to five minutes up to 2.0 mg as required
53. You are in charge of the emergency room and a 55-year old male is brought in by the emergency medical service in your community. He has a history of fainting spells in the past hour. He admits to epigastric distress just before this. As you examine him, you find an irregular pulse at 90-95 per minute. The EKG shows multifocal PVC's with a run of ventricular tachycardia. Your first drug to give is:
- a. Propranolol 2.0 mg IV bolus
 - b. Atropine 0.5 mg IV bolus and repeat as needed
 - c. Lidocaine 1 mg/kg or 75 mg IV bolus
 - d. Infusion of Lidocaine 1 gm in 500 ml D5W

54. A patient is reported to you in electromechanical dissociation by the mobile unit and was given an initial dose of Sodium bicarbonate 1 mEq/kg IV and Epinephrine 1:10,000 5 ml IV. Your next choice of drug is:
- Calcium chloride 5 ml of a 10% solution IV bolus
 - Methylprednisolone 50 mg IV bolus
 - Isoproterenol 1.0 mg in 250 ml D5W
 - Levarterenol 4.0 mg IV bolus
55. You are an emergency room physician and the mobile unit is bringing in a 46-year old male who has severe chest pain and a sinus bradycardia of 45 beats per minute which responded to Atropine initially. After a total dose of 2.0 mg and 10 minutes later, the unit personnel reports a pulse of 40 and a blood pressure of 90/70. You would advise:
- Propranolol 2.0 mg IV bolus
 - Lidocaine 50 mg IV bolus
 - Isoproterenol 1.0 mg in 250 ml D5W IV infusion titrated until pulse rate is 60 per minute or PVC's occur.
 - Levarterenol 4.0 mg IV over 10 minutes
56. You have arrived at the scene 4 min after the cardiac arrest of a 110-lb. female occurred. The EKG shows fine ventricular fibrillation. There is no pulse. Two rescuers are doing adequate CPR. A third rescuer has completed and intravenous life line. You would recommend:
- countershock at once
 - Sodium bicarbonate 50 mEq IV bolus, Epinephrine 1:10,000 5 ml IV bolus, and then countershock
 - Methylprednisolone, 1,000 mg IV bolus and then countershock
 - Sodium bicarbonate 50 mEq IV bolus, Calcium chloride 5 ml of 10% solution IV bolus, and then countershock
57. The "automatic chest compressor" and ventilator
- should be applied only after manual external cardiac compression has been started
 - provides as effective cardiac output as well-performed manual chest compression
 - can deliver high concentrations of oxygen to patient
 - should not interrupt CPR by more than 5-10 seconds at any one time while being applied
- (1,3,4)
 - (3,4)
 - (2,3,4)
 - (all of the above)
58. Oxygen-powered, manually triggered (time-cycled) ventilation devices:
- are acceptable for use during adult CPR if they can provide instant flow rate of 100 liters/minute
 - cause gastric distention when used with an esophageal obturator airway

3. can be used in patients of all ages and sizes
 4. require constant observation of the thorax during oxygen flow into the patient for proper timing and ventilation.
- a. (1,2,4)
 - b. (1,2,3)
 - c. (1,4)
 - d. (all of the above)
59. In the CCU a patient suddenly becomes unresponsive and the monitor shows ventricular tachycardia. The airway is open and a precordial thump is ineffective. Your next action should be:
- a. administer Sodium Bicarbonate and Epinephrine IV
 - b. give Lidocaine 50 mg IV bolus
 - c. proceed with CPR and countershock as soon as possible
 - d. check carotid pulse; if absent, administer second precordial thump
60. Ventricular fibrillation:
1. can be mimicked by artifact on the oscilloscope
 2. can occur with the presence of a peripheral pulse
 3. decreases effective cardiac output
 4. should be treated with CPR and defibrillation.
- a. (1,3)
 - b. (1,2,4)
 - c. (1,3,4)
 - d. (all of the above)
61. You are preparing to defibrillate an adult who weighs approximately 70 kilograms. Which of the following is the correct energy level for defibrillation?
- a. 400 watt/seconds
 - b. 200-300 watt/seconds
 - c. 70-120 watt/seconds
 - d. 50-75 watt/seconds
62. CPR is in progress for 110-lb patient in the coronary care unit. The response is poor. The results of an arterial sample drawn five minutes earlier are: paO_2 52 torr, paCO_2 62 torr, pH 7.16. Which of the following is/are indicated?
1. increase the delivered oxygen if possible
 2. increase ventilation
 3. maintain ventilation as is
 4. Sodium bicarbonate 50 mEq. IV bolus
 5. Sodium bicarbonate 100 mEq. IV bolus
- a. (1,3,5)
 - b. (1,2,4)
 - c. (1,3,4)
 - d. (1,2,5)

63. Lidocaine:

1. when given as a bolus, should be followed by a Lidocaine infusion
2. rarely causes toxicity in doses under 500 mg.
3. has no significant effect on contractility in therapeutic doses
4. elevates fibrillation threshold of the ventricles

- a. (1,2,4)
- b. (1,3,4)
- c. (2,3,4)
- d. (all of the above)

64. Which of the following drugs used in therapeutic doses do not directly depress the pumping function of the heart muscles?

1. Atropine
2. Lidocaine
3. Propranolol
4. Isoproterenol

- a. (1,3)
- b. (3,4)
- c. (2,3)
- d. (1,2,4)

65. Select the correct dosage combination for the pediatric cardiac arrest victim:

- a. Sodium bicarbonate 1 mEq/kg; Epinephrine 1:10,000 0.05 ml/kg
- b. Sodium bicarbonate 0.5 mEq/kg; Epinephrine 1:10,000 0.1 ml/kg
- c. Sodium bicarbonate 1mEq/kg; Epinephrine 1:10,000 0.1 ml/kg
- d. Sodium bicarbonate 0.5 mEq/kg; Epinephrine 1:10,000 0.05 ml/kg

66. Metabolic acidosis:

1. occurs during cardiac arrest
2. occurs with increased anaerobic metabolism
3. can be correctly treated if only the pH is known
4. can be correctly treated if the paO_2 and pH are known

- a. (1,4)
- b. (1,2)
- c. (2,3)
- d. (3,4)

67. Patients with chest pain radiating to the neck and arms accompanied by diaphoresis should be:

1. monitored for cardiac dysrhythmias
2. given prophylactic Propranolol 5 mg IV
3. given isoproterenol IV
4. given supplemental oxygen

- a. (3,4)
 - b. (2,3)
 - c. (1,2)
 - d. (1,4)
68. The most suitable central vein for cannulation while external cardiac compression is still in progress is:
- a. subclavian vein
 - b. cephalic vein
 - c. femoral vein
 - d. popliteal vein
69. When an intravenous line is established during CPR:
- 1. it is always preferable to give some drugs by intracardiac injection rather than IV
 - 2. peripheral or femoral veins should be attempted initially
 - 3. the catheter should be as large as possible
 - 4. strict aseptic technique is necessary
- a. (1,3)
 - b. (2,4)
 - c. (2,3)
 - d. (all of the above)
70. Cardiac Pacing:
- a. is less effective than drug therapy for bradycardia during myocardial infarction
 - b. may be indicated in acute myocardial infarction when complete heart block develops
 - c. is only useful in conditions other than myocardial infarction
 - d. is minimally effective for atrioventricular conduction disturbances
71. When cannulating the external jugular vein:
- 1. the patient should be in a supine, head-down position
 - 2. the point of the needle should be toward the contralateral shoulder
 - 3. the venipuncture should be made midway between the angle of the jaw and the midclavian line
 - 4. "tourniqueting" of the vein is unnecessary
- a. (2,4)
 - b. (1,4)
 - c. (2,3)
 - d. (1,3)
72. Premature atrial contractions:
- 1. are always followed by a normal QRS
 - 2. are often followed by an incomplete compensatory pause

3. are sometimes confused with premature ventricular contractions
 4. can be treated with sedation
- a. (1,2,3)
 - b. (2,3,4)
 - c. (1,2,4)
 - d. (all of the above)
73. Stabilization of a cardiac patient outside of a medical facility:
1. should precede transportation to the nearest medical facility
 2. includes relief of pain
 3. must include an IV
 4. should always include transportation with red lights and sirens to the nearest medical facility
- a. (1,3,4)
 - b. (1,2,4)
 - c. (1,2,3)
 - d. (all of the above)

Appendix D

Demographic Questionnaire

8. Does your hospital have an inservice education program to meet the needs of the Emergency Room nursing staff?
1. Yes
 2. No
9. Do you feel as though you need further education in updating your skills in Emergency Cardiac Care?
1. Yes
 2. No
10. What work schedule do you work now?
1. Full Time
 2. Part Time
 3. On Call
 4. Other
11. Have you ever taken a break from nursing practice?
1. Yes. If yes how many total years _____.
Explanation if needed: _____
2. No
12. What State did you complete your basic nursing preparation in?
- _____
13. Do you feel the professional nurse should be responsible for initiating ACLS procedures in your hospital?
1. Yes
 2. No
14. Are there standing orders in your hospital to initiate ACLS?
1. Yes
 2. No
 3. Unsure
15. Have you ever had the responsibility of initiating ACLS?
1. Yes
 2. No

Appendix E

Map of Montana

REFERENCES

References

- American Heart Association. Heart Facts. Dallas, Texas, 1980.
- American Medical Association. Standards for cardiopulmonary resuscitation and emergency cardiac care. The Journal of the American Medical Association, 1974, 227, 833-868.
- Arndt, C., & Laeger, E. Role strain in a diversified role set: The director of nursing service. Part 2: Sources of stress. Nursing Research, 1970, 19, 495-501.
- Bander, J. J. On cardiac arrest. Topics in Emergency Medicine, July 1979, pp. xi-xii, 76-81.
- Bennett, J. W., & Tumin, M. M. Social life structure and function. New York: Alfred A. Knopf, 1948.
- Beyers, M., & Dudas, S. The clinical practice of medical surgical nursing. Boston: Little Brown and Company, 1977.
- Bible, B. L., & McComas, J. D. Role consensus and teacher effectiveness. Social Forces, 1963, 42, 225-234.
- Biddle, B., & Thomas, E. Role theory: Concepts and research. New York: Wiley, 1966.
- Britton, R. Personal communication, March 28, 1980.
- Carveth, S. W., Burnap, T. K., Bechtel, J., McIntyre, K., Donegan, J., Buchman, R. J., & Reese, H. E. Training in advanced cardiac life support. Journal of the American Medical Association, 1976, 235, 2311-2315.
- Cobb, L. A. Determinants of outcome in patients with out-of-hospital ventricular fibrillation. Read before the Association of University Cardiologists, Scottsdale, Arizona, January 1977.
- Conway, M. E., & Hardy, M. E. Theoretical approaches to the study of roles. In Hardy, M. E., Conway, M. E. (eds): Role theory perspectives for health professionals. New York: Appleton-Century-Crofts, 1978.
- Corwin, R. The professional employee: A study of conflict in nursing roles. American Journal of Sociology, 1961, 66, 604-616.

- Davis, F., & Olesen, V. Initiation into a women's profession: Identity problems in the status transition coed to nursing students. Sociometry, 1963, 26, 89-96.
- Granefield, P. F. Ventricular fibrillation. New England Journal of Medicine, 1973, 289, 732-739.
- Gross, N., Ward, M., & McEachern, A. Exploration in role analysis. New York: Wiley, 1958.
- Hardy, M. E. Role overload and inequity: Their consequences for social exchange (Doctoral dissertation, University of Washington, 1971). Dissertation Abstracts International, 1971, 33, 16-0468020. (University Microfilm No. 72-20, 870)
- Hardy, M. E. Role problems, role strain, job satisfaction and nursing care. Paper presented at the annual meeting of the American Sociological Association, New York: August 1976.
- Hardy, M. E., & Conway, M. E. Role theory perspectives for health professionals. New York: Appleton-Century-Crofts, 1978.
- Johnson, T. W., & Stinson, J. E. Role ambiguity, role conflict, and satisfaction: Moderating effects of individual differences. Journal of Applied Psychology, 1975; 60, 329-336.
- Kouwenhoven, W. B. The development of the defibrillator. Annals of Internal Medicine, 1969, 71, 449-455.
- Kramer, M. Role models, role conceptions, and role deprivation. Nursing Research, 1968, 17, 115-119.
- Kramer, M. Collegiate graduate nurses in medical center hospitals: Mutual change or duel. Nursing Research, 1969, 18, 196-201.
- Lemire, J. G., & Johnson, A. L. Is cardiac resuscitation worthwhile? A decade of experience. New England Journal of Medicine, 1972, 286, 970-972.
- Mead, G. H. Mind, self and society. Chicago: University of Chicago Press, 1934.
- Miller, S. Personal communication, April 23, 1980.
- Moreno, J. L. The sociometry reader. Glencoe, Illinois: The Free Press, 1960.

- Newcomb, T. M. Social Psychology. New York: Dryden Press, 1957.
- Parsons, T., & Shils, E. A. Toward a general theory of action. Cambridge: Harvard University Press, 1951.
- Phipps, W. J., Long, B. D., & Woods, N. F. Medical surgical nursing. St. Louis: C. V. Mosby Company, 1979.
- Rockwell, M. S. A summary of coronary care unit literature. Santa Monica, California: Rand Corporation, 1969.
- Rogove, H. J. Pathophysiology of cardiac arrest. Topics in Emergency Medicine, July 1979, p. 23.
- Romano, T. Emergency nurse education: The emergency physician. Journal of the American College of Emergency Physicians, January 1978, pp. 27-28.
- Sarbin, T. R. Role theory. In G. Lindzey and E. Aaronsen (eds), Handbook of social psychology: Vol. I. Cambridge, Massachusetts: Addison-Wesley, 1954.
- Simmons, R. The role conflict of the first-line supervisor, an experimental study. American Journal of Sociology, 1968, 73 482-491.
- Simoneau, J. K. Issues in mobile intensive care nursing. Paramedics International, July/August 1978, pp. 18-23.
- Simoneau, J. K., & Pura, L. Nursing in 1978: The critical care nurse's role in resuscitation. Critical Care Quarterly, May 1978, pp. 79-85.
- Sladen, A. Advanced cardiac life support. American Heart Association, Dallas, Texas, 1975.
- Stewart, R. D. Prehospital emergency care: Historical foundations. Topics in Emergency Medicine, July 1979, pp. 11-15.
- VanDamme, R. Personal communication, April 23, 1980.

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