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## Outcome Evaluation of a Critical Care Orientation Program for Nurses

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OUTCOME EVALUATION OF A CRITICAL CARE  
ORIENTATION PROGRAM FOR NURSES

by

Mary Frances Wisniewski

A Thesis Submitted to the Faculty of the Graduate School  
of Loyola University of Chicago in Partial Fulfillment  
of the Requirements for the Degree of  
Master of Science in Nursing

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## CHAPTER I

### INTRODUCTION

National trends in nursing such as the shortage of nurses, emphasis on quality care, and greater accountability for services delivered have converged to create a need for nursing service administrators to evaluate nursing practice. The need for information about nursing practice obtained from systematic evaluation is essential for strategic planning.

Nursing practice areas facing the greatest shortage of registered professional nurses with specialized skills, education, and experience are specialty units such as critical care and intensive care (Roberts, Alspach, Canobbio, Christoph, Kuhn, Turzan, & Weincek, 1986). The practice of employing nurses in critical care units with little nursing experience as one strategy to ameliorate the nursing shortage relates to the above issues of quality and accountability. A neophyte nurse may possess theoretical knowledge but often lacks the organizational and clinical skills necessary to function independently as a staff nurse in high-tech specialty areas (Shogan, Prior, & Kolski, 1985). Therefore, nursing service administrators and educators are constantly faced with the challenge of adequately preparing new nurses to assume staff nurse responsibilities in specialty areas. Consequently, nursing departments must plan for an efficient and effective orientation program for new staff nurses.

Nursing service administrators are ultimately responsible for the provision of quality care to patients, for allocating resources, and for preparing new staff to meet organizational goals. The legal and financial responsibilities that nursing administrators have for providing competent nursing practice is adduced by Scrima (1987): "Persons in positions of management may be held liable if an individual in their employ fails to exercise competent practice. These factors mandate that minimum measures to ensure competency must be developed and documented" (p. 49). When discussing the financial aspect of planning educational programs and the impact on nursing practice, Greaves and Loquist (1983) state: "The era of accountability and the demand for quality service, along with ever-rising health care costs, mandate that continuing educators be able to demonstrate through reliable and objective measures the impact their programs have on practice" (p. 82).

The goal of nursing administrators and educators is to provide an effective, relevant, individualized, and cost-efficient orientation program for orientees. The overall purpose of this research study therefore was to conduct a program evaluation to determine the effectiveness of a critical care orientation program in achieving projected outcomes for new staff nurses and to identify characteristics of orientees that may relate to successful outcomes. Such research-based information can guide nursing service administrators in planning orientation programs that will improve nursing practice and the quality of patient care.

The specific objective of this study was to evaluate four outcomes of a bimodal (didactic/clinical) critical care orientation program for

new staff nurses. The program was expected to (1) increase critical care nursing knowledge, (2) increase critical care nursing skills, (3) enable program goal attainment, and (4) elicit satisfaction with the orientation program. These four outcomes were evaluated to determine if the orientation program was needed, whether it was sufficiently intense to meet the program goals, and whether the program actually prepared the orientees to perform their role. The following research questions therefore provided the framework for this study:

1. Is there a significant increase in critical care nursing knowledge upon completion of the orientation program?
2. Is there a significant increase in critical care nursing skills upon completion of the orientation program?
3. To what extent does a bimodal critical care orientation program composed of didactic and preceptor components achieve the goals and objectives of the orientation program?
4. How satisfied are the orientees with the didactic and precepted components of the orientation program?
5. What professional characteristics of the orientee and the preceptor relate to knowledge and skill acquisition, program goal attainment, and satisfaction with the orientation program?

My hypothesis was that nurse orientees who participate in the critical care orientation program will have an increase in critical care nursing knowledge and critical care nursing skills, goal attainment, and satisfaction with the program upon completion of the orientation.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

#### Evaluation

The purpose of program evaluation is to collect data that can help determine overall efficiency and effectiveness of the critical care orientation program. The need for research-based information about nursing practice, including the effectiveness of orientation programs for critical care nurses, is cited in a list of research priorities established by the American Association of Critical Care Nurses Research Committee (Funk, 1989).

A review of the literature on theoretical models for program evaluation supports the methodological process of evaluating the impact of educational programs by quantifying outcomes. Donabedian (1980) and Posavac and Carey (1985) addressed evaluation of outcomes in their evaluative frameworks as one type of evaluation process which can be used to provide information to planners and decision makers. Posavac and Carey (1985) define program evaluation as:

a collection of methods, skills and sensitivities necessary to determine whether a human service is needed and likely to be used, whether it is sufficiently intense to meet the needs identified, whether the service is offered as planned and whether the human service actually does help people in need. (p. 5)

Mitsunaga and Shores (1977) described a very relevant framework for evaluating programs which places the outcomes at four different levels. The levels, which range from simple to complex, are: learner satis-

faction; change in knowledge, skill, attitude; change in practice; and the relationship of change in practice to quality of service. Mitsunaga and Shores acknowledge that it is clearly impractical to gather information on all levels for each program evaluation.

Though largely a subjective process, Alspach (1982) states that the need for formative and summative evaluations of staff orientation programs is necessary for nursing administrators to improve the delivery of service and outcomes. Formative evaluation focuses on the process of orientation; summative evaluation, as the name indicates, is used to summarize the program by examining the final outcomes. "The purpose of both is to diagnose problems, weaknesses, and strengths; to test new and different approaches toward meeting established objectives; and to improve the overall delivery of patient care" (American Association of Critical-care Nurses, 1987, p. 92).

### Orientation

Orientation is defined by the ANA Ad Hoc Committee on Inservice Education/Staff Development as: "The means by which new staff are introduced to the philosophy, goals, policies, procedures, role expectations, physical facilities, and special services in a specific work setting; provided during the initial period of employment or in role change" (American Nurses Association, 1978). Several assumptions regarding orientation have been enumerated in Critical Care: A Guide to the Process (AACN, 1987) and supported in the literature. First, the expected outcome of a critical care orientation program is that the staff nurse be able to provide safe and competent care to patients who

require complex and intensive levels of nursing care (Roberts et al., 1986; Toth & Ritchey, 1984). Second, it is assumed that the individual nurse, as an adult learner and professional, is responsible for the learning required to achieve competency in critical care nursing practice (Paulk, Hill, & Robinson, 1985). Third, the content of a critical care orientation program is tailored according to the individual hospital's needs and patient population (Paulk et al., 1985). Finally, the nurse-manager is responsible for ensuring reinforcement of knowledge, skills, and attitudes that the orientee has acquired via job performance standards.

In 1970 the Joint Commission for Accreditation of Hospitals began to address the need for continuing education and training for nursing personnel. The interpretive paragraph of Standard V in the 1986 JCAH Accreditation Manual states:

New nursing department service personnel shall receive an orientation of sufficient duration and content to prepare them for their specific duties and responsibilities in the hospital. The orientation shall be based on the educational needs identified by the assessment of the individual's ability, knowledge, and skills. Any necessary instruction shall be provided by nursing service personnel before they administer direct patient care. (p. 136)

Furthermore, the JCAH (1985) has delineated specific characteristics of a training program for a special care unit:

The program prepares the nurse to be competent in the following:

- Recognition, interpretation, and recording of patients' signs and symptoms, particularly those signs and symptoms that require the notification and/or intervention of a physician
- Initiation of CPR



- Parenteral administration of electrolytes, fluids, blood, and blood components
- Administration of emergency medicines as authorized
- Effective and safe use of electrical and electronic life support equipment and other equipment
- Prevention of contamination and transfer of infection
- Recognition of and attention to the psychosocial needs of patients and their families. (p. 259)

Nursing administrators have implemented several types of teaching strategies and clinical formats to facilitate the transition of the nurse into the specialty care units. A review of orientation teaching methodologies identified in the literature include: lecture, simulations, self-learning programs, group discussions, case study review, role playing, computer-assisted instruction, preceptorships, internship, buddy system, coassignment, and on-the-job training (AACN, 1987; Roberts et al., 1986). One of the most commonly reported methods is a combination of formal classroom lectures and a preceptorship. This type of orientation has the advantage of being one of the most efficient and cost-effective orientation methods (AACN, 1987; Alspach, 1987; Mooney, Diver, & Schnacker, 1988; O'Neal, 1986; Shogan et al., 1985).

A preceptorship type of orientation assigns an orientee to an experienced registered staff nurse. Mooney et al. (1988) believe that the preceptor should function as a clinical instructor, professional role model and a resource to the orientee. The responsibilities of the preceptor were defined as assessing the needs of the orientee, planning and implementing an appropriate clinical orientation, and evaluating the

clinical performance of the new staff nurse during the orientation period. Preceptors are selected from staff nurses who have demonstrated proficiency in both clinical and interpersonal skills and have interest and aptitude for instructing others.

The preceptorship is augmented with classroom lectures. This teaching strategy is still the most commonly used and cost-effective method of teaching that provides economy of space and time (AACN, 1987). The lecture is useful in presenting an overview of information to prepare the orientee for psychomotor or affective learning.

In this study, critical care orientation was defined as a means by which new staff are introduced to the nursing department's organizational structure and desired role behaviors. The role of the critical care nurse is to collaborate with other members of the health care delivery system to provide safe, therapeutic, and cost-effective health care based on the philosophy and policies of the organization.

Orientation produces different outcomes, all of which are presented in the literature. Determination of competency level (knowledge and skills) is the most frequently reported, although other outcomes such as satisfaction, goal attainment, improved patient care, cost-benefit, adherence to prescribed standards, clinical utilization of content, and attrition after orientation have been measured. In this evaluation of a critical care orientation program for nurses, the four outcomes chosen from the literature were: increase in knowledge and skills, goal attainment, and orientee satisfaction with the orientation program.

## Competence

There is considerable evidence that identification and evaluation of clinical competence is a concern of administrators and educators. Several nursing scholars have tried to differentiate and measure clinical competency (Benner, 1984; Canfield, 1982; Del Bueno, 1980; Greaves & Loquist, 1987; Hagerty, 1986; Houge & Denies, 1987; Scrima, 1987).

Benner's (1984) descriptive research identified five levels of competency in clinical nursing practice: novice, advanced beginner, competent, proficient, and expert. Del Bueno (1980) developed a competency-based model for employee orientation derived from specifically defined behavioral objectives and experiences. Scrima (1987) reported a framework for internal credentialing which provides a consistent, structured method of documenting selected clinical proficiencies. Houge and Deines (1987) described a program developed to verify clinical competence of experienced critical care nurses.

There is controversy in the literature as to what knowledge and skills are required of novice critical care nurses. Both knowledge and skills have been identified as measurable components of clinical competency. In a study of clinical competencies necessary for beginning practitioners, Canfield (1982) contacted a panel of experts who identified 102 beginning-level clinical competencies for critical care nurses. Items were then rank-ordered by both nursing administrators and educators as necessary competencies for a beginning critical care

nursing role. Canfield reported a discrepancy between administrators and educators for beginning level competencies.

Competency has been defined as: an intellectual, attitudinal, and/or more capability derived from a specified role and setting and stated in terms of performance as a broad class or domain of behavior (Cyrus & Dobbert, 1976). Competency is the ability to consistently perform a task with desirable outcomes under the varied circumstances of the real world (Benner, 1982).

Methods which have been used to evaluate clinical competency in critical care are:

1. The written test to evaluate cognitive learning (Houge & Denies, 1987; Roberts et al., 1986; Scrima, 1987; Toth & Ritchey, 1984);
2. Observation of psychomotor skill performance by an instructor or preceptor and documentation of skills performed on a skills checklist (Alspach, 1982; Del Bueno, 1980; Houge & Denies, 1987; Loyola University Medical Center, 1987; Rush-Presbyterian-St. Luke's Medical Center, 1982); and
3. Self-evaluation (Alspach, 1982; Roberts et al., 1986).

In this study, competence was defined as the capability of the novice critical care nurse to perform a variety of critical care nursing skills based on a body of critical care nursing knowledge in order to provide safe and therapeutic patient outcomes in the practice setting.

Critical Care Knowledge. Basic knowledge in critical care nursing is defined by Toth and Ritchey (1984) as:

A body of knowledge used by the critical care nurse in providing safe nursing care to the patient. That information is necessary for entry into critical care nursing and represents the foundation for job performance and for more advanced critical care practice. (p. 272)

The initial research activity of Toth and Ritchey (1984) was aimed at establishing basic standards essential for delivery of safe nursing care to critically ill patients. As a result, a tool to measure basic critical care nursing knowledge was developed, the Basic Knowledge Assessment Test (BKAT). Posavac and Carey (1985) note a problem with such tests:

In conducting evaluations of educational programs, measuring cognitive and intellectual achievement will frequently be the method of choice....There is some concern whether standard achievement tests validly measure the goals of educational programs; however, these criticisms are mild compared to debate about measures of emotional state. (p. 66)

Roberts et al. (1986) reported that part of the problem with available achievement tests for critical knowledge is the lack of description addressing the validity and reliability of the tools used in measurement.

In this study, critical care nursing knowledge was defined as a body of knowledge that the critical care nurse uses in order to provide safe nursing care to critically ill patients. The body of critical care knowledge encompasses physiologic, pathophysiologic, psychosocial, and technical application to the critically ill patient.

Critical Care Skills. A second outcome of orientation is critical care nursing skill acquisition. Intensive care skills are skills "that are beyond basic nursing competencies, and are more highly specialized in a particular area" (Houges & Deines, 1987, p. 103). Measurement of

critical care nursing skills is frequently, but not exclusively, done in the clinical setting. Other settings, such as skills labs, provide an opportunity for simulation, demonstration, and performance appraisal.

The subjective nature of evaluation by observation has been partially controlled with the use of performance checklists which provide a delineation of behaviors required for satisfactorily completing a procedure, skill or competency. The continuing development of detailed skills checklists aids in assessment of skill acquisition. Several authors include skills checklists as one component of documenting and evaluating orientation outcomes (Alspach, 1980; Houge & Denies, 1987; Neumark, Flaherty, & Girard, 1987; Scrima, 1987). However, the validity and reliability of these instruments have not been reported.

The use of self-evaluation as a method to assess skill performance was reported as a method to document skill acquisition. Validity of such an instrument has been established sufficiently to justify usage of this method (Craver & Sullivan, 1985).

The use of a checklist to direct the process of orientation has fostered the evolution towards Competency-based Orientation (CBO). CBO has become a special designation for an educational approach centered on clear expectations defined in behavioral terms, accountability, and individualization. The major emphasis of CBO is on the identification and achievement of established performance outcomes (Hagerty, 1986; Houston & Howsam, 1972).

The advantages of the CBO program are that it is based on the real world; it is specific to one role and setting, derived from experts, written with clear competency statements and performance criteria, is flexible, and uses evaluation methods based on specific criteria. (Bazinet, Erickson, & Thomas, 1989, p. 70)

In this study, critical care nursing skills were defined as psychomotor skills that are beyond basic nursing procedures and that are specific to the highly technical environment designed to monitor and support the life of the critically ill patient.

### Goal Attainment

Goal attainment is still another desired outcome of an orientation program. Goals "define behaviors the orientee should demonstrate or will accomplish at the end of the entire orientation program" (AACN, 1987, p. 44).

The nursing application of a management strategy related to goal attainment is that of management by objectives (MBO) (Drucker, 1954). The philosophy and process of MBO is based on two basic principles: first, it is results-oriented, and second, it follows the concept of human behavior and motivation. The first phase of MBO is determining specific goals and objectives. Ideally, the planning of goals and objectives is the result of superior and subordinate collaboration. Some basic principles when identifying goals and objectives are:

1. Objectives should be clear and concise.
2. Goals should be realistic and attainable.
3. Objectives should be measurable.
4. Objectives should include a target date for attainment.

The last phase of MBO is performance appraisal/evaluation. The main purpose in this step is evaluating results achieved by the individual based on the set of objectives. The subordinate and superior both discuss the attainment of goals of the subordinate. Any failure to meet

objectives is examined. Poor performance may be attributed to unrealistic goals, uncontrollable circumstances, lack of understanding of what is expected, lack of proper feedback, lack of training, lack of motivation, or lack of organizational support (Cain & Luchsinger, 1978).

Setting specific goals for orientation is a motivating factor in attaining goals. "People work more efficiently when they know what is expected of them" (Posavac & Carey, 1985, p. 159). Several of the theories on motivation support this belief (Herzberg, 1957; Maslow, 1970; McGregor, 1960). Most relevant is the pathgoal theory of Brayfield and Crockett (1955). This theory of motivation suggests a link between satisfaction, motivation, and organizational goals. The theory suggests that individuals are motivated to attain goals and are satisfied by their achievement.

Several studies on program evaluation report the use of goal attainment as an outcome or variable of orientation (Alexander, 1985; Bushong-Simms, 1979; Cervero, 1985; Paulk et al., 1985; Shogan et al., 1985). All studies are concerned with measuring program results. Cervero (1985) presented a model for research and evaluation of behavior change in relationship to continuing professional education. Proposed change was equated with the attainment of desired goals and objectives of the program. This model is useful in explaining the relationship between variables leading to participant outcomes within a social system. Alexander (1985) identified behavioral objectives as one variable in an evaluation of an inservice program. The results provided a basis for program revision of content and as a non-threatening assessment of program presentation.



Goal attainment as an outcome of orientation can also be applied to the discussion on the concept of role by King (1981), in her theory of goal attainment, as follows:

The role of a nurse is defined by the functions expected of professional nurses based on knowledge, skills, and values of the profession...If expectations of employers differ from expectations of the nurse, role conflict may exist. Role conflict and role confusion decrease achievement of effective care for clients and create stressful situations. (p. 147)

In this study, goal attainment of the novice critical care nurse was defined as an acceptable performance of role behavior at the end of the orientation program based on the stated objectives of the orientation program.

### Satisfaction

Orientee satisfaction with the orientation program is an important outcome variable. Stevens (1985) identified satisfaction as one of three criteria when evaluating change and continuity. "A change is satisfying if the important reference group [nurses] are content or pleased with the alteration [transition to staff nurse]. It is dissatisfying to the degree that the preference for the previous system (or alteration, untried change patterns) persists" (p. 211).

Continuing education is a viable contributor to job satisfaction. Satisfaction as an outcome of orientation has been hypothesized as a factor in nurse retention (Craver & Sullivan, 1985; Hoffman, 1989). Job dissatisfaction was a contributor to nursing turnover, suggesting that 61% of new graduate nurses will leave or change employment during the first year of practice (Cronin-Stubbs, 1977). In light of the present demand for and resultant shortage of nurses, taking measures to ensure

job satisfaction may be a significant variable in retaining staff nurses. Critical care orientation programs that are satisfying to orientees may contribute to the retention of nurses in critical care positions. Specifically providing an orientation and/or continuing education which prepares critical care nurses to deliver competent nursing care may contribute to job satisfaction. Satisfaction was measured in a study comparing two types of orientation programs: a nurse internship program and general hospital orientation (Craver & Sullivan, 1985). "A Nurse Internship is defined as a non-traditional orientation program that provides for a longer more comprehensive orientation of new graduate nurses" (p. 114). Although no significant difference was reported in job satisfaction scores, there was a difference in attendance records and attrition of the two groups, thus favoring the nurse internship.

In this study, satisfaction with the orientation program was defined by the orientees' perception of contentment or gratification with the alteration in role performance at the end of the orientation program.

### Conclusion

As the definitions of competency vary, so do definitions of successful outcomes of orientation. It has therefore been suggested that measurement of successful orientee outcomes should not only be defined by the standards set by each institution but also by those of the professional and accrediting agencies (AACN, 1987; Toth & Ritchey, 1984). A major thrust for nursing associations, accrediting agencies,

and of nursing quality assurance administrators is the development of standards for nursing care (AACN, 1981; ANA, 1984; JCAHO, 1986). Definitions and measurement of clinical competence can then be based on the developed standards. Universal acceptance of one set of standards for nursing has not been identified. Thus, the development of reliable and valid methods to identify, teach, document, and evaluate critical care nursing based on competency is the responsibility of the nursing departments of the institutions.

Each individual program evaluation cited gave a description of the orientation process, the purpose for the evaluation, and some measures of successful outcomes. No one has reported an overall evaluation of a critical care orientation program by combining various outcomes and finding relationships between outcomes, with data from both orientee and preceptor.

In this study four outcomes of critical care orientation programs has been conceptually developed and studies relative to each concept reviewed. Furthermore, competence was determined by evaluating both knowledge and skill levels before starting the orientation program and upon completion. Attainment of competence was studied by determining goal attainment after completion of the program. Finally, satisfaction with the orientation program was assessed and related to goal attainment. By thoroughly understanding the fundamental outcomes of the program and their relationships with positive outcomes, nursing administrators can plan orientation programs that will lead to satisfying and successful outcomes for all concerned.

## CHAPTER III

### METHODS

#### Design

This summative evaluation study employed a combination of pretest/post-test and post-test only measures, with data collected from both the nurse orientees and their clinical preceptors. The study evaluated immediate orientation program effects by: (1) comparing post-program knowledge and skills with pre-program knowledge and skills; (2) comparing pre-program goal importance with post-program goal attainment; (3) and by assessing orientee satisfaction with the orientation upon program completion. Additionally, the clinical preceptor's ratings of the orientee post-program skills and goal attainment were compared with the orientee's post-program assessment.

#### Setting and Sample

The critical care orientation program at a large midwestern university medical center was the focus of this study. Orientees were assigned to one of four surgical intensive care units: the Heart Transplant Unit (HTU), the Cardiovascular Intensive Care Unit and Trauma Annex (2ICU), the Cardiothoracic Stepdown Unit (3ICU), and Surgical Intensive Care Unit (4ICU).

A pre-orientation sample of 43 registered nurse orientees and their 20 clinical preceptors consented to participate in the study. Twenty-eight (66%) orientee/preceptor pairs completed the study; data reporting

will concentrate on these 28 pairs. Only those orientees with less than 1 year of critical care experience were enrolled in the study. Seven orientees who were eligible chose not to participate in the study for an undetermined reason.

Of the 28 orientees who completed the study, 50% graduated from a BSN program, 63% were new graduates, and 92% were female (Table 1). The mean age of the orientee was 26, with a range of 20-46. One potential predictor of a successful outcome for the critical care orientation was whether the subjects had critical care lectures or clinical experience in their basic nursing education program. In this sample, 70% reported having critical care lectures, and 54% had a clinical practicum in critical care nursing. A second potential predictor of a successful outcome was previous nursing experience. In this sample, 37% of the orientees had greater than one year of nursing practice experience (maximum 18 years).

Of the 17 preceptors who participated in the study, 53% were BSN graduates, 94% were female, and the mean length of experience in critical care was 3.5 years, with a range of 1-10 years (Table 2). The mean age of the preceptor was 29, with a range of 22-46. Professional characteristics of the preceptors included 47% with membership in the American Association of Critical-Care Nurses, 41% held certification in Advanced Cardiac Life Support, and 12% held CCRN certification. Also, all had attended a basic EKG and critical care course, 47% had attended the Staff Development Preceptor Workshop, and 35% were Quality Assurance Monitors.

Table 1  
ORIENTEE CHARACTERISTICS  
(N = 28)

Characteristic	f	%	No.
Age			
Range			20-46
Mean (SD)			26 (5.9)
Sex			
Female	26	92	
Male	1	4	
Missing	1	4	
Number/Unit			
HTU	6	21	
2ICU	4	14	
3ICU	8	29	
4ICU	10	36	
Basic nursing program			
Diploma	5	18	
A.D.	9	32	
B.S.N.	14	50	
Years of nursing experience			
None	18	63	
1	3	11	
2	3	11	
3	0	0	
4	1	4	
5	2	7	
18	1	4	
Journals read per month			
Range			0-4
Mean (SD)			1.5(1.0)
CEU's obtained in 1987			
Range			0-50
Mean (SD)			16.17(17.87)
Undergraduate critical care education			
Lectures	19	70	
Clinical	15	54	

Table 2  
PRECEPTOR CHARACTERISTICS  
(N = 17)

Characteristic	f	%	No.
Age			
Range			20-46
Mean (SD)			28.9(6.1)
Sex			
Female	16	94	
Male	1	6	
Number/Unit			
HTU	5	29	
2ICU	3	18	
3ICU	2	12	
4ICU	7	41	
Basic nursing program			
Diploma	2	12	
ADN	6	35	
BSN	9	53	
Years of nursing experience			
1	3	18	
2	4	23	
4	2	12	
5	2	12	
6	3	18	
8	2	12	
11	1	5	
Years of ICU experience			
Range			1-10
Mean (SD)			3.46(3.11)
Journals read per month			
Range			0-6
Mean (SD)			2.5(1.21)
CEU's obtained in 1987			
Range			0-99
Mean (SD)			22.8(26.9)
Attendance at Medical Center Classes:			
Preceptor Workshop	8	47	
Basic EKG Class	17	100	
Critical Care Course	17	100	
12 Lead EKG Symposium	6	35	
Quality Assurance Monitor	6	35	

### Critical Care Orientation Program

The program evaluated in this study was an 8-week bimodal critical care orientation program for registered nurses offered on a monthly basis. The bimodal program curriculum consisted of didactic (lecture) and preceptorship (clinical) components.

The didactic content consisted of a general orientation to the nursing department's organizational structure, policies, general nursing procedures, introduction to the availability of ancillary and support services, and certification as a basic CPR rescuer. Orientees assigned to critical care areas also received a classroom lecture series on pathophysiologic concepts of critical care, basic EKG interpretation, and IV insertion techniques. Principal faculty for presenting the didactic content were the nursing staff development educators and clinical nurse specialists.

The didactic portion of the orientation program totaled 70 hours in a concentrated period of time. The institution's procedure to document orientee critical care knowledge is to administer an institution-developed test after the didactic portion of the orientation program. However, the institution does not administer a pre-test on critical care knowledge. Reliability of the staff-developed critical care knowledge test has not been assessed by the institution.

For this study, the third version of the Basic Knowledge Assessment Test (BKAT-3) (Toth & Ritchey, 1984) was used for assessment of critical care knowledge. This is a different tool than used by the institution. The BKAT-3 was chosen because its established reliability and validity would make the results more credible. Also, when experienced critical



care staff nurses begin employment in the intensive care units at the study institution, they are given the BKAT-3, to determine critical care knowledge and the need for future education. If the experienced critical care nurse obtains a score greater than 75% on the BKAT-3, the didactic portion of the critical care orientation program is waived. The pass criterion of 75% has been determined by the institution.

Individual clinical units are responsible for the preceptor component of the orientation program. Preceptor responsibilities enumerated by the institution are:

1. The preceptor is an experienced staff nurse designated by the unit head nurse to assume primary responsibility for orienting new nursing personnel to the nursing unit. The preceptor demonstrates expertise in patient care, has good organizational skills, and has a personality which fosters growth in others.
2. The preceptor provides optimum learning experiences for each RN orientee on the unit, demonstrates the method of delivery of nursing care, assesses and teaches technical skills, nursing procedures, leadership skills, and assists in identifying appropriate personnel and material for the orientees.
3. The preceptor provides on-going feedback to the orientee regarding progress, and in collaboration with the head nurse evaluates the orientee at the completion of the orientation utilizing the skills checklist. The completed skills checklist is placed in the RN's permanent file.

Additional nursing staff development responsibilities at this institution included providing a workshop for newly appointed preceptors and collaborating with the unit head nurse and/or preceptor in formulating a skills checklist to assist in evaluating the basic skills required for a nurse to begin to function competently on the nursing units. The purpose of the workshop is to prepare the preceptors for their roles in orientation. Emphasis is placed on the preceptor as a support system for the new graduate, socializing agent, role model, and facilitator of learning.

## Instruments

The following variables and measurement tools were used for data collection with the orientee and preceptor.

Knowledge. The tool used to measure knowledge of critical care nursing was the BKAT-3, the third version of the Basic Knowledge Assessment Tool commercially available from Toth and Ritchey (1984) (Appendix A). This 100-item test in basic knowledge in critical care nursing contains multiple choice and fill-in-the-blank questions that measure both the recall and the application of basic critical care knowledge in practice situations (Toth, 1983).

For this study the BKAT-3 was divided into the following nine subscales based on expert opinion: cardiovascular, pulmonary, neurology, endocrine, renal, gastrointestinal, invasive monitoring, EKG interpretation, and medication knowledge. The nine subscales were derived by a four-member panel of experts in critical care nursing practice and education. Each panel member first coded the test items separately, then the panel compared items, and differences of opinion were discussed until a consensus was reached on each item. All items on the goals, skills, and satisfaction tools used in this study were also divided into subscales following as closely as possible the BKAT categories. A tenth subscale, role of the critical care nurse, was developed for this study for the goals and satisfaction tools (Appendix B). Dividing the tools into subscales allowed identification of areas of strengths and weaknesses, which would thereby indicate a need for change in specific components of the critical care orientation program.

Answers on the BKAT-3 were coded as correct or incorrect, with one

point assigned to each correct answer. Total scores were recorded as interval data ranging from 0-100. Scores greater than 75 were accepted as passing based on institution-specific criteria. Scores on each of the nine subscales were also calculated. Proportional scores were calculated for subscale comparison because of the unequal number of items in subscales.

According to Toth (1983), items for the three versions of the BKAT were identified through review of the literature, interviews with staff nurses and head nurses working in critical care units, and suggestions from two critical care physicians and a nine-member panel of experts in critical care nursing practice and education.

Reliability and validity have been well established with each successive version of the BKAT. Homogeneity reliability of the first version of the BKAT was established by a Cronbach's alpha of .86 using a sample of 100 nurses with critical care nursing experience ranging from less than 1 month to 5 years. A mixture of nursing educational backgrounds was part of the sample demographics. A one-way ANOVA revealed a statistically significant ( $p < .001$ ) difference between experienced and new graduate nurses, thereby supporting construct and discriminant validity.

Content validity of the original BKAT was established through a panel of experts consisting of two critical care physicians and seven experts in critical care nursing practice and education (Toth & Ritchey, 1984). The panel agreed that the BKAT did measure knowledge basic to critical care nursing. The percentage of agreement between panel members on items was not reported. Content validity was supported by

noting that scores on the BKAT were not related to the amount of non-critical care nursing experience (Toth, 1986). Non-significant relationships were also found between scores on the BKAT and the following variables: type of educational preparation, age, type of critical care unit, type of hospital, and years as an RN (Toth & Ritchey, 1984). These findings further support construct validity of the tool by indicating that the BKAT can be used to test basic knowledge in critical care nursing.

The second version of the BKAT (BKAT-2) was tested with professional nursing students enrolled in a critical care course. Students were given the BKAT-2 as a pre-test and post-test of critical care nursing knowledge. Cronbach's alpha on the pretest and posttest were .85 and .83 respectively. A comparison group of 73 experienced critical care nurses were also given the BKAT-2. Once again, the length of critical care experience was found to be the best predictor of basic knowledge. A statistically significant difference ( $p < .001$ ) was found between nurses with less than 1 month experience and nurses with 6 or more months experience, supporting discriminant validity. Content validity was established through the panel of experts, as previously described, and through replication of research findings (Toth, 1983).

The BKAT-3 was tested for internal consistency with 84 randomly selected members of AACN with a Cronbach's alpha of .73. The variability of the scores in this study was more restricted than in previous work ( $SD=6.2$  compared to 8.8-10.0), which may have reduced the alpha value. Predictive validity of the BKAT-3 was supported by the similarities in research findings over time on both significant and non-significant

predictors of basic knowledge, as discussed previously, and through the panel of experts (Toth, 1986). Once again, the exact use of this panel of experts in establishing content validity was not discussed in the literature.

Homogeneity reliability in the present study was determined with the Kuder-Richardson formula 20 because the KR-20 is a special case of the more general coefficient alpha for use with dichotomous items. "Both the Coefficient alpha and KR-20 produce a reliability coefficient that can be interpreted in the same fashion..." (Polit & Hungler, 1983, p. 391). The KR-20's for the orientees' BKAT-3 pretest and posttest and for the preceptors' BKAT-3 was .76, .82, and .62, respectively (Tables 3 and 4). Reliability coefficients above .70 are considered satisfactory (Nunnally, 1978; Polit & Hungler, 1983).

Homogeneity reliability of each knowledge subscale was also obtained by computing KR-20's. The orientee pre-test KR-20's on the subscales ranged from .21 - .56 (M=.38, SD=.13). The orientee posttest KR-20's ranged from .00 - .74 (M=.48, SD=.25) (Tables 3 and 4). The preceptor baseline KR-20's on the subscales ranged from .01 - .73 (M=.36, SD=.32). The subscale KR-20's tended to be lower in comparison to the total scale reliabilities, and may be attributed to the smaller number of items on subscales.

Skills. The skills checklists used by the institution's intensive care units were the basis for a pre-test/post-test skills tool developed

Table 3  
HOMOGENEITY RELIABILITIES ON CRITICAL CARE ORIENTATION  
TOOLS COMPLETED BY 28 ORIENTEES

Scale	<u>Knowledge<sup>a</sup></u>		<u>Skills<sup>b</sup></u>		<u>Goals<sup>b</sup></u>	
	Pre	Post	Pre	Post	Pre	Post
Total Scale	.76	.82	.93	.95	.97	.97
<u>Subscales:</u>						
Pulmonary	.44	.28	.92	.85	.85	.83
Cardiac	.35	.00	.81	.91	.70	.77
Neurology	.40	.35	.99	.95	-	-
Endocrine	.27	.70	*	*	*	*
Renal	.49	.66	*	*	*	*
GI	.23	.63	*	*	-	-
Medications	.51	.74	.89	.91	.64	.84
EKG	.21	.65	.98	.98	.72	.76
Monitoring	.56	.35	.95	.94	.88	.82
Role	*	*	*	*	.94	.86

Note. Dash indicates that less than 2 items in subscale so reliability could not be calculated. Star indicates that no items were identified on this subscale.

<sup>a</sup>Kuder-Richardson 20.

<sup>b</sup>Cronbach's Alpha.

Table 4  
HOMOGENEITY RELIABILITIES ON CRITICAL CARE ORIENTATION TOOLS  
COMPLETED BY 17 PRECEPTORS

Scale	<u>Preceptor</u>	<u>Preceptor Assessment of Orientee</u>	
	Knowledge <sup>a</sup>	Post-Skills <sup>b</sup>	Post-Goals <sup>b</sup>
Total Scale	.62	.91	.98
<u>Subscales:</u>			
Pulmonary	.41	.84	.81
Cardiac	.16	.86	.90
Neurology	.19	.94	-
Endocrine	.06	*	*
Renal	.73	*	*
GI	.09	*	-
Medications	.01	.88	.90
EKG	.40	1.00	.90
Monitoring	.59	.80	.90
Role	*	*	.97

Note. Dash indicates that less than 2 items in subscale so reliability could not be calculated. Star indicates that no items were identified on this subscale.

<sup>a</sup>Kuder-Richardson 20.

<sup>b</sup>Cronbach's Alpha.

by the investigator for this study. Major technical skills specific to critical care nursing listed on this tool were hemodynamic monitoring, ventilator management, intra-aortic balloon pump timing, and functioning in an arrest situation. The Major Critical Care Skills Checklist (Appendix C, D, E) contained 65 items broken down into 13 major skill areas to assess orientee skill level. Identification of critical care nursing skills was verified by a review of other critical care nursing skills checklists (Alspach, 1982; Hayne & Bailey, 1982; Rush Presbyterian-St. Lukes Medical Center, 1982).

The orientees rated their skill level both at pre and post-test, and the preceptors also rated their orientees' ability to perform a skill on post-test, with this 6-point scale: (1) have/has never done, (2) can only do with maximal help, (3) can do with moderate help, (4) can do with minimal help, (5) can do fairly well without any help, (6) can do very well without any help. Total scale scores were recorded as summed scores; the possible total score could range from 65 - 390. Subscale scores were also calculated for pulmonary, cardiac, and neurological systems, EKG interpretation, hemodynamic monitoring, knowledge of medications, and the role of the critical care nurse. Proportional scores were calculated for subscale comparison.

Cronbach's alphas for the orientee pre-skill, the orientee post-skill, and the preceptor's post-test assessment of the orientee's skills were .93, .95, .91, respectively (Tables 3 and 4). Homogeneity reliability of each skill subscale was also obtained by computing Cronbach alphas. The orientee pre-test alphas on the skills subscales ranged from .81 - .99 ( $M=.92$ ,  $SD=.07$ ). The orientees' post-test



alphas on the skills subscales ranged from .85 - .98 ( $M=.92$ ,  $SD=.05$ ). The alphas on the preceptor's assessment of the orientees' post-test skill ranged from .80 - 1.00 ( $M=.89$ ,  $SD=.07$ ). All of the alphas for the skills tools were above .70 as desired. Content validity of the critical care nursing skills checklist is supported by the use of these items in several other existing tools.

Goals. Program goals were assessed with the Goal Importance Scale at the pre-orientation assessment and the Goal Attainment Scale at the post-orientation assessment (Appendices F, G, H). The 47-item program goal scales were developed by the investigator for this study by reviewing the institution's policy statements regarding staff nurse orientation. Before orientation began, the following 5-point scale was used by the orientee to rate how important attaining the identified goals of the critical care orientation program were: (1) not very important, (2) slightly important, (3) moderately important, (4) very important, and (5) exceedingly important. The following 5-point scale was used by the orientees and preceptors to rate the orientees' attainment of goals at the end of the orientation program: (1) poor attainment, (2) fair attainment, (3) adequate attainment, (4) very good attainment, and (5) outstanding goal attainment. On each scale, the responses were summed; total scores could range from 47 to 235. Subscale scores were calculated for the cardiovascular, pulmonary, neurology, gastrointestinal systems, EKG interpretation, hemodynamic monitoring, knowledge of medications, and role of the critical care nurse. Proportional scores were calculated for subscale comparison.

The homogeneity reliabilities of the goal tools for this study were

Cronbach's alpha of .97 on the total importance scale, .97 on the orientee total attainment scale, and .98 on the preceptor rating of orientee goal attainment (Tables 3 and 4). Homogeneity reliabilities of each goal subscale were also obtained by computing Cronbach alphas. The orientees' pre-test subscale alphas ranged from .64 - .94 (M = .79, SD = .12). The orientees' post-test subscale alphas ranged from .76-.86 (M = .81, SD = .04). The subscale alphas on the preceptor's assessment of the orientee's goal attainment post-orientation ranged from .81 - .97 (M = .88, SD = .04). The only alpha less than .70 was on the orientee subscale for medication used on the pre-orientation tool. Content validity is supported by the use of the goals and objectives identified in the nursing policy of the institution.

Satisfaction. The tool used to measure satisfaction with the critical care orientation program was developed by the investigator for this study. Development of the 72-item Critical Care Orientation Satisfaction Tool (Appendix I) was based on a combination of indicators from the program goals, skills checklist, and content from the classroom and clinical sessions. The orientees rated their satisfaction using a 4-point Likert scale with responses of (1) very dissatisfied, (2) slightly dissatisfied, (3) somewhat satisfied, and (4) very satisfied.

The 72 items assessed were divided into various component scales to differentiate satisfaction with each major area of the orientation program. These areas were: (1) a 34-item didactic component, (2) a 34-item clinical component, and (3) four 1-item overall ratings addressing satisfaction with: the overall didactic program, the clinical preceptor,

the overall clinical learning experiences and the orientation program as a whole.

The didactic and clinical component scores could range between 34 and 136; and one-item rating scores could range from 1 to 4. Subscale scores for didactic and clinical components were also calculated on pulmonary, cardiac, and neurological systems, as well as EKG interpretation, hemodynamic monitoring, knowledge of medications, and role of the critical care nurse.

The didactic and clinical component alphas were .94 and .92 respectively. Didactic subscale alphas ranged between .08 and .93 ( $M=.66$ ,  $SD=.31$ ) (Table 5). Clinical subscale alphas ranged between .53 and .95 ( $M=.73$ ,  $SD=.17$ ). Subscales with an alpha less than .70 were pulmonary and monitoring in the clinical scale, and pulmonary, cardiac, and monitoring in the didactic scale. Content validity is supported by the items being closely related to the content of the program.

Demographics. Demographic and professional characteristics of the orientees and preceptors were obtained by a tool developed by the investigator to describe the sample (Appendices J and K). Information of interest on the orientee included nursing education, work-related nursing experience, critical care nursing experience in nursing school, and type of nursing education. Information on the preceptor included length of critical care nursing experience, advanced preparation for the role of preceptor, professional memberships and certifications, and continuing education offerings presented.

Table 5  
 HOMOGENEITY RELIABILITIES ON CRITICAL CARE ORIENTATION  
 SATISFACTION TOOL COMPLETED BY 28 ORIENTEES

Scale	Satisfaction Components <sup>a</sup>	
	Clinical	Didactic
Total Component Scale	.94	.92
<u>Subscales:</u>		
Pulmonary	.08	.53
Cardiac	.70	.69
Medications	.70	.79
EKG	.93	.95
Monitoring	.64	.60
Role	.92	.90

<sup>a</sup>Cronbach's Alpha

## Procedure

The data collection for this study took place between April and November, 1988. Six different orientation groups were held during this time. Critical care nurse orientees were approached by the investigator on the first day of the general hospital orientation and given a cover letter explaining the purpose of the study (Appendix L). All of the participants who met the inclusion criteria were then invited to attend a special session the following Friday to sign consent forms (Appendix M) and to complete the pre-test knowledge, goals, skills, and the demographic questionnaire prior to beginning the critical care portion of their orientation program. A list of preceptors for each of the orientees was obtained from the Patient Care Coordinator of each participating critical care unit. Once the orientees consented to participate, the preceptors were individually contacted, given a cover letter (Appendix N), asked to consent (Appendix O) and to complete the knowledge test and the demographic questionnaire.

Upon completion of the 8-week orientation program, the post-test questionnaires on critical care nursing knowledge, skill acquisition, goal attainment, and program satisfaction were distributed to the orientees; they were requested to return them to the investigator by mail within one week. The post-orientation evaluation of the orientee's goal attainment and skill acquisition was distributed at the same time to the preceptor and requested return by mail within the week. Compliance with returning the post-orientation questionnaires within the week time was less than acceptable; therefore the timeframe was extended to one month to allow time for an increased sample size of completed

pairs. Follow-up phone calls and distribution of additional questionnaires were also required to accumulate a large enough sample for statistical analysis.

### Ethical Considerations

Information gathered during the course of this evaluation was treated with the utmost discretion. All completed tools were sent to an intermediary person, a nursing school faculty member who was not familiar with the clinical units; she removed the person's name from the outer envelope of the questionnaires and entered a code number on each tool. The questionnaires were then forwarded to the investigator for data processing. Information collected was kept in the investigator's personal files, and every effort was made to protect the individual's identity. Orientees and preceptors were assured that their responses would not affect employment or promotion evaluation. This process was developed because the investigator was at the study institution.

## CHAPTER IV

### RESULTS

#### Knowledge

In this study, scores on critical care knowledge were computed on the BKAT-3 data collected prior to orientation and after orientation to document a minimum acceptable level of critical care knowledge for each orientee. For this institution and this study, minimal competence in critical care nursing knowledge was operationalized by a score of at least 75% on the BKAT. The orientee knowledge scores were compared from pre to post-test to determine if acquisition of critical care knowledge had occurred as a result of the orientation program. All of the orientees failed to meet the 75% criterion on the pre-orientation knowledge test (Table 6). In contrast, 82% of the orientees matched or exceeded the pass criterion after the orientation program.

The pre-orientation critical care knowledge raw scores for the orientees ranged from 39 to 72 (possible range: 0-100), with a mean of 60.36 (SD=8.91). The post-orientation knowledge raw scores for the orientees ranged from 59 to 95, with a mean of 79.64 (SD=8.68) (Table 7).

Nine knowledge subscale scores were computed from the BKAT-3, with 8-19 items per subscale. Proportional scores were calculated for conversion of scores on subscales because of the unequal number of items on subscales. The assessment of proportional scores on orientee pre-

Table 6  
 FREQUENCY DISTRIBUTION FOR ORIENTEE (N = 28)  
 & PRECEPTOR (N = 17) SCORES ON CRITICAL CARE KNOWLEDGE

Score	Grade	<u>Orientee Pre-test<sup>a</sup></u>		<u>Orientee Post-test<sup>b</sup></u>		<u>Preceptor Baseline<sup>c</sup></u>	
		f	%	f	%	f	%
100-75	Pass	0	0	23	82	16	94
74-0	Fail	28	100	5	18	1	6
Total		28	100	28	100	17	100

<sup>a</sup>Pre-orientation    <sup>b</sup>Post-orientation    <sup>c</sup>Baseline assessment.

Table 7  
 MEAN CRITICAL CARE KNOWLEDGE SCORES FOR  
 ORIENTEES (N = 28) & PRECEPTORS (N = 17)

Subject	M	SD	Range <sup>a</sup>
<u>ORIENTEES:</u>			
Pre-orientation	60.36	8.91	39-72
Post-orientation	79.64	8.68	59-95
<u>PRECEPTORS:</u>			
Baseline assessment	86.24	4.96	74-92

<sup>a</sup>Possible range: 0-100.



test knowledge indicated that the greatest knowledge was in the neurology, gastrointestinal, and renal content areas; the least knowledge in EKG interpretation, invasive monitoring, and pulmonary nursing content areas (Table 8).

On the post-orientation knowledge test, the assessment of proportional scores for the orientee indicated that the highest knowledge scores were in the content areas: neurology, invasive monitoring, cardiac, and the administration of medications; the pulmonary and endocrine content areas had the lowest knowledge scores (Table 8). The comparison of pre to post-test proportional scores indicated that invasive monitoring and EKG interpretation showed the greatest gain in orientee knowledge; neurology, gastrointestinal, endocrine and renal content areas had the least gain (Table 8).

In every knowledge subscale and on the total scale, the mean scores for the post-test were greater than the mean scores on the pre-test. To compare the difference between orientee pre and post-test critical care knowledge scores, the overall knowledge scores were analyzed by using a paired t-test for correlated samples. Overall knowledge on the orientee post-test was significantly higher than on the orientee pre-test ( $t=8.03$ ,  $df=27$ ,  $p=.001$ ).

To determine if there was a significant difference on knowledge subscales from pre to post-test, a multivariate analysis of variance (MANOVA) for repeated measures was done. The MANOVA was found to be significant by the Hotelling's criterion ( $T^2=6.59$ , associated  $F=13.92$ ,  $df\ 9/19$ ,  $p=.000$ ) Since the MANOVA was significant, a Sheffe' post-hoc comparison procedure was conducted to determine which subscale

Table 8  
ORIENTEE SUBSCALE SCORES ON CRITICAL CARE KNOWLEDGE  
(N = 28)

Subscale	No. of Items	Possible Score Range	PRE-TEST		POST-TEST	
			Mean Score	Prop. <sup>a</sup> Score	Mean Score	Prop. Score
Pulmonary	9	0-9	4.46	.50	6.50	.72
Cardiac	9	0-9	5.89	.65	7.57	.84
Neurology	8	0-8	6.53	.82	6.89	.86
Endocrine	8	0-8	5.39	.67	5.96	.75
Renal	12	0-12	8.57	.71	9.42	.79
GI	10	0-10	7.18	.72	7.79	.78
Medications	19	0-19	11.64	.61	15.12	.80
EKG	13	0-13	4.75	.37	10.21	.79
Monitoring	12	0-12	5.93	.49	10.18	.85

<sup>a</sup>Prop. = Proportional scores are used for comparison because of unequal number of items in subscales (mean raw score/# of items).

means were significantly different. The Scheffe analysis showed that there were significant differences from pre to post-test in five of the subscales: pulmonary, EKG, cardiac, medications, and invasive monitoring, thus indicating that the knowledge gain occurred in these content areas as a result of the orientation program (Table 9).

Baseline data was also collected on the preceptors' critical care knowledge. Although the preceptors were not the focus of this study, their influence during the clinical portion of the orientation contributed to the orientee's outcomes. Therefore, the critical care knowledge level of the preceptors was computed as a frame of reference. This assessment revealed that 94% of the preceptors exceeded the pass criterion of 75% (Table 6). The total raw scores on the preceptors' knowledge ranged from 74 to 92, with a mean of 86.24 (SD=4.96) (Table 7). Proportional scores on the preceptors' knowledge revealed that the preceptors were most knowledgeable in invasive monitoring, EKG interpretation, medication and renal content areas; and least knowledgeable in pulmonary, cardiac and gastrointestinal nursing content areas (Table 10).

A t-test between preceptor baseline knowledge and orientee post orientation knowledge revealed a significant difference in total critical care knowledge ( $t=2.63$ ,  $df=26$ ,  $p=.014$ ). This difference lends support to the discriminant validity of the tool by differentiating between critical care nursing knowledge in novice practitioners versus advanced practitioners.

Table 9  
SCHEFFE' UNIVARIATE T'S ON ORIENTEE KNOWLEDGE SUBSCALES  
FOR THE EFFECT OF TIME  
(N = 28)

Scale	Time	M	SD	t	p
Pulmonary	pre	4.46	1.69	5.74	.000
	post	6.50	1.40		
GI	pre	7.18	1.36	1.53	.137
	post	7.79	1.91		
EKG	pre	4.75	1.86	9.72	.000
	post	10.21	2.08		
Cardiac	pre	5.89	1.60	6.65	.000
	post	7.57	1.00		
Endocrine	pre	5.39	1.47	1.36	.184
	post	5.96	1.92		
Medications	pre	11.64	2.67	4.20	.000
	post	15.11	2.99		
Monitoring	pre	5.93	2.24	9.83	.000
	post	10.18	.98		
Neurology	pre	6.54	1.23	1.72	.960
	post	6.89	1.10		
Renal	pre	8.57	1.87	1.63	.115
	post	9.43	2.12		

Note. Pre = pre-orientation; post = post-orientation.

Table 10  
 COMPARISON OF ORIENTEE POST-ORIENTATION AND  
 PRECEPTORS' BASELINE CRITICAL CARE KNOWLEDGE SUBSCALE SCORES

Subscale	No. of Items	Possible Score Range	ORIENTEES <sup>a</sup>		PRECEPTORS <sup>b</sup>	
			Mean Score	Prop. <sup>c</sup> Score	Mean Score	Prop. <sup>c</sup> Score
Pulmonary	9	0-9	6.50	.72	6.77	.75
Cardiac	9	0-9	7.57	.84	7.41	.82
Neurology	8	0-8	6.89	.86	6.82	.85
Endocrine	8	0-8	5.96	.75	6.94	.87
Renal	12	0-12	9.42	.79	10.53	.88
GI	10	0-10	7.79	.78	8.41	.84
Medications	19	0-19	15.12	.80	16.70	.88
EKG	13	0-13	10.21	.79	11.65	.90
Monitoring	12	0-12	10.18	.85	11.00	.92

<sup>a</sup>Orientees N = 28.

<sup>b</sup>Preceptor N = 17.

<sup>c</sup>Prop. = proportional score

## Skills

In this study, scores on critical care skills were computed on data collected prior to orientation to provide baseline data and on data collected after orientation to document a minimum acceptable level of skill competence. For this institution, there is no definitive written statement in the program materials about the minimal level of skill competency that is expected of the orientee at the end of orientation. The procedure to document critical care nursing skill competency at this institution is use of a skills checklist. It is the preceptor's responsibility to evaluate his/her orientee's performance of each skill based on the individual preceptor's judgement. When the orientee demonstrates acceptable performance of a skill or is able to verbally explain the skill when demonstration is not possible, the preceptor dates and initials the skill on the checklist. Therefore, competence is based on a pass/fail criterion using the subjective judgement of each preceptor.

For this study, the assessment of skill performance was divided into six different levels of ability ranging from never having done the skill (1) to being able to do the skill very well without any help (6). The post-orientation assessment was done by both the orientee and preceptor. The outcome criterion for competency in critical care skills was identified for this study as the ability of an orientee to at least do the skills with only minimal help (4). This operational definition of skill competence is derived from this study's conceptual definitions of competence, skills and knowledge: the capability to perform a variety of critical care nursing skills based on a body of critical care

nursing knowledge in order to provide safe and therapeutic patient outcomes in the real world.

The pre and post critical care nursing skills scores were compared to determine if the acquisition of critical care skills had occurred as a result of the orientation program. Initially, 100% of the orientees indicated having "never performed" or "only performed the skill with maximal or moderate help" (Table 11). The overall pre-orientation self-assessment scores for critical care nursing skills for the orientee ranged from 69 to 236 (possible range: 65-390), with a mean of 151.36 (SD=42.81) (Table 12). The mean item rating was 2.33 on the overall skills pre-orientation self-assessment (possible range: 1-6).

Six subscale scores were derived from the total scale for the content areas of pulmonary, cardiac, neurology, medications, EKG interpretation, and hemodynamic monitoring. Proportional scores were calculated for conversion of scores on subscales because of the unequal number of items in subscales. The assessment of proportional scores on pre-orientation critical care nursing skills indicated that the orientees had the least ability in the following content areas: neurology (intracranial pressure monitoring), hemodynamic monitoring, cardiac, and EKG interpretation; and the greatest ability in the administration of medications (Table 13).

On the post-orientation self-assessment 50% of the orientees met the competency criterion; 39% of the orientees indicated they were able to "perform critical care skills with minimal help" and another 11% indicated they could "perform the skills fairly well without any help" (Table 11). Yet, 42% of the orientees still identified the need for a

Table 11  
 FREQUENCY DISTRIBUTION FOR RATINGS ON OVERALL CRITICAL CARE  
 SKILLS LEVEL FOR ORIENTEE & PRECEPTOR ASSESSMENT  
 (N = 28 PAIRS)

Rating Scale	Orienteer Pre-test <sup>a</sup>		Orienteer Post-test <sup>b</sup>		Preceptor Post-test <sup>c</sup>	
	f	%	f	%	f	%
Never done skills	10	36	1	4	0	0
Can do skills with maximal help	13	46	1	4	3	11
Can do skills with moderate help	5	18	12	42	14	50
Can do skills with minimal help	0	0	11	39	11	39
Can do skills fairly well without any help	0	0	3	11	0	0
Can do skills very well without any help	0	0	0	0	0	0
Totals	28	100	28	100	28	100

<sup>a</sup>Pre-orientation self-assessment by orientees.

<sup>b</sup>Post-orientation self-assessment.

<sup>c</sup>Post-orientation assessment of orientees by preceptors.



Table 12  
 MEAN CRITICAL CARE SKILLS SCORES FOR ORIENTEES & PRECEPTORS  
 (N = 28)

Subject	M	SD	RANGE <sup>b</sup>	MIR <sup>a</sup>
<u>ORIENTEE:</u>				
Pre-orientation	151.36	42.81	69-236	2.33
Post-orientation	261.04	52.32	124-354	4.01
<u>PRECEPTOR:</u>				
Post-orientation assessment of orientee	241.33	35.64	170-301	3.73

<sup>a</sup>MIR = Mean Item Rating (mean raw score/# of items).

<sup>b</sup>Possible score range 65-390.

moderate amount of help to perform the necessary critical care skills.

The overall post-orientation skills scores on the self-assessment ranged from 124 to 354 (possible range: 65-390), with a mean of 261.04 (SD=52.32) (Table 12). The mean item rating was 4.01 on the overall skills post-orientation self-assessment (possible range: 1-6).

On the post-orientation skill assessment by the orientee's preceptor, 39% indicated that the orientees were competent because they were able to "do skills with minimal help" at the end of the orientation (Table 11). On the other hand, 50% of the preceptors identified

orientee ability to "do skills with moderate help" and 11% indicated that the orientee could only "do the skills with maximal help". Preceptors indicated that no orientees were able to "perform the skills fairly well without any help" which was consistent with the orientee's self assessment.

The preceptor overall ratings of orientees' skills after orientation ranged from 170 to 301 (possible range: 65-390), with a mean of 241.33 (SD = 35.64) (Table 12). The mean item rating for the preceptors' assessment of orientee skills was 3.73 (possible range: 1-6).

On the post-orientation self-assessment subscales, the administration of medications had the highest level of skill ability, closely followed by skills needed in the management of patients with pulmonary ventilation and hemodynamic monitoring (Table 14). Alternately, the skills required for intracranial pressure measurement were rated the lowest and the preceptors concurred with this assessment (Table 14). The greatest gain in skill acquisition was demonstrated in the hemodynamic monitoring subscale; the least gain occurred in the ability to measure intracranial pressure (Table 13).

A t-test between the orientees' and preceptors' overall assessment of critical care skills after orientation revealed a non-significant difference in mean scores ( $t=1.92$ ,  $df=27$ ,  $p=.066$ ). However, the preceptors' assessment of the orientee's skill level was lower than that of the orientees themselves (Table 12 & 14).

In every subscale and on the total scale, the orientees increased their level of skill ability. To compare differences between orientee scores on the pre and post-test skills, the means were analyzed using a

Table 13  
 MEAN, PROPORTIONAL, AND ITEM RATING SUBSCALE SCORES  
 ON CRITICAL CARE SKILLS BY ORIENTEES  
 (N = 28)

Subscale	No. of Items	Possible Score Range	PRE-ORIENTATION			POST-ORIENTATION		
			M <sup>a</sup>	P <sup>b</sup>	MIR <sup>c</sup>	M <sup>a</sup>	P <sup>b</sup>	MIR <sup>c</sup>
Pulmonary	12	12-72	38.75	.54	3.23	58.04	.81	4.84
Cardiac	19	19-114	32.82	.29	1.73	53.68	.47	2.88
Neurology	4	4-24	4.89	.20	1.22	6.79	.28	1.70
Medications	9	9-54	38.93	.72	4.32	45.75	.85	5.08
EKG	2	2-12	3.89	.32	1.95	6.21	.52	3.11
Monitoring	19	19-114	32.07	.28	1.69	90.57	.79	4.77

<sup>a</sup>M = Mean raw score.

<sup>b</sup>P = Proportional score (mean raw score/possible score).

<sup>c</sup>MIR = Mean item rating (mean raw score/# of items) (possible item rating range: 1-6).

Table 14  
 COMPARISON OF ORIENTEE & PRECEPTOR  
 POST-ORIENTATION SKILL SUBSCALE SCORES FOR ORIENTEES  
 (N = 28)

Subscale	No. of Items	Possible Score Range	ORIENTEE			PRECEPTOR		
			M <sup>a</sup>	P <sup>b</sup>	MIR <sup>c</sup>	M <sup>a</sup>	P <sup>b</sup>	MIR <sup>c</sup>
Pulmonary	12	12-72	58.04	.81	4.84	29.14	.40	2.43
Cardiac	19	19-114	53.68	.47	2.88	49.39	.38	2.60
Neurology	4	4-24	6.79	.28	1.70	5.25	.22	1.31
Medications	9	9-54	45.75	.85	5.08	45.68	.85	5.08
EKG	2	2-12	6.21	.52	3.11	5.07	.42	2.54
Monitoring	19	19-114	90.57	.79	4.77	90.71	.80	4.77

<sup>a</sup>M = Mean raw score.

<sup>b</sup>P = Proportional score (mean raw score/possible score).

<sup>c</sup>MIR = Mean item rating (mean raw score/# of items) (possible item rating range: 1-6).

paired t-test to assess the acquisition of critical care nursing skills. There was a significant increase in critical care nursing skills from pre-test to post-test based on self-assessment ( $t=11.66$ ,  $df=27$ ,  $p<.001$ ).

In order to determine which skills subscales were significantly different from pre to post-test, a multivariate repeated measures analysis of variance (MANOVA) was done. The MANOVA was found to be significant by the Hotelling's Criterion ( $T^2=10.34$ , associated  $F=37.94$ ,  $df=6/22$ ,  $p=.000$ ). Since the MANOVA was significant, a Scheffe' post-hoc multiple comparison procedure was conducted to determine which skill subscale means were significantly different from pre to post-test. The Scheffe' showed that there were significantly higher scores on all skills subscales from pre to post-test, suggesting that skill acquisition did not occur by chance alone and represented a real gain in critical care skill performance upon completion of the orientation program (Table 15).

Although significantly higher scores were found on post-test skills subscales, the distribution of total scores on the post-orientation self assessment showed that at least 50% of the orientees were not minimally competent in performing critical care nursing skills: that is, they were not able to perform the skills with only minimal help. Mean item rating subscale scores for orientees identified aggregate competence in critical care skills, but not individual orientee skill competence. Validating individual orientee skill competence is an important legal issue for nursing administrators. Therefore, the percent of the orientees who were minimally competent in each skill subscale was examined to further identify program strengths and weaknesses.

Table 15  
SCHEFFE' UNIVARIATE T'S ON ORIENTEE SKILL SUBSCALES  
FOR THE EFFECT OF TIME  
(N = 28)

Scale	Time	M	SD	t	p
Pulmonary	pre	38.75	15.31	7.46	.000
	post	58.04	10.79		
EKG	pre	3.89	3.45	5.61	.000
	post	6.21	3.70		
Cardiac	pre	32.82	12.01	3.44	.002
	post	53.68	22.73		
Medications	pre	38.93	1.85	3.19	.004
	post	45.75	10.88		
Monitoring	pre	32.07	17.17	14.70	.000
	post	90.57	17.77		
Neurology	pre	4.89	3.82	2.13	.000
	post	6.79	5.01		

Note. Pre = pre-orientation; post = post-orientation.

Table 16  
 PERCENT OF ORIENTEES MINIMALLY COMPETENT IN SKILLS

Subscale	Orientees Pretest	Orientees Posttest	Preceptor Posttest
Pulmonary	32	76	0
Cardiac	0	25	0
Neurology	4	14	4
Medications	61	89	86
EKG	11	43	36
Monitoring	7	82	86

The assessment of the orientees who were minimally competent in each skill subscale would be equivalent to the highest individual scores found on each subscale. On the orientee self-assessment at pre-orientation, 61% of the orientees were already minimally competent in the area of medication administration compared to 0% being minimally competent in cardiac skills (Table 16).

The orientees' self-assessment at post-orientation did show a greater percentage of orientees who were minimally competent in the performance of critical care nursing skills, yet the ideal level would be 100% of the orientees to be minimally competent after the orientation program. The least percentages of orientees were minimally competent to perform skills in the neurology, cardiac, and EKG areas. The pre-

ceptor's assessment was similar to the orientees, except in the area of cardiac and pulmonary nursing care. On post-test, no preceptors indicated that their orientees were competent in cardiac or pulmonary skills, as compared to the 25% and 76% (respectively) of the orientees rating themselves as minimally competent in these skills. The lack of 100% skill competence in all content practice areas identifies a need to change the method of preparing orientees to perform the critical care nursing skills required for safe and therapeutic nursing practice.

### Goals

Goal Importance. In this study, a score on goal importance was computed to determine the orientees' perception of how important it was for them to attain the prescribed goals of the critical care orientation program. Ninety-three percent of the orientees indicated that program goals and objectives were "very or exceedingly important" to attain (Table 17).

The scores on the importance of goals ranged from 142 to 235 (possible range: 47-235), with a mean of 210.14 (SD=21.20) (Table 18). The mean item rating for the total importance scale was 4.47 (possible range 1-5).

Eight subscale scores were derived for the goal scale in the content areas of pulmonary, cardiac, neurology, gastrointestinal, medications, EKG interpretation, hemodynamic monitoring, and role of the critical care nurse. Proportional scores were calculated for conversion of scores on subscales because of the unequal number of items in



Table 17  
 FREQUENCY DISTRIBUTION FOR RATINGS ON OVERALL GOAL IMPORTANCE  
 AND GOAL ATTAINMENT FOR ORIENTEE & PRECEPTOR ASSESSMENTS  
 (N = 28)

Rating Scale	Orientee Pre-test <sup>a</sup>		Orientee Post-test <sup>b</sup>		Preceptor Post-test <sup>c</sup>	
	f	%	f	%	f	%
<u>Goal Importance:</u>						
Not very important	0	0				
Slightly important	0	0				
Moderately important	2	7				
Very important	24	86				
Exceedingly important	2	7				
<u>Goal attainment:</u>						
Poor attainment			1	4	1	4
Fair attainment			6	21	8	28
Adequate attainment			20	71	14	50
Very good attainment			1	4	5	18
Outstanding attainment			0	0	0	0
Totals	28	100	28	100	28	100

<sup>a</sup>Orientee perception of importance.

<sup>b</sup>Orientee self-assessment of attainment.

<sup>c</sup>Preceptor assessment of orientee attainment.

Table 18  
 MEAN GOAL SCORES FOR ORIENTEES & PRECEPTORS  
 (N = 28)

Subject	M	SD	RANGE <sup>a</sup>	MIR <sup>b</sup>
<u>ORIENTEE:</u>				
Perception of importance	210.14	21.20	142-235	4.47
Assessment of attainment	152.04	22.28	83-189	3.23
<u>PRECEPTOR:</u>				
Assessment of orientee attainment	157.43	32.21	105-205	3.35

<sup>a</sup>Possible raw score range 47-235.

<sup>b</sup>MIR = mean item rating (mean raw score/# of items)  
 (possible range 1-5).

subscales. The assessment of proportional scores on the importance of goals indicated that the most important goals on pre-test were in the hemodynamic monitoring, EKG, medications and cardiac subscales; the least important goals related to the gastrointestinal system (Table 19).

Goal Attainment. At post-test a score on goal attainment was computed on both the orientee's self-assessment and on the preceptor's assessment of the orientee to determine the extent to which the bimodal critical care orientation program achieved the goals and objectives of the program. Overall attainment of program goals at the end of orient-

ation was rated by 75% of the orientees as "adequate or very good" (Table 17).

The orientee raw scores on the attainment of goals ranged from 83 to 189 (possible range 47-235), with a mean of 152.04 (SD=22.28) (Table 18). The mean item rating for the total goal attainment scale was 3.23 (possible range: 1-5).

The total goal attainment scores as evaluated by the preceptors ranged from 105 to 205 (possible range: 47-235), with a mean of 157.43 (SD=32.21) (Table 18). The mean item rating for the total attainment scale by the preceptors was 3.35 (possible range: 1-5). Conversely, 50% of the preceptors rated the orientee attainment of goals as "adequate" and 18% as "very good" (Table 17). Not one orientee nor preceptor indicated outstanding attainment of goals; only one preceptor assessed an orientee as having poor attainment of goals.

A t-test between the orientee and the preceptor overall assessment of goal attainment revealed no significant difference in mean scores ( $t=.53$ ,  $df=27$ ,  $p=.601$ ). However, the preceptors' assessment of orientee goal attainment was higher than that of the orientees themselves, albeit not significantly different.

Based on the orientees' self-assessment using proportional scores, the most attained goals were in the areas of gastrointestinal nursing content and role; the least attained goals were in the areas of invasive monitoring, cardiac, EKG, and neurology (Table 19). The least attained goals therefore had been rated as the most important to attain on the pre-orientation assessment.

The most attained goals of the orientee as rated by the preceptors

Table 19  
 MEAN, PROPORTIONAL, AND ITEM RATING SUBSCALE SCORES  
 ON GOAL IMPORTANCE AND GOAL ATTAINMENT BY ORIENTEES  
 (N = 28)

Subscale	No. of Items	Possible Raw Score Range	IMPORTANCE			ATTAINMENT		
			M <sup>a</sup>	P <sup>b</sup>	MIR <sup>c</sup>	M <sup>a</sup>	P <sup>b</sup>	MIR <sup>c</sup>
Pulmonary	4	4-20	18.21	.91	4.47	13.52	.68	3.38
Cardiac	5	5-25	23.12	.92	4.62	12.64	.63	2.53
Neurology	1	1-5	4.29	.86	4.29	3.26	.63	3.26
GI	1	1-5	4.00	.80	4.00	3.67	.73	3.67
Medications	4	4-20	18.46	.92	4.62	13.91	.66	3.33
EKG	3	3-15	13.98	.93	4.65	9.50	.63	3.17
Monitoring	5	5-15	23.18	.93	4.64	15.25	.61	3.05
Role	24	25-120	105.18	.88	4.38	86.89	.72	3.62

<sup>a</sup>M = Mean raw score.

<sup>b</sup>P = Proportional score (mean raw score/possible score).

<sup>c</sup>MIR = Mean item rating (mean raw score/# of items) (range of item rating could be 1-5).

Table 20

## COMPARISON OF ORIENTEE &amp; PRECEPTOR GOAL ATTAINMENT SCORES FOR ORIENTEES (N = 28)

Subscale	No. of Items	Possible Raw Score Range	ORIENTEE			PRECEPTOR		
			M <sup>a</sup>	P <sup>b</sup>	MIR <sup>c</sup>	M <sup>a</sup>	P <sup>b</sup>	MIR <sup>c</sup>
Pulmonary	4	4-20	13.52	.68	3.38	13.74	.69	3.44
Cardiac	5	5-25	12.64	.63	2.53	14.81	.59	2.96
Neurology	1	1-5	3.26	.63	3.26	3.36	.67	3.36
GI	1	1-5	3.67	.73	3.67	3.54	.71	3.54
Medications	4	4-20	13.91	.66	3.33	14.36	.72	3.59
EKG	3	3-15	9.50	.63	3.17	10.19	.70	3.40
Monitoring	5	5-25	15.25	.61	3.05	17.08	.68	3.42
Role	24	25-120	86.89	.72	3.62	84.86	.71	3.54

<sup>a</sup>M = Mean raw score.

<sup>b</sup>P = Proportional score (mean raw score/possible score).

<sup>c</sup>MIR = Mean item rating (mean raw score/# of items) (range of item rating could be 1-5).

Table 21  
SCHEFFE' UNIVARIATE T'S ON ORIENTEE GOAL SUBSCALES  
FOR THE EFFECT OF TIME (N = 28)

Scale	Time	M	SD	t	p
Pulmonary	pre	18.21	2.58	7.64	.000
	post	13.52	2.39		
GI	pre	4.00	1.25	1.39	.176
	post	3.67	.82		
EKG	pre	13.98	1.57	10.29	.000
	post	9.50	2.04		
Cardiac	pre	23.12	2.02	14.82	.000
	post	12.64	3.17		
Role	pre	105.18	12.72	9.09	.000
	post	86.89	10.01		
Medications	pre	18.46	1.82	9.33	.000
	post	13.91	2.52		
Monitoring	pre	23.18	2.46	12.08	.000
	post	15.25	3.22		
Neurology	pre	4.29	.99	4.12	.003
	post	3.26	.99		

Note. Pre = goal importance; post = goal attainment.

were in the administration of medications, the gastrointestinal system, and role performance, and the least attained were the goals on the cardiac subscale (Table 20).

In every subscale and on the total scale, the ratings for perceived importance of goals exceeded the ratings for attainment of goals. To compare the difference between orientee ratings of goal importance and goal attainment, the overall importance and attainment scores were analyzed using a paired t-test for correlated samples. Goal attainment on the post-test for the critical care nurse was significantly lower than the rating of perceived importance of the program goals on the pre-test ( $t=10.73$ ,  $df=27$ ,  $p=.001$ ).

In order to determine which goal subscales were significantly different from pre to post-test, a multivariate analysis of variance (MANOVA) for repeated measures was done. The MANOVA was found to be significant by the Hotelling's criteria ( $T^2=10.07$ , associated  $F=26.43$ ,  $df=8/21$ ,  $p=.000$ ). Since the MANOVA was significant, a Scheffe' post-hoc comparison procedure was conducted to determine which subscale means were significantly different from pre to post-test. The Scheffe' showed that there were significant differences between all subscale scores except for the gastrointestinal scale on goal attainment and goal importance (Table 21). (Note: only 1 item on gastrointestinal scale). Therefore, perceived goal importance was significantly greater than goal attainment on all but one subscale.

## Satisfaction

The effectiveness of the critical care orientation program was also determined by assessing orientee satisfaction with the program. Based on the two components of the bimodal orientation program, both the didactic (57%) and clinical/preceptor (53%) were almost equally rated by the orientees as "somewhat satisfactory" (Table 22). Another almost equal percentage of the orientees were "slightly dissatisfied" with the didactic (43%) and clinical (39%) components of the orientation program.

The didactic component scores ranged from 72 to 136 (possible range: 34-136), with a mean of 108.03 (SD=17.60). The mean didactic item rating was 3.18. The clinical component scores ranged from 73 to 136 (possible range: 34-136), with a mean of 106.64 (SD=16.75). The mean clinical item rating was 3.14 (Table 23).

Seven subscale scores were derived on each component scale for the content areas of pulmonary, cardiac, neurology, medications, EKG interpretation, hemodynamic monitoring and role of the critical care nurse. Proportional scores were calculated for conversion of scores on subscales because of the unequal number of items in subscales. The assessment of proportional scores on satisfaction indicated that the orientees rated the didactic content covering EKG interpretation, pulmonary and cardiac nursing as most satisfying. Additionally, the clinical experiences related to neurology, cardiac and pulmonary were most satisfying. Proportional scores on the didactic and clinical component subscales were compared to identify specific areas of satisfaction. The comparison of the proportional scores for the clinical and didactic components showed that the orientees were more



Table 22

FREQUENCY DISTRIBUTION FOR ORIENTEE SATISFACTION WITH ORIENTATION PROGRAM (N = 28)

Rating Scale	<u>Didactic</u>		<u>Clinical</u>		<u>Overall Didactic</u>		<u>Overall Clinical</u>		<u>Preceptor</u>		<u>Whole Program</u>	
	f	%	f	%	f	%	f	%	f	%	f	%
Very satisfied	1	4	1	4	7	25	7	25	15	54	4	14
Somewhat satisfied	15	53	16	57	18	64	14	50	7	24	16	57
Slightly dissatisfied	12	43	11	39	2	7	7	25	5	18	11	39
Very dissatisfied	0	0	0	0	1	4	0	0	1	4	2	7
Totals	28	100	28	100	28	100	28	100	28	100	28	100

satisfied with the didactic instruction of EKG interpretation than the clinical application, and also more satisfied with the clinical components in cardiac and neurologic nursing than the didactic content. The least satisfaction was expressed in the clinical content areas of EKG, invasive monitoring, and role of the critical care nurse (Table 24).

The four 1-item overall component satisfaction scores differed from the 34-item component scores. The four 1-item overall didactic and clinical components were rated higher, 64-50% respectively, as "somewhat satisfactory" (Table 22). A difference was noted between the dissatisfaction ratings on the didactic and clinical components. The clinical component was rated less satisfying (25%) compared to the didactic (7%) portions, and one orientee (4%) was very dissatisfied with the didactic component of the orientation program. Based on the four 1-item summary components, 25% were "very satisfied" with the overall didactic and clinical components, 54% were "very satisfied" with their clinical preceptor, and 14% of the orientees were "very satisfied" with the whole program (Table 22).

Based on the four 1-item summary components by the orientees, the overall mean didactic satisfaction score and the mean item rating was 3.12 (Table 23). The overall mean clinical satisfaction score and the mean item rating was 3.00. The overall mean satisfaction score and the item rating for the clinical preceptor was highest at 3.29. The overall mean satisfaction score and the item rating for the whole orientation program was lowest at 2.79 (possible range: 1-4).

Table 23  
 MEAN SATISFACTION COMPONENT SCORES FOR  
 CRITICAL CARE ORIENTATION PROGRAM BY ORIENTEES  
 (N = 28)

Component Scale	M	SD	Obtained Range	Possible Range	MIR <sup>a</sup>
Didactic	108.03	17.60	72-136	34-136	3.18
Clinical	106.64	16.75	73-136	34-136	3.14
Overall didactic	3.12	.69	1-4	1-4	3.12
Preceptor	3.29	.90	1-4	1-4	3.29
Overall clinical	3.00	.72	2-4	1-4	3.00
Whole program	2.79	.79	1-4	1-4	2.79

<sup>a</sup>MIR = Mean item rating (possible range 1-4).

Table 24  
 ORIENTEE COMPONENT SCORES ON SATISFACTION WITH  
 BIMODAL ORIENTATION PROGRAM  
 (N = 28)

Subscales	No. of Items	Possible Range	DIDACTIC			CLINICAL		
			M	P <sup>a</sup>	MIR <sup>b</sup>	M	P <sup>a</sup>	MIR <sup>b</sup>
Pulmonary	2	2-8	6.52	.82	3.26	6.57	.82	3.29
Cardiac	5	5-20	16.07	.80	3.21	17.11	.86	3.42
Neurology	1	1-4	3.14	.79	3.14	3.72	.93	3.72
Medications	3	3-12	9.52	.79	3.17	9.67	.81	3.22
EKG	3	3-12	10.10	.84	3.37	8.70	.73	3.22
Monitoring	2	2-8	6.21	.78	3.11	6.00	.75	3.00
Role	18	8-72	65.62	.79	3.65	55.24	.76	3.07

<sup>a</sup>P = Proportional score.

<sup>b</sup>MIR = Mean item rating.

## Relationships

The relationships between professional characteristics and the outcomes of the orientation program were assessed to identify indicators of positive outcomes. Professional characteristics of the orientee measured were: age, prior nursing experience, the type of basic nursing education, content of basic nursing education which included critical care lecture or clinical, number of professional journals read, and amount of continuing education attended. Professional characteristics of the preceptor measured were: age, years of ICU experience, attendance at hospital classes, and basic nursing education. Program outcomes used were knowledge, skills, goals, and satisfaction. Pearson correlations among all these variables were computed. The only significantly positive relationship found was between a professional characteristic and orientee outcome was prior nursing experience and goal attainment ( $r=.62$ ,  $p=.027$ ).

Significant relationships were also found between orientee program outcomes: of orientee skill acquisition and knowledge acquisition ( $r=.39$ ,  $p=.043$ ); orientee skill acquisition and goal attainment ( $r=.48$ ,  $p=.009$ ); and orientee goal attainment and satisfaction with the program ( $r=.60$ ,  $p=.001$ ). Significant relationships were also found between the preceptors' rating of orientee skills acquisition and goal attainment ( $r=.36$ ,  $p=.031$ ). No significant relationships were found between orientee program outcomes and preceptor professional characteristics.

## Summary of Results on Findings

### Knowledge

1. All of the orientees failed to meet the minimum passing score of 75% on the pre-orientation knowledge test, but 82% matched or exceeded the pass criterion after the orientation program.
2. A comparison of pre to post-test proportional knowledge scores indicated that invasive monitoring and EKG interpretation content areas showed the greatest gain in orientee knowledge; neurology, gastrointestinal, endocrine, and renal subscales showed the least gain.
3. A t-test for correlated samples showed that the orientees' overall critical care knowledge was significantly greater after the orientation program than on the pre-test.
4. A MANOVA showed that there was a significant increase in the pre to post-test knowledge scores on the pulmonary, EKG, cardiac, invasive monitoring, and medications subscales.

### Skills

5. Initially, 100% of the orientees indicated having never performed a skill or only performed the skill with maximal or moderate help. Post-orientation, 50% of the orientees indicated clinical competence by being able to perform critical care skills with minimal help or fairly well without any help. Only 39% of the preceptors indicated that the orientees were able to perform critical care skills with minimal help.

6. A comparison of pre to post-test proportional skill subscale scores indicated that the greatest gain in skill acquisition was demonstrated in invasive monitoring and the least in measuring intracranial pressure.
7. A t-test for correlated samples showed that the orientees post-test overall critical care nursing skills were significantly higher after the orientation program than on the pre-test.
8. A MANOVA showed that there were significantly higher scores on all skills subscales on the post-test.
9. A significant correlation was found between the knowledge gained by the orientees and skill acquisition.

#### Goals

10. Program goals and objectives were very important or exceedingly important to attain as indicated by 93% of the orientees at the beginning of orientation.
11. The most important goals were in the invasive monitoring, EKG, medications and cardiac subscales; the least important goals related to the gastrointestinal system.
12. Adequate or very good attainment of goals at the end of orientation was indicated by 75% of the orientees; 68% of the preceptors rated the orientee attainment of goals as adequate or very good. Not one orientee or preceptor indicated outstanding attainment of goals.
13. The most attained goals were in the areas of gastrointestinal and role of the critical care nurse; the least attained were in invasive monitoring, cardiac, EKG, and neurology content areas.
14. A t-test for correlated samples showed that the orientees' overall

goal importance on pre-test was significantly higher than goal attainment on post-test.

15. A MANOVA showed that perceived goal importance was significantly greater on all subscales than was goal attainment, except for the gastrointestinal subscale.
16. Correlations showed significant positive relationships between orientee skill acquisition and goal attainment; between the preceptors' rating of orientee skill acquisition and goal attainment; and between prior nursing experience and goal attainment.

### Satisfaction

17. The two components of the bimodal orientation program, didactic (53%) and preceptor (57%), were rated by the majority of the orientees as "somewhat satisfactory". Less than half of the orientees were "somewhat dissatisfied" with both the didactic (39%) and clinical (45%) components of the orientation program.
18. The orientees indicated that they were more satisfied with the didactic instruction of EKG interpretation than clinical application, more satisfied with the clinical components cardiac and neurologic nursing than the didactic content. The least satisfaction was in the clinical content areas of EKG, invasive monitoring and role of the critical care nurse.
19. A correlation showed a significant positive relationship between orientee goal attainment and satisfaction with the program.



## CHAPTER V

### DISCUSSION

Successful nursing administrators recognize the need to evaluate nursing practice. Fralic (1988) lists the ability to quantify as one key to successful nursing administration. Quantification of the outcomes of people-oriented and labor-intensive nursing service can be simplified by using the scientific methodologies of program evaluation as suggested by Posavac and Carey (1985).

The measurement of four outcomes: knowledge, skills, goal attainment, and satisfaction, provided data for statistical analysis to quantify critical care nurse orientation outcomes. This research-based information obtained from the statistical analyses was interpreted to determine if the orientation program was effective in facilitating a positive change in orientee behavior.

The expected role behavior of the critical care nurse is to collaborate with other members of the health care delivery system to provide safe, therapeutic, cost-effective health care based on the philosophy and policies of the organization. The behavioral expectations of the novice nurse in a critical care setting need to be identified before program evaluation. Differential levels of functioning should be delineated in standards of nursing practice; first-level expectations of the novice nurse then need to be communicated to the orientee and the preceptor.

## Knowledge

The first research question asked: Is there a significant increase in critical care knowledge after completing the orientation program? A paired t-test for correlated samples and a MANOVA revealed statistically significant increases in both overall knowledge and specific knowledge on five of the nine subscales of pulmonary, EKG, cardiac, invasive monitoring, and medications.

The construct, significant increase, may have a different connotation for the nurse administrator compared to the nurse researcher. The researcher defines statistical significance as a "term indicating that the results obtained in an analysis of sample data are unlikely to have been caused by chance, at some specified level of probability" (Polit & Hungler, 1983, p. 623). The term increase indicates the positive direction of the change in the results. The administrator's inference of significant may be that the increase in knowledge is at an acceptable level of behavior. The design and analysis of this study data met both research and clinical criteria. The interpretation of the outcomes to document an acceptable level of behavior was determined by comparing outcome values to the standards of nursing practice identified for the study. Poister (1982) called this approach performance monitoring. Without standards of nursing practice, monitoring can find only that one orientee outcome base was better than another. Therefore, outcome standards for each outcome in the study needed to be determined to answer the questions of acceptable level asked of the program evaluation.

Based on the minimum outcome value for the standard of nursing

practice for knowledge in this study, all of the pre-test scores for orientee basic knowledge were slightly less than standard, but did indicate that the orientees came to the program with a substantial knowledge base of critical care nursing. The lack of experience in critical care nursing supports the research findings of Toth (1983). Prior exposure to critical care content in basic nursing programs or prior nursing experience may have contributed to the critical care knowledge base, but the best predictor of critical care knowledge is prior critical care nursing experience.

The less than standard outcome on the pre-test documented the need for the orientation program. Pre-testing is one method to identify strengths and weaknesses and to facilitate the planning of an effective and efficient program. Areas of weakness identified from pre-testing can be emphasized to maximize learning; areas of strength can be omitted to economize on limited resources.

The post-test mean score for orientee basic critical care knowledge was slightly greater than the standard and indicated that the orientees possessed a minimum of basic knowledge to safely practice critical care nursing. The more than standard outcome on the post-test answered a second question asked of evaluation programs. The orientation program was sufficiently intense to meet the identified needs of the orientees by increasing their knowledge level and therefore, the program actually assisted the orientees in performing their role.

Specific critical care knowledge content was identified to differentiate areas of strength and weakness. The largest gains in knowledge were in the content areas of EKG interpretation and invasive

monitoring. These two content areas were well developed in the didactic and clinical portions of the program. EKG interpretation was a separate course offered in tandem with other classroom presentations. Invasive monitoring is a basic skill practiced on a daily basis in the critical care setting. The content areas with the smallest gain in knowledge were areas that were not developed or emphasized as thoroughly in the program curriculum, for example, renal, gastrointestinal, and endocrine nursing. However, this study indicated that such areas needed to be enhanced in the program.

The ideal situation for nursing administrators would be to have a supply of experienced critical care nurses to employ in vacant critical care positions, followed by a supply of experienced medical-surgical nurses to advance into these positions. This is the best-case scenario, unfortunately this is not the current situation. The current shortage in nursing results in nursing administrators recruiting new graduates or less experienced nurses into these specialty positions. Therefore, finding alternative methods to present critical care knowledge is necessary to maximize learning for the neophyte and thus assure competent nursing practice.

Educators have differentiated learning styles between children and adults. Some principles of adult learning that may be applied to critical care orientation programs are that learning is more effective when:

- the content is relevant to the individual's current concerns and helps solve immediate problems;
- the content is relevant, useful, practical, and immediately applicable to the work situation;

- the presentation of content is spread out over time and is reinforced by positive and satisfying experiences. (AACN, 1987, p. 4)

Based on adult learning principles, it is recommended that classroom lectures be scheduled to concur with clinical experiences; then the content is relevant and immediately applicable to the clinical setting. This structure can be facilitated by extending the time-frame of the lectures from the first two weeks to the entire 8-week orientation period. The didactic and clinical experiences could be scheduled to provide a half-day for each teaching mode. The extended lecture format should utilize additional staff development resources which could be shifted to the clinical preceptors and/or to computer assisted instruction. A benefit of this teaching structure would enable clinical preceptors to become active instructors for didactic content. Incorporating preceptors as instructors would add to the differential levels of practice and enable a method to reward clinical excellence. Program instruction modules utilizing computer software programs are also recommended to augment classroom instruction as an additional mode of learning.

Critical care nursing skills, goal attainment, and satisfaction with the orientation program have been shown to be positively influenced by the acquisition of critical care knowledge. Improvements in the orientation program which lead to the acquisition of knowledge serve to improve the program as a whole.

## Skills

The second research question asked: Is there a significant increase in critical care nursing skills after completing the orientation program? A paired t-test for correlated samples and a MANOVA revealed statistically significant increases in both overall critical care skills and specific skills in all six subscales (pulmonary, EKG, cardiac, invasive monitoring, medications, and neurology).

Based on the minimum outcome value for the standard of nursing practice for critical care skills in this study, all of the orientees pre-test self-assessments for basic critical care nursing skills indicated that the orientee needed more than a minimal amount of help to perform a skill. This level was less than the standard outcome, and showed that the orientees came to the program with a minimal amount of the basic skills required in critical care nursing. The only outcome standard met prior to orientation was in the administration of medications. The less than minimum outcome standard on the pre-test therefore documented a need for the orientation program.

A mean orientee post-test self-assessment for basic critical care nursing skills was slightly greater than the minimal outcome standard. This indicated that the orientees were able to perform the critical care skills required with minimal assistance. Unfortunately, it must be noted that this assessment was based on mean aggregate skill performance, not on individual performance. The frequency distribution of individual orientee scores indicated that only half of the orientees performed at a minimum standard level. Further analysis of subscales concluded that not all the skills performed were at a minimal standard

outcome. Only skills related to pulmonary care, medication administration, and invasive monitoring were greater than the standard outcome by the end of the program.

The preceptors assessment of the orientee's ability to perform the required skills at the end of orientation was lower than that of the orientees. The preceptor rated the orientees above standard only in the administration of medications and the application of invasive monitoring.

Although significant differences were found between pre and post-test orientee skills scores, it was concluded that the precepted clinical experience was not intense enough for all of the orientees to acquire the critical care skill behaviors required for competent practice.

Prior to this study, criteria to evaluate orientee performance were based on the subjective interpretation of nursing policy by the preceptors. Preceptors were instructed to validate the orientees' skill ability based on their observations of demonstrations in the clinical setting. With this study, the idea of levels of practice was introduced to the preceptors and orientees for rating skill performance. However, identification of skill performance was still based on the subjective interpretation of outcome criteria and not objective formal criteria. The lack of consistent interpretation of criteria using objective criteria presents questions of the reliability of the measurement tool. It is recommended that specific outcome criteria for each skill be validated and standardized prior to orientation and evaluation. This objective has been the focus of current orientation programs presented

in the literature (Houge & Deines, 1987; Scrima, 1987).

The investigator's observation of multiple preceptors for each orientee, as well as comments from both preceptors and orientees regarding the inconsistent use of preceptors may explain the preceptor's lower rating of orientee skill performance. The lack of opportunity for the same preceptor to repeatedly observe and interact with the orientee lessens the accuracy of evaluation by the preceptor.

The orientee's higher rating of skill ability may be explained by the optimistic attitude of the orientees who remained in the study sample, or the self-rating testing methodology, or the bias the orientee may possess when evaluating themselves at the conclusion of the program.

The legal issues facing nursing administrators mandate minimal competency in each area of practice. The less than standard outcome in cardiac, EKG, and neurology content areas indicated that the program was not intense enough in these areas to meet the needs of the orientee to perform their role competently.

Identifying weaknesses in program components and finding methods to improve outcomes is one of the purposes of a program evaluation. Once weaknesses are identified, planning can be instituted to alter outcomes. The first step of the planning process is to define the problem. Two questions can be asked: Are the skills expected for the novice critical care nurse too advanced, or is the program lacking in preparation for the novice nurse? Redefining the expected level of practice for the novice critical care nurse may be one way to improve orientee outcomes and feelings of self-confidence and satisfaction. If there are recognized levels of critical care nursing practice, nursing administrators



are then faced with developing a system to integrate various levels of practitioners to care for critically ill patients. Patient care acuity systems could be utilized to assign the care of patients with less acute conditions to the novice nurse. Is this feasible? Or, is finding alternative methods to instruct novice orientees on all of the critical care skills necessary to improve orientee skill outcomes? Or is the most efficient and effective orientation program one that continues over time with an identified resource person for the neophyte critical care nurse.

The current method of preceptor/orientee on-the-job training to present critical care nursing skills has been shown to be less than efficient and effective in incorporating all the skills required for practice. It is suggested that some of the critical care skills such as intracranial pressure monitoring or cardiac defibrillation may not be available during the clinical portion of orientation. One method to provide exposure to all skills necessary for critical care nursing practice is to develop skill laboratories. This method of instruction has been used in academic settings for students to learn the concepts related to the intervention, and then practice working with the technical equipment prior to bedside assignments. Programmed instruction, followed by hands-on experience, can be designed for orientees with little or no previous experience. Systematic observation of simulations is another way to create action that is compressed, yet accelerated, and provide debriefing as well as intensive and engaging experience for orientees (Patton, 1981). Providing simulation of various emergency type situations, such as mock codes, can allow for a less stressful

learning situation and improved outcomes. The advantage of this alternative method of learning shifts the focus of clinical precepted time from basic equipment set-up and operation to clinical assessment, application, and intervention.

Documentation of competency levels in each area of practice reduces the liability concerns of nursing administrators and satisfies accrediting agencies' requirements. It is recommended that the orientation documentation record of skill performance be limited to one basic critical care skills checklist for all critical care areas. This one checklist would provide a standard measure for skills required in critical care nursing to serve as the basis for objective evaluation criteria, as well as provide a unified method to record skill competence. The process of documenting variation in levels of skill ability on the skills checklist supports minimal competence standard outcomes.

### Goal Attainment

The third research question asked: To what extent does a bimodal critical care orientation program composed of didactic and precepted clinical components achieve the goals of the orientation program? A mean orientee self-assessment item rating was interpreted to infer that the extent of goal attainment was adequate at the completion of the orientation program. The extent of goal attainment was derived by ranking attainment from outstanding to poor, whereas average was a median value. A mean preceptor assessment of orientee goal attainment was greater than the orientees' self-rating, but remained at the average level. The

inter-relationship between study outcomes contributes to goal attainment due to the increase in knowledge and skill acquisition.

Developing performance standards for goal attainment is extremely important to compel people to become realistic in their aims and to motivate people to be more effective and efficient. Conceptually, nursing administrators would expect orientees to strive to achieve an outstanding level of attainment on all goals. Based on this ideal standard level of performance, it would appear that the program will be insufficient to meet the needs it is designed to serve. Possibilities of less than desired level of goal attainment may be attributed to uncontrollable circumstances, such as lack of understanding of what is expected, lack of feedback, lack of training, lack of motivation, or lack of organizational support (Cain & Luchsinger, 1978).

Posavac and Carey (1985) suggest that two paths of action can be taken to increase goal attainment. "On one hand, the program's goals could be scaled down. It may be better to strive to meet realistic goals than to fail to meet overly optimistic ones. On the other hand, the program could be strengthened" (p. 103-104).

Prior to beginning the orientation program, the orientees were given a list of the program's objectives and asked to rate how important it was for them to attain the prescribed goals of the program. A mean item rating indicated that a vast majority of the orientees rated it very important to attain the goals of the program. The most important goals related to content areas specific to the care of the cardiovascular patient. This finding concurs with the type of critical care units studied in this evaluation, i.e., Cardiovascular ICU, Cardio-

vascular Stepdown, and Heart Transplant Unit. Obtaining knowledge of orientee goals can direct the focus the program can take in preparing the orientees' practice. Creating opportunities to attain goals is the mutual responsibility of the orientation program director, orientee-preceptor dyad and the nursing administrator.

The importance the orientee places on attaining program goals can be postulated to be in part related to high motivational levels that the orientees possess at the beginning of the program. Assessing goal importance prior to the study was thought to be a method to introduce the orientees to the desired role behavior expectations of the novice critical care nurse. Identifying the behavioral expectations of the novice critical care nurse provides direction to attain goals. Role modeling of the desired goal behaviors is the responsibility of the clinical preceptor. Additionally, the preceptor's role is to provide time for feedback on the orientees' performance. A structure and process to facilitate the use of the skills checklist should provide time for goal identification and feedback on a regular basis. Other orientation programs report a means and way for mutual goal identification and feedback to the orientee (AACN, 1987; RPSLMC, 1982). This type of management by objectives provides a format for orientee growth and satisfaction. The lack of a consistent preceptor could inhibit the feedback process by decreasing the preceptor's ability to accurately assess the goal attainment of the orientee.

Goal attainment theory (King, 1985) suggests that one cause of less than outstanding level of goal attainment can be attributed to the decreasing level of role identity (skill acquisition and knowledge).

Both of these outcomes affect the behavioral capabilities of the neophyte critical care nurse. Instituting the recommended changes to increase the knowledge level and skill ability of the orientee should improve their perception of level of goal attainment.

The lack of goal attainment in the cardiovascular components of the orientation program was rated by both orientee and preceptor. Cardiovascular nursing was identified by the orientees as the most important goal to attain. The very high level of desire to attain specific goals in this area may have set up the orientees to be less than satisfied with their goal attainment. Obtaining this type of information prior to the start of the orientation program can guide the orientee and preceptor to outline the specific objectives for clinical experiences. This will allow the orientee to meet individual goals and gain satisfaction within the role of a critical care nurse.

The discrepancy between the orientee and preceptor ratings of goal attainment may be due to the preceptors' greater expectations of the orientee. The process of outlining the goals to be attained will also provide objective criteria for the orientee and preceptor to mutually evaluate goal attainment.

### Satisfaction

The fourth research question asked: how satisfied are the orientees with the didactic and precepted clinical components of the orientation program? Several questioning approaches were implemented to disclose orientee satisfaction with the orientation program. Although satisfaction has been frequently used as a measure of program

effectiveness, interpretation of satisfaction may not be as specific or reliable as other measures. Mitsunaga and Shores (1977) identified four basis assumptions about satisfaction which need to be accepted by program evaluators to interpret data on satisfaction for decision making.

"Those assumptions include: (1) that high learner satisfaction is directly related to the tendency to seek additional related learning experiences; (2) that high learner satisfaction is related to actual learning; (3) that an acceptable comfortable environment is conducive to learning; and (4) that self-perception of having learned is directly related to actual learning.

The first approach to differentiate various facets of satisfaction was to derive a mean value for each aggregate component of the program. These values were interpreted to infer that slightly more than half of the orientees were only somewhat satisfied with the various learning modalities of the orientation program, while the other participants were somewhat dissatisfied with the program. The report of outcomes on the other measures of an effective orientation supports the average level of satisfaction reported by the orientees.

To further assess satisfaction, individual questions addressing each component were interpreted to infer that a greater degree of satisfaction was reported for the didactic components than the clinical component. Additionally, the preceptors were assessed by the orientees as very satisfactory in actuating the preceptor role. The program as a whole was assessed by the majority of the orientees as unsatisfactory. This assessment on a single item question on satisfaction indicates that

some other component lending to satisfaction was not measured. This reinforces the recognized difficulty in capturing all components that have an impact upon satisfaction.

The current literature supports the belief that the satisfaction one achieves from work results in many positive outcomes. Obtaining satisfaction from continuing education programs has been positively related to change in behavior, attendance on the job, job satisfaction, and nurse retention. All of these factors would lead nursing administrators to believe that strategically planning an environment conducive to learning would impact positively on orientee satisfaction with the orientation program and job satisfaction. Finding the best possible methods to orient new staff nurses to assume the complex role of a critical care nurse is of primary importance, especially during the current nursing shortage.

The lack of satisfaction with the orientation program expressed by the orientees can be explained in part by the results of the knowledge, skills, and goals outcomes. The results in the outcomes evaluated is directly related to the amount of satisfaction derived from the program. Specific criteria for objective evaluation are needed to set limits for the different levels of performance expected from the orientee. Additional outcomes need to be assessed to fully understand the relationships which influence the program's success.

### Relationships

The fifth research question asked: What professional characteristics of the orientee and the preceptor relate to the outcomes

of the orientation program? Relationships between orientee professional characteristics and positive outcomes were assessed to identify any indicators the nursing administrators could use to plan for effective and efficient orientation outcomes. The current trend to employ new graduate nurses in critical care areas has been debated since the inception of the intensive care unit. This study found a positive relationship between prior nursing experience and goal attainment, suggesting that experienced nurses would be better candidates for hire in the critical care units, based on their ability to attain the goals of the program. No differences were found in the new graduate or experienced nurse groups related to their ability to gain knowledge or skills required for critical care nursing. Additionally, levels of program satisfaction were not significantly different between these groups either.

The inter-relationships between outcome variables were found to be significantly positive. If the orientee gained knowledge, then they experienced skill acquisition. If the orientee acquired the skills, then they experienced goal attainment. If they attained program goals, then they expressed satisfaction with the orientation program.

The relationships between the variables emphasizes the importance of obtaining and validating the body of knowledge associated with critical care nursing. With this knowledge base, the orientee can then develop the technical skills required for the role behaviors identified in the goals of the orientation program and thus feel satisfied with accomplishments. The theory of nursing conceptually offered by King (1981) supports this relationship. King's theory defines the role of



the nurse by the functions expected based on knowledge, skills, and values of the profession. If the role expectations differ between the nurse and the employer, then the role conflict experienced by the nurse will result in less effective care and dissatisfaction in the work setting.

### Summary of Program Recommendations

Based on the findings of this study, the following recommendations can be made for this institution's Critical Care Nurse Orientation Program:

1. Identify the behavioral objectives of the novice critical care nurse by differentiating levels of critical care nursing practice in this area. Communicate expected levels of practice to both orientee and preceptor.
2. Identify minimal outcome standards for novice nursing practice.
3. Provide a pre-test for the orientees on basic knowledge and skill level, then individualize orientation to rectify the deficits identified.
4. Provide a post-test for the orientees on basic knowledge, skills, goal attainment, and satisfaction, to monitor the program's effectiveness and document the orientee's level of practice.
5. Establish a policy that defines criterion and methods of continuing development for orientees with minimal outcome standards of practice based on the post-test evaluation of both the orientee and the preceptor.

6. Apply adult learning principles when developing an orientation program for critical care nurses such as: (a) schedule didactic content to concur with clinical application; (b) utilize clinical preceptors as unit educators to provide didactic content; (c) extend didactic content over a long period of time.
7. Incorporate programmed instructional modules into the didactic framework to present course content for self-study.
8. Develop one criterion-based skills assessment tool to validate novice critical care skill ability for all critical care areas.
9. Develop a skills laboratory for the orientee to apply the concepts related to interventions and to develop the manual dexterity to work at the bedside with complex monitoring and technical equipment.
10. Emphasize the importance of supporting, facilitating, and maintaining the one preceptor-orientee dyad with unit managers and preceptors.
11. Emphasize the importance of regular feedback sessions on the progress of gaining critical care knowledge, skill ability, and goal attainment between the clinical preceptor and orientee.
12. Develop an in-house recruitment structure which would encourage the transition of medical-surgical nurses to critical care units.

### Limitations of the Study

In this program evaluation, a single group with two sets of

observations was used to determine if the orientation program was needed, whether it was sufficiently intense to meet program goals, and whether the program actually assisted the orientees in performing their role. A quasi-experimental pre-test/post-test design can effectively be used to quantify change, but not without knowing the limitations to inferring causal interpretations.

Some of the known threats to internal validity which have been identified with a pre-test/post-test design are: maturation, history, selection, mortality, and regression (Posavac & Carey, 1985). Others identified by Veney and Kalunzy (1985) are extraneous variables, sensitization, and reactivity. Burckhardt, Goodwin, and Prescott (1982) identified a potential statistical problem when inferring treatment effects from group differences based on gain-score differences. The type of design and analysis used in this study was able to determine how much the participants changed during their participation in the program. However, the design can not control for whether the program was the only cause for the change in the nurses' behavior.

Non-program Related Changes. Three validity threats (maturation, history, extraneous variables) refer to real changes that occur in participants that influence the outcomes of the program. Any event which occurs during the course of the program to influence a positive change in program participants is a welcome bonus for the administrator, although it may pose a validity threat to study interpretation. Such an event as attendance at professional education seminars may positively influence the outcomes of the orientation program. A weakness

associated with this pre-test/post-test design was the lack of a comparison group to control for extraneous variables which may have been present during the evaluation.

Who was Observed. Three threats to internal validity need to be considered when participants in the program are not a random or representative sample of the people who may benefit from program; namely, selection, mortality, and regression (Posavac & Carey, 1985).

Selection for participation in this study was voluntary. The differences between nurses who decided to participate and those who did not may have influenced the outcomes. The process of self-selection may have meant that the participants were more motivated when they began the program and therefore skewed the results. The post-test outcomes are then based on those individuals who chose to complete the program. The pre-test/post-test approach to evaluation is much stronger for controlling the unwanted effects of self-selection (Posavac & Carey, 1985). By measuring the degree of change in participants, the ability of the orientee is supported by the amount of change which occurred from program start to finish.

The 34% of the orientees who dropped out of the study after the pre-test represents another threat to the validity of the study. Campbell and Stanley (1963) define this problem as mortality. Posavac and Carey (1985) suggest that the level of achievement observed at the end of the program may be the result of various factors: how well the program functioned, how good the people were when they started, or how motivated the people were who stayed until the end. As a general rule, those who stay are more prepared for the program than those who dropped

out. The level of the outcomes may have changed if the missing group of orientees remained in the study. The evaluator was unable to determine why this group of orientees decided to drop out of the study. However, an effort was made to keep them in the study via follow-up phone calls and second mailings.

Regression to the mean warns that whenever a performance level is extreme, the next performance is likely to be less extreme and closer to the average. This threat does not necessarily operate in a pre-test/post-test design, but often does. The significant difference in pre-test to post-test scores may have attributed to this phenomena, especially when the pre-test identified marked deficiencies in the sample in terms of knowledge and skills.

Methods of Obtaining Observations. Campbell and Stanley (1963) present two additional threats that can make interpretation of outcome evaluations problematic; namely, testing and instrumentation. Both threats are generated by the evaluator. The effect of testing refers to changes in behavior due to the observation techniques. Pre-testing the orientees increases the familiarity with the methods for evaluating the desired outcomes. The orientees can key into the knowledge, skills, and goals of the program evaluation, and present themselves better on the post-test. Actually, this is a basic principle of management by objective and a desired effect for the nursing administrator. A second aspect of the effect of testing is reactivity. People react differently when they know someone is recording their behavior, opinions, or feelings. The pre-test/post-test design is weak in the control of testing effect. The direction of change that should be expected due to

repeated testing does not seem clear except for ability and achievement tests, on which improvement is usually expected.

Instrumentation refers to the evaluator's potential to change the standards over time for grading outcomes. This threat was partially controlled by the use of likert-type scales and more objective criteria.

The last threat is that of statistical computation of change scores. Posavac and Carey (1985) suggest the correct statistical test for the one-group pre-test/post-test evaluation design using continuous variables is the correlated-groups t-test. With more than one dependent variable, repeated measures ANOVA is suggested by Burckhardt, Goodwin, and Prescott (1982). This threat was controlled by using paired t-tests for correlated samples and multivariate analysis of variance for the repeated measures on subscales as suggested by the statisticians. The Sheffe' post-hoc comparison procedure was also conducted to determine which subscales means were significantly different. Therefore, this validity threat did not exist in this study.

One last limitation of this study is the restricted generalization of specific outcome findings to other critical care orientation programs. This study evaluated the bimodal critical care orientation program at one hospital. Yet the importance of this study was to demonstrate a systematic approach to solving the problem of quantifying orientee outcomes following an orientation program and to emphasize the importance of determining levels of nursing practice. The ability to go beyond the specifics of this situation and examine the relationships identified in this study by scientific methodology provides new information to nursing administrators to make decisions about the

direction and process of critical care orientation programs.

The overall population in general of critical care orientees is not much different than the demographics of the sample used in this study. The change in nursing practice to employ non-experienced nurses in critical care specialty units is well documented. The lack of critical care knowledge and skills required for a novice level of practice is a problem that all nursing administrators must address when employing these neophytes.

The critical care knowledge and skills required for safe care in this sample is similar for the population of all critical care nurses. Toth and Ritchey (1983) documented the knowledge required of all novice critical care nurses; a review of current texts of critical care skills is similar to the ones identified in this study. Certainly, the goal to provide competent care to the critically ill is generalized to the population of nursing administrators, educators, and critical care nurses.

### Implications for Nursing Practice

Recommendations such as those generated by this study will assist nursing administrators to provide effective, relevant, individualized, and cost-effective orientation programs for orientees. This research-based information indicates that successful orientation programs, ones that result in greater than standard outcomes for the orientees are multifaceted. Each experience and interaction within the critical care orientation program influence the orientee's ability to become a competent critical care staff nurse. Therefore, special attention to

the development of each component of the orientation process is needed to assure positive outcomes in the role identity and role transition of the critical care staff nurse.

### Competency

This study has demonstrated that continuing education beyond basic nursing preparation is required and necessary for nurses to practice competently in specialty care units. Prior nursing experience enhanced the ability of a nurse to attain the goals of orientation but did not provide the exposure to the knowledge and skills of critical care nursing. Although critical care nursing content and practicum are offered in some basic nursing education programs, additional orientation and education is provided by employing institutions and mandated by accrediting bodies. Faced with the challenge to prepare and maintain clinically competent staff, nursing administrators can implement such critical care orientation programs and utilize tools as developed in this study to measure critical care nurse competence.

This study also suggests that some orientees are not able to function independently in the staff nurse role immediately after orientation. It is important to the retention of the nurse and safe nursing practice to develop a program to extend the period of clinical supervision for the orientee to pass from neophyte to a competent beginning practitioner. The example provided of determining competency-based levels of nursing practice will assist nursing administrators to evaluate the functional level of a nurse and guide the manager in planning continuing education for critical staff nurse.



## Evaluation

The process of evaluating nursing practice is necessary to improve the quality of services offered. Evaluation methodology enables nurse administrators to identify the strengths and weaknesses of a program and to plan change based on valid indicators. This study developed a methodology to evaluate the interaction of various components of the orientation process and its effect on the outcomes of the orientee. This methodology can be used by nursing administrators to evaluate other critical care orientation programs. The methodology can also be used to measure the effect on the outcomes of an orientee by changing one of the components of the program. The manipulation of various components of the orientation program will identify which components of orientation are most important to the success of developing competent critical care staff nurses.

## Summary

Orientation of critical care nursing staff to a clinical unit is not only the responsibility of the nursing administrators and staff development educators. Unit staff nurses must be involved in the process of orientation, not only as preceptors and role models, but as monitors of quality patient care.

With the use of program evaluation outcomes, nursing administrators, staff development educators, clinical specialists, preceptors and orientees can act and interact with the orientation process. This assembly of working together can maximize the orientation experience and assure competent nursing practice, quality patient care, and nursing job satisfaction.

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## VITA

The author, Mary Frances Wisniewski, is the daughter of Henry Christopher and Hazel Schultz. She was born August 13, 1953, in Blue Island, Illinois.

Her elementary education was obtained in the public schools of Palos Heights, Illinois. Her secondary education was completed in 1971 at H.L. Richards High School, Oak Lawn, Illinois.

In September, 1976, Ms. Wisniewski entered South Chicago Hospital School of Nursing and received a diploma in nursing in June, 1978. In September, 1980, she entered Lewis University and received a degree of Bachelor of Science in Nursing in December, 1983.

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APPENDIX A  
SAMPLE QUESTIONS FROM  
BASIC KNOWLEDGE ASSESSMENT TOOL (BKA)  
IN CRITICAL CARE NURSING  
Version Three

The classical ECG change in myocardial infarction is a:

- 1) normal Q wave
- 2) ST segment elevation
- 3) prolonged Q-T duration
- 4) prolonged P-R interval

The major therapeutic goal in the treatment of cardiogenic shock is to:

- 1) increase afterload
- 2) lower the BUN
- 3) increase cardiac output
- 4) decrease extracellular fluid volume

Mr. Hart is 2 days post MI. During his first time getting out of bed his pulse increases from 86/min to 96/min. Based on this response the nurse should:

- 1) ask him to slow his pace
- 2) allow him to continue as this is an appropriate cardiac response
- 3) have him lie down immediately
- 4) check his vital signs and question him about chest pain

The use of an arterial line would be indicated for all of the following conditions EXCEPT:

- 1) shock with blood pressure too low to be determined by cuff
- 2) patients being treated with IV nitroprusside
- 3) mechanical ventilation requiring frequent arterial blood gases
- 4) for IV administration of drugs

After an arterial catheter is removed, direct pressure should generally be applied to the artery:

- 1) for a full minute
- 2) for 5 to 10 minutes
- 3) until no blood oozes from the puncture site
- 4) until a pressure dressing is applied

A QRS complex wider than 0.12 seconds most likely indicates:

- 1) normal ventricular conduction
- 2) bundle branch block
- 3) second degree heart block
- 4) myocardial infarction

A patient becomes apneic and pulseless. The monitor shows asystole. The drug that would most likely be used initially is:

- 1) calcium gluconate
- 2) atropine
- 3) epinephrine
- 4) lidocaine

Mr. Gee has an endotracheal tube. While you are making rounds, you ask if his breathing is okay. In an audible tone, he says "yes". You should first:

- 1) suction the patient
- 2) add air to the cuff
- 3) notify the doctor immediately
- 4) check for minimal leak

Before suctioning a patient, you adjust the vacuum pressure so that it is:

- 1) 120 mm Hg of vacuum
- 2) as high as necessary
- 3) 40 mm Hg of vacuum
- 4) 10 mm Hg below the systolic blood pressure

Increased intracranial pressure is also characterized by all of the following EXCEPT:

- 1) decrease in briskness of pupillary reaction
- 2) increase in blood pressure
- 3) decrease in pulse pressure
- 4) decrease in level of consciousness

In a patient with a cervical spine injury, the most important observations the nurse makes deal with which body system?

- 1) cardiovascular
- 2) respiratory
- 3) renal
- 4) gastrointestinal

Signs and symptoms of diabetic ketoacidosis include:

- 1) dry warm skin, fruity breath, deep and rapid breathing
- 2) vomiting, hyperactivity, diaphoresis
- 3) thirst, hypotension, fruity odor to breath
- 4) weakness, headache, diaphoresis

Signs and symptoms of thyroid storm (crisis) include:

- 1) coma, hypothermia, respiratory acidosis
- 2) bradycardia, depression, respiratory failure
- 3) elevated temperature, tachycardia, delirium
- 4) hypotension, edema, low urine output



A patient is admitted with a diagnosis of acute renal failure. The minimal acceptable urinary output per hour is:

- 1) 60 cc
- 2) 45 cc
- 3) 30 cc
- 4) 10 cc

Sudden development of dyspnea, sinus tachycardia, and rales in an acute renal failure patient would most likely indicate which of the following?

- 1) fluid overload
- 2) infection
- 3) hyperkalemia
- 4) pericarditis

When feeding a patient using continuous tube feedings, the most important intervention in preventing aspiration is to:

- 1) keep the head of the bed elevated
- 2) do frequent chest PT
- 3) check the position of the feeding tube q4h
- 4) aspirate stomach contents q4h

Acute gastrointestinal bleeding in critically ill patients may occur as a result of:

- 1) being NPO
- 2) the body's response to stressors
- 3) decreased gastric motility
- 4) alteration in eating patterns

Dilantin will crystalize when given IV in all of the following solutions EXCEPT:

- 1) dextrose 5% in water
- 2) dextrose in saline
- 3) normal saline
- 4) ringer's lactate

APPENDIX B  
CONTENT AREAS IN SUBSCALES

Subscale	Content Areas
Pulmonary	Respiratory failure Endotracheal tube Blood gas interpretation Chest physio-therapy Chest tube
Endocrine	Diabetes mellitus Diabetes insipidus Diabetic ketoacidosis Stress response Thyroid storm
Renal	Renal failure A-V shunts and dialysis
Neurology	Stroke Confusion Increased intra-cranial pressure Thermal regulation
Gastrointestinal	GI bleed Hepatitis Supplemental nutrition GI tubes
Cardiac	Coronary artery disease Myocardial infarction Cardiac surgery Pacemakers Intra-aortic balloon pumps Cardiac arrest and defibrillation
EKG	EKG monitoring and Interpretation
Medications	Indications and side effects Administration and drug calculation IV therapy
Monitoring	Arterial and pulmonary pressures
Role	Communication Patient care and nursing process Policy and procedures Technical equipment operation

APPENDIX C  
 MAJOR CRITICAL CARE NURSING  
 SKILLS CHECKLIST  
 ORIENTEE ASSESSMENT PRE-ORIENTATION

Please rate your level of ability to perform the critical care nursing skills listed below using the following rating scale:

- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

Please circle number of your choice.

1. Operate the bedside cardiac monitor

- a. connect and set functions of the EKG                    1 2 3 4 5 6
- b. connect, zero, and set alarm of pressure            1 2 3 4 5 6  
     module
- c. connect temperature probe                            1 2 3 4 5 6
- d. trouble-shoot malfunction of monitor                1 2 3 4 5 6

2. Arterial blood pressure monitoring

- a. assemble equipment                                    1 2 3 4 5 6
- b. connect arterial pressure line to                    1 2 3 4 5 6  
     arterial catheter
- c. draw lab specimen                                      1 2 3 4 5 6
- d. clear line by flushing transducer                    1 2 3 4 5 6
- e. change dressing                                        1 2 3 4 5 6
- f. trouble-shoot malfunction                            1 2 3 4 5 6
- g. date and time tubing                                  1 2 3 4 5 6

- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

### 3. Pulmonary artery pressure monitoring

- |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| a. assemble equipment                       | 1 | 2 | 3 | 4 | 5 | 6 |
| b. connect Swan Ganz to pressure tubing     | 1 | 2 | 3 | 4 | 5 | 6 |
| c. draw mixed venous blood specimen         | 1 | 2 | 3 | 4 | 5 | 6 |
| d. inflate balloon to obtain wedge pressure | 1 | 2 | 3 | 4 | 5 | 6 |
| e. maintain patency of lines                | 1 | 2 | 3 | 4 | 5 | 6 |
| f. clear line by flushing transducer        | 1 | 2 | 3 | 4 | 5 | 6 |
| g. trouble-shoot malfunction                | 1 | 2 | 3 | 4 | 5 | 6 |
| h. date and time tubing                     | 1 | 2 | 3 | 4 | 5 | 6 |

### 4. Care for mechanically ventilated patient

- |                                      |   |   |   |   |   |   |
|--------------------------------------|---|---|---|---|---|---|
| a. suction endotracheal tube         | 1 | 2 | 3 | 4 | 5 | 6 |
| b. manually ventilate with ambu bag  | 1 | 2 | 3 | 4 | 5 | 6 |
| c. read setting on ventilator        | 1 | 2 | 3 | 4 | 5 | 6 |
| d. trouble-shoot alarms              | 1 | 2 | 3 | 4 | 5 | 6 |
| e. secure endotracheal tube position | 1 | 2 | 3 | 4 | 5 | 6 |
| f. restrain limbs                    | 1 | 2 | 3 | 4 | 5 | 6 |

- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

5. Care for patient with chest tubes

- |    |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|
| a. | strip or milk chest tube                  | 1 | 2 | 3 | 4 | 5 | 6 |
| b. | read level of fluid in collection chamber | 1 | 2 | 3 | 4 | 5 | 6 |
| c. | read system for air leak                  | 1 | 2 | 3 | 4 | 5 | 6 |
| d. | eliminate excess pressure                 | 1 | 2 | 3 | 4 | 5 | 6 |
| e. | fill water-seal chamber with water        | 1 | 2 | 3 | 4 | 5 | 6 |
| f. | change dressing                           | 1 | 2 | 3 | 4 | 5 | 6 |

6. Care for patient with intra-aortic balloon pump

- |    |                                  |   |   |   |   |   |   |
|----|----------------------------------|---|---|---|---|---|---|
| a. | assess arterial pulses           | 1 | 2 | 3 | 4 | 5 | 6 |
| b. | time inflation/deflation         | 1 | 2 | 3 | 4 | 5 | 6 |
| c. | change dressing                  | 1 | 2 | 3 | 4 | 5 | 6 |
| d. | trouble-shoot alarm malfunction  | 1 | 2 | 3 | 4 | 5 | 6 |
| e. | maintain balloon pump and tubing | 1 | 2 | 3 | 4 | 5 | 6 |

7. Care for patient with temporary pacemaker

- |    |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|
| a. | connect epicardial wires to pulse generator | 1 | 2 | 3 | 4 | 5 | 6 |
| b. | read settings on pulse generator            | 1 | 2 | 3 | 4 | 5 | 6 |
| c. | turn pulse generator on or off              | 1 | 2 | 3 | 4 | 5 | 6 |
| d. | ground epicardial wires and generator       | 1 | 2 | 3 | 4 | 5 | 6 |
| e. | ground disconnected epicardial wires        | 1 | 2 | 3 | 4 | 5 | 6 |

- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

- 8. Care for patient with intra-cranial pressure monitor
  - a. assemble equipment 1 2 3 4 5 6
  - b. drain cerebral spinal fluid 1 2 3 4 5 6
  - c. maintain patency of line 1 2 3 4 5 6
  - d. trouble-shoot malfunction 1 2 3 4 5 6
  
- 9. Obtain 12-lead EKG
  - a. place leads 1 2 3 4 5 6
  - b. record tracing 1 2 3 4 5 6
  
- 10. Defibrillate a patient
  - a. turn machine on 1 2 3 4 5 6
  - b. select amount of energy required 1 2 3 4 5 6
  - c. charge paddles 1 2 3 4 5 6
  - d. apply conductive pads 1 2 3 4 5 6
  - e. discharge energy 1 2 3 4 5 6
  
- 11. Administer medications
  - a. prepare IV piggy back drug 1 2 3 4 5 6
  - b. draw up correct drug and dose 1 2 3 4 5 6
  - c. titrate drug dosage to pressure parameter 1 2 3 4 5 6

- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

12. Care for patient in cardiac arrest

- |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| a. perform compressions                       | 1 | 2 | 3 | 4 | 5 | 6 |
| b. ventilate with ambu bag using face adapter | 1 | 2 | 3 | 4 | 5 | 6 |
| c. prepare drugs for administration           | 1 | 2 | 3 | 4 | 5 | 6 |
| d. record events                              | 1 | 2 | 3 | 4 | 5 | 6 |

13. Start IV catheter

- |                              |   |   |   |   |   |   |
|------------------------------|---|---|---|---|---|---|
| a. assemble equipment        | 1 | 2 | 3 | 4 | 5 | 6 |
| b. prepare site              | 1 | 2 | 3 | 4 | 5 | 6 |
| c. insert catheter into vein | 1 | 2 | 3 | 4 | 5 | 6 |
| d. connect IV fluid          | 1 | 2 | 3 | 4 | 5 | 6 |
| e. maintain patency          | 1 | 2 | 3 | 4 | 5 | 6 |
| f. dress site                | 1 | 2 | 3 | 4 | 5 | 6 |

APPENDIX D  
 MAJOR CRITICAL CARE NURSING  
 SKILLS CHECKLIST  
 ORIENTEE ASSESSMENT POST-ORIENTATION

Please rate your level of ability to perform the critical care nursing skills listed below using the following rating scale:

- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

Please circle number of your choice.

1. Operate the bedside cardiac monitor
  - a. connect and set functions of the EKG                    1 2 3 4 5 6
  - b. connect, zero, and set alarm of pressure module            1 2 3 4 5 6
  - c. connect temperature probe                                    1 2 3 4 5 6
  - d. trouble-shoot malfunction of monitor                        1 2 3 4 5 6
  
2. Arterial blood pressure monitoring
  - a. assemble equipment    1 2 3 4 5 6
  - b. connect arterial pressure line to arterial catheter            1 2 3 4 5 6
  - c. draw lab specimen    1 2 3 4 5 6
  - d. clear line by flushing transducer                            1 2 3 4 5 6
  - e. change dressing    1 2 3 4 5 6
  - f. trouble-shoot malfunction                                        1 2 3 4 5 6
  - g. date and time tubing    1 2 3 4 5 6



- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

### 3. Pulmonary artery pressure monitoring

- |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| a. assemble equipment                       | 1 | 2 | 3 | 4 | 5 | 6 |
| b. connect Swan Ganz to pressure tubing     | 1 | 2 | 3 | 4 | 5 | 6 |
| c. draw mixed venous blood specimen         | 1 | 2 | 3 | 4 | 5 | 6 |
| d. inflate balloon to obtain wedge pressure | 1 | 2 | 3 | 4 | 5 | 6 |
| e. maintain patency of lines                | 1 | 2 | 3 | 4 | 5 | 6 |
| f. clear line by flushing transducer        | 1 | 2 | 3 | 4 | 5 | 6 |
| g. trouble-shoot malfunction                | 1 | 2 | 3 | 4 | 5 | 6 |
| h. date and time tubing                     | 1 | 2 | 3 | 4 | 5 | 6 |

### 4. Care for mechanically ventilated patient

- |                                      |   |   |   |   |   |   |
|--------------------------------------|---|---|---|---|---|---|
| a. suction endotracheal tube         | 1 | 2 | 3 | 4 | 5 | 6 |
| b. manually ventilate with ambu bag  | 1 | 2 | 3 | 4 | 5 | 6 |
| c. read setting on ventilator        | 1 | 2 | 3 | 4 | 5 | 6 |
| d. trouble-shoot alarms              | 1 | 2 | 3 | 4 | 5 | 6 |
| e. secure endotracheal tube position | 1 | 2 | 3 | 4 | 5 | 6 |
| f. restrain limbs                    | 1 | 2 | 3 | 4 | 5 | 6 |

- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

5. Care for patient with chest tubes

- |    |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|
| a. | strip or milk chest tube                  | 1 | 2 | 3 | 4 | 5 | 6 |
| b. | read level of fluid in collection chamber | 1 | 2 | 3 | 4 | 5 | 6 |
| c. | read system for air leak                  | 1 | 2 | 3 | 4 | 5 | 6 |
| d. | eliminate excess pressure                 | 1 | 2 | 3 | 4 | 5 | 6 |
| e. | fill water-seal chamber with water        | 1 | 2 | 3 | 4 | 5 | 6 |
| f. | change dressing                           | 1 | 2 | 3 | 4 | 5 | 6 |

6. Care for patient with intra-aortic balloon pump

- |    |                                  |   |   |   |   |   |   |
|----|----------------------------------|---|---|---|---|---|---|
| a. | assess arterial pulses           | 1 | 2 | 3 | 4 | 5 | 6 |
| b. | time inflation/deflation         | 1 | 2 | 3 | 4 | 5 | 6 |
| c. | change dressing                  | 1 | 2 | 3 | 4 | 5 | 6 |
| d. | trouble-shoot alarm malfunction  | 1 | 2 | 3 | 4 | 5 | 6 |
| e. | maintain balloon pump and tubing | 1 | 2 | 3 | 4 | 5 | 6 |

7. Care for patient with temporary pacemaker

- |    |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|
| a. | connect epicardial wires to pulse generator | 1 | 2 | 3 | 4 | 5 | 6 |
| b. | read settings on pulse generator            | 1 | 2 | 3 | 4 | 5 | 6 |
| c. | turn pulse generator on or off              | 1 | 2 | 3 | 4 | 5 | 6 |
| d. | ground epicardial wires and generator       | 1 | 2 | 3 | 4 | 5 | 6 |
| e. | ground disconnected epicardial wires        | 1 | 2 | 3 | 4 | 5 | 6 |

- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

8. Care for patient with intra-cranial pressure monitor
  - a. assemble equipment 1 2 3 4 5 6
  - b. drain cerebral spinal fluid 1 2 3 4 5 6
  - c. maintain patency of line 1 2 3 4 5 6
  - d. trouble-shoot malfunction 1 2 3 4 5 6
  
9. Obtain 12-lead EKG
  - a. place leads 1 2 3 4 5 6
  - b. record tracing 1 2 3 4 5 6
  
10. Defibrillate a patient
  - a. turn machine on 1 2 3 4 5 6
  - b. select amount of energy required 1 2 3 4 5 6
  - c. charge paddles 1 2 3 4 5 6
  - d. apply conductive pads 1 2 3 4 5 6
  - e. discharge energy 1 2 3 4 5 6
  
11. Administer medications
  - a. prepare IV piggy back drug 1 2 3 4 5 6
  - b. draw up correct drug and dose 1 2 3 4 5 6
  - c. titrate drug dosage to pressure parameter 1 2 3 4 5 6

- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

12. Care for patient in cardiac arrest

- |    |  |   |   |   |   |   |   |
|----|--|---|---|---|---|---|---|
| a. | perform compressions                       | 1 | 2 | 3 | 4 | 5 | 6 |
| b. | ventilate with ambu bag using face adapter | 1 | 2 | 3 | 4 | 5 | 6 |
| c. | prepare drugs for administration           | 1 | 2 | 3 | 4 | 5 | 6 |
| d. | record events                              | 1 | 2 | 3 | 4 | 5 | 6 |

13. Start IV catheter

- |    |                            |   |   |   |   |   |   |
|----|----------------------------|---|---|---|---|---|---|
| a. | assemble equipment         | 1 | 2 | 3 | 4 | 5 | 6 |
| b. | prepare site               | 1 | 2 | 3 | 4 | 5 | 6 |
| c. | inserts catheter into vein | 1 | 2 | 3 | 4 | 5 | 6 |
| d. | connects IV fluid          | 1 | 2 | 3 | 4 | 5 | 6 |
| e. | maintain patency           | 1 | 2 | 3 | 4 | 5 | 6 |
| f. | dress site                 | 1 | 2 | 3 | 4 | 5 | 6 |

APPENDIX E  
 MAJOR CRITICAL CARE NURSING  
 SKILLS CHECKLIST  
 PRECEPTOR ASSESSMENT POST-ORIENTATION

Please rate your orientee's level of ability to perform the critical care nursing skills listed below using the following rating scale:

- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

Please circle number of your choice.

1. Operate the bedside cardiac monitor
  - a. connect and set functions of the EKG                    1 2 3 4 5 6
  - b. connect, zero, and set alarm of pressure module        1 2 3 4 5 6
  - c. connect temperature probe                                1 2 3 4 5 6
  - d. trouble-shoot malfunction of monitor                    1 2 3 4 5 6
  
2. Arterial blood pressure monitoring
  - a. assemble equipment                                        1 2 3 4 5 6
  - b. connect arterial pressure line to arterial catheter        1 2 3 4 5 6
  - c. draw lab specimen    1 2 3 4 5 6
  - d. clear line by flushing transducer                        1 2 3 4 5 6
  - e. change dressing    1 2 3 4 5 6
  - f. trouble-shoot malfunction                                  1 2 3 4 5 6
  - g. date and time tubing                                        1 2 3 4 5 6

- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

### 3. Pulmonary artery pressure monitoring

- |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| a. assemble equipment                       | 1 | 2 | 3 | 4 | 5 | 6 |
| b. connect Swan Ganz to pressure tubing     | 1 | 2 | 3 | 4 | 5 | 6 |
| c. draw mixed venous blood specimen         | 1 | 2 | 3 | 4 | 5 | 6 |
| d. inflate balloon to obtain wedge pressure | 1 | 2 | 3 | 4 | 5 | 6 |
| e. maintain patency of lines                | 1 | 2 | 3 | 4 | 5 | 6 |
| f. clear line by flushing transducer        | 1 | 2 | 3 | 4 | 5 | 6 |
| g. trouble-shoot malfunction                | 1 | 2 | 3 | 4 | 5 | 6 |
| h. date and time tubing                     | 1 | 2 | 3 | 4 | 5 | 6 |

### 4. Care for mechanically ventilated patient

- |                                      |   |   |   |   |   |   |
|--------------------------------------|---|---|---|---|---|---|
| a. suction endotracheal tube         | 1 | 2 | 3 | 4 | 5 | 6 |
| b. manually ventilate with ambu bag  | 1 | 2 | 3 | 4 | 5 | 6 |
| c. read setting on ventilator        | 1 | 2 | 3 | 4 | 5 | 6 |
| d. trouble-shoot alarms              | 1 | 2 | 3 | 4 | 5 | 6 |
| e. secure endotracheal tube position | 1 | 2 | 3 | 4 | 5 | 6 |
| f. restrain limbs                    | 1 | 2 | 3 | 4 | 5 | 6 |

- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

5. Care for patient with chest tubes

- |  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| a. strip or milk chest tube                  | 1 | 2 | 3 | 4 | 5 | 6 |
| b. read level of fluid in collection chamber | 1 | 2 | 3 | 4 | 5 | 6 |
| c. read system for air leak                  | 1 | 2 | 3 | 4 | 5 | 6 |
| d. eliminate excess pressure                 | 1 | 2 | 3 | 4 | 5 | 6 |
| e. fill water-seal chamber with water        | 1 | 2 | 3 | 4 | 5 | 6 |
| f. change dressing                           | 1 | 2 | 3 | 4 | 5 | 6 |

6. Care for patient with intra-aortic balloon pump

- |                                     |   |   |   |   |   |   |
|-------------------------------------|---|---|---|---|---|---|
| a. assess arterial pulses           | 1 | 2 | 3 | 4 | 5 | 6 |
| b. time inflation/deflation         | 1 | 2 | 3 | 4 | 5 | 6 |
| c. change dressing                  | 1 | 2 | 3 | 4 | 5 | 6 |
| d. trouble-shoot alarm malfunction  | 1 | 2 | 3 | 4 | 5 | 6 |
| e. maintain balloon pump and tubing | 1 | 2 | 3 | 4 | 5 | 6 |

7. Care for patient with temporary pacemaker

- |  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| a. connect epicardial wires to pulse generator | 1 | 2 | 3 | 4 | 5 | 6 |
| b. read settings on pulse generator            | 1 | 2 | 3 | 4 | 5 | 6 |
| c. turn pulse generator on or off              | 1 | 2 | 3 | 4 | 5 | 6 |
| d. ground epicardial wires and generator       | 1 | 2 | 3 | 4 | 5 | 6 |
| e. ground disconnected epicardial wires        | 1 | 2 | 3 | 4 | 5 | 6 |

- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

8. Care for patient with intra-cranial pressure monitor

- a. assemble equipment 1 2 3 4 5 6
- b. drain cerebral spinal fluid 1 2 3 4 5 6
- c. maintain patency of line 1 2 3 4 5 6
- d. trouble-shoot malfunction 1 2 3 4 5 6

9. Obtain 12-lead EKG

- a. place leads 1 2 3 4 5 6
- b. record tracing 1 2 3 4 5 6

10. Defibrillate a patient

- a. turn machine on 1 2 3 4 5 6
- b. select amount of energy required 1 2 3 4 5 6
- c. charge paddles 1 2 3 4 5 6
- d. apply conductive pads 1 2 3 4 5 6
- e. discharge energy 1 2 3 4 5 6

11. Administer medications

- a. prepare IV piggy back drug 1 2 3 4 5 6
- b. draw up correct drug and dose 1 2 3 4 5 6
- c. titrate drug dosage to pressure parameter 1 2 3 4 5 6



- 1 = Have never done
- 2 = Can only do with maximal help
- 3 = Can do with moderate help
- 4 = Can do with minimal help
- 5 = Can do fairly well without any help
- 6 = Can do very well without any help

12. Care for patient in cardiac arrest

- |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| a. perform compressions                       | 1 | 2 | 3 | 4 | 5 | 6 |
| b. ventilate with ambu bag using face adapter | 1 | 2 | 3 | 4 | 5 | 6 |
| c. prepare drugs for administration           | 1 | 2 | 3 | 4 | 5 | 6 |
| d. record events                              | 1 | 2 | 3 | 4 | 5 | 6 |

13. Start IV catheter

- |                               |   |   |   |   |   |   |
|-------------------------------|---|---|---|---|---|---|
| a. assemble equipment         | 1 | 2 | 3 | 4 | 5 | 6 |
| b. prepare site               | 1 | 2 | 3 | 4 | 5 | 6 |
| c. inserts catheter into vein | 1 | 2 | 3 | 4 | 5 | 6 |
| d. connects IV fluid          | 1 | 2 | 3 | 4 | 5 | 6 |
| e. maintain patency           | 1 | 2 | 3 | 4 | 5 | 6 |
| f. dress site                 | 1 | 2 | 3 | 4 | 5 | 6 |

## APPENDIX F

### GOAL IMPORTANCE SCALE

#### CRITICAL CARE NURSING ORIENTATION PROGRAM

#### ORIENTEE ASSESSMENT BEFORE ORIENTATION

Please rate how important attaining the following goals are to you upon completion of the Critical Care Nursing Orientation Program using the following rating scale:

- 5 = Exceedingly important
- 4 = Very important
- 3 = Moderately important
- 2 = Slightly important
- 1 = Not very important

Please circle number of your choice.

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1. Perform competently in fulfilling the role expectations for surgical intensive care nursing.   | 1 | 2 | 3 | 4 | 5 |
| 2. Locate, comprehend, and utilize hospital policies and procedures for delivery of patient care.   | 1 | 2 | 3 | 4 | 5 |
| 3. Show initiative and independence in identifying and meeting learning needs.  | 1 | 2 | 3 | 4 | 5 |
| 4. Become integrated into the staff on the unit.  | 1 | 2 | 3 | 4 | 5 |
| 5. Develop organizational skills necessary for the delivery of safe patient care.   | 1 | 2 | 3 | 4 | 5 |
| 6. Communicate effectively with various departments and personnel involved in the delivery of patient care.   | 1 | 2 | 3 | 4 | 5 |
| 7. Know what physician to call for what problem and how to reach him/her.   | 1 | 2 | 3 | 4 | 5 |
| 8. Be able to page and/or call perfusionist, respiratory therapist, blood gas tech, laboratory dietary, housekeeping, biomedical, blood bank, or maintenance. | 1 | 2 | 3 | 4 | 5 |
| 9. Recognize emergency situations.  | 1 | 2 | 3 | 4 | 5 |

- 5 = Exceedingly important  
 4 = Very important  
 3 = Moderately important  
 2 = Slightly important  
 1 = Not very important

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 10. Page a Dr. Cart and use emergency code blue button.   | 1 | 2 | 3 | 4 | 5 |
| 11. Safely operate the defibrillator.   | 1 | 2 | 3 | 4 | 5 |
| 12. Demonstrate communication skills by being able to give a report of all pertinent information to physician, designate, or oncoming nurse in a concise and accurate manner. | 1 | 2 | 3 | 4 | 5 |
| 13. Become familiar with all standing orders of post-op CV and transplant patients.   | 1 | 2 | 3 | 4 | 5 |
| 14. Develop a working knowledge of all hospital chart forms, flow sheets, and lab requisitions.   | 1 | 2 | 3 | 4 | 5 |
| 15. Verbalize knowledge of anatomy and physiology integrating behavioral and pathophysiological concepts of human responses to illness.                                       | 1 | 2 | 3 | 4 | 5 |
| 16. Demonstrate the ability to deliver patient care required on each shift.   | 1 | 2 | 3 | 4 | 5 |
| 17. Demonstrate the ability to obtain past medical history including cardiac catheter results, previous hospitalizations, risk factors, medications, and allergies.           | 1 | 2 | 3 | 4 | 5 |
| 18. Demonstrate the ability to document past medical history including cardiac catheter results, previous hospitalizations, risk factors, medications, and allergies.         | 1 | 2 | 3 | 4 | 5 |
| 19. Verbalize understanding of mechanical ventilation.  | 1 | 2 | 3 | 4 | 5 |
| 20. Correctly interpret blood gas values.   | 1 | 2 | 3 | 4 | 5 |
| 21. Begin to identify various means to correct abnormalities in blood gas values.   | 1 | 2 | 3 | 4 | 5 |
| 22. Express knowledge of commonly used drugs in   | 1 | 2 | 3 | 4 | 5 |

- 5 = Exceedingly important  
 4 = Very important  
 3 = Moderately important  
 2 = Slightly important  
 1 = Not very important

the intensive care setting.

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 23. Demonstrate correct administration of commonly used drugs in the intensive care setting.                     | 1 | 2 | 3 | 4 | 5 |
| 24. Demonstrate the ability to interpret an EKG and recognize rhythm changes which occur.                        | 1 | 2 | 3 | 4 | 5 |
| 25. Demonstrate the ability to document an EKG.  | 1 | 2 | 3 | 4 | 5 |
| 26. Demonstrate the ability to recognize early signs and symptoms of complications following open heart surgery. | 1 | 2 | 3 | 4 | 5 |
| 27. Identify appropriate interventions for complications following open heart surgery.                           | 1 | 2 | 3 | 4 | 5 |
| 28. Demonstrate the ability to connect temporary pacemaker.  | 1 | 2 | 3 | 4 | 5 |
| 29. Interpret the various hemodynamic variables used to assess patients.   | 1 | 2 | 3 | 4 | 5 |
| 30. Identify appropriate interventions for treatment of the abnormal hemodynamic variables.                      | 1 | 2 | 3 | 4 | 5 |
| 31. Demonstrate the ability to perform a complete patient assessment.  | 1 | 2 | 3 | 4 | 5 |
| 32. Demonstrate the ability to document a complete patient assessment.   | 1 | 2 | 3 | 4 | 5 |

- 5 = Exceedingly important  
 4 = Very important  
 3 = Moderately important  
 2 = Slightly important  
 1 = Not very important

33. Demonstrate the ability to operate and troubleshoot the following equipment used in patient care delivery.
- |                                   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|
| a. IMED                           | 1 | 2 | 3 | 4 | 5 |
| b. chest tube drainage system     | 1 | 2 | 3 | 4 | 5 |
| c. EKG monitor and strip recorder | 1 | 2 | 3 | 4 | 5 |
| d. pressure monitors              | 1 | 2 | 3 | 4 | 5 |
| e. IABP                           | 1 | 2 | 3 | 4 | 5 |
| f. hyper/hypothermia devices      | 1 | 2 | 3 | 4 | 5 |
| g. portable monitors              | 1 | 2 | 3 | 4 | 5 |
| h. Swan-Ganz catheters            | 1 | 2 | 3 | 4 | 5 |
| i. feeding pump                   | 1 | 2 | 3 | 4 | 5 |
| j. Kinair bed                     | 1 | 2 | 3 | 4 | 5 |
| k. bed scale                      | 1 | 2 | 3 | 4 | 5 |
34. Verbalize knowledge of normal and abnormal values of chemistry, hematology and coagulation studies. 1 2 3 4 5
35. Identify appropriate treatments utilizing drugs and blood products to normalize abnormal lab values. 1 2 3 4 5
36. Demonstrate the ability to admit patients into the critical care unit. 1 2 3 4 5
37. Demonstrate the ability to transfer patients out of the critical care unit. 1 2 3 4 5

- 5 = Exceedingly important
- 4 = Very important
- 3 = Moderately important
- 2 = Slightly important
- 1 = Not very important

38. On the reverse side, Please identify any other goals you may have for yourself during your critical care orientation program.      1   2   3   4   5

THANK YOU FOR YOUR TIME !!!!!!!

APPENDIX G

GOAL ATTAINMENT SCALE

CRITICAL CARE NURSING ORIENTATION PROGRAM

ORIENTEE ASSESSMENT AFTER ORIENTATION

Please rate your level of attainment of the following goals upon completion of the Critical Care Nursing Orientation Program using the following rating scale:

- 5 = Outstanding level of attainment
- 4 = Very good level of attainment
- 3 = Adequate level of attainment
- 2 = Fair level of attainment
- 1 = Poor level of attainment

Please circle number of your choice.

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1. Perform competently in fulfilling the role expectations for surgical intensive care nursing  | 1 | 2 | 3 | 4 | 5 |
| 2. Locate, comprehend, and utilize hospital policies and procedures for delivery of patient care  | 1 | 2 | 3 | 4 | 5 |
| 3. Show initiative and independence in identifying and meeting learning needs   | 1 | 2 | 3 | 4 | 5 |
| 4. Become integrated into the staff on the unit   | 1 | 2 | 3 | 4 | 5 |
| 5. Develop organizational skills necessary for the delivery of safe patient care  | 1 | 2 | 3 | 4 | 5 |
| 6. Utilize and communicate effectively with various departments and personnel involved in the delivery of patient care  | 1 | 2 | 3 | 4 | 5 |
| 7. Know what physician to call for what problem and how to reach him/her  | 1 | 2 | 3 | 4 | 5 |
| 8. Be able to page and/or call perfusionist, respiratory therapist, blood gas tech, laboratory, dietary, housekeeping, biomedical, blood bank, or maintenance | 1 | 2 | 3 | 4 | 5 |
| 9. Recognize emergency situations   | 1 | 2 | 3 | 4 | 5 |

- 5 = Outstanding level of attainment  
 4 = Very good level of attainment  
 3 = Adequate level of attainment  
 2 = Fair level of attainment  
 1 = Poor level of attainment

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 10. Page a Dr. Cart and use emergency code blue button   | 1 | 2 | 3 | 4 | 5 |
| 11. Safely operate the defibrillator   | 1 | 2 | 3 | 4 | 5 |
| 12. Demonstrate communication skills by being able to give a report of all pertinent information to physician, designate, or oncoming nurse in a concise and accurate manner | 1 | 2 | 3 | 4 | 5 |
| 13. Become familiar with all standing orders of post-op CV and transplant patients   | 1 | 2 | 3 | 4 | 5 |
| 14. Develop a working knowledge of all hospital chart forms, flow sheets, and lab requisitions   | 1 | 2 | 3 | 4 | 5 |
| 15. Verbalize knowledge of anatomy and physiology integrating behavioral and pathophysiological concepts of human responses to illness                                       | 1 | 2 | 3 | 4 | 5 |
| 16. Demonstrate the ability to deliver patient care required on each shift   | 1 | 2 | 3 | 4 | 5 |
| 17. Demonstrate the ability to obtain past medical history including cardiac catheter results, previous hospitalizations, risk factors, medications and allergies            | 1 | 2 | 3 | 4 | 5 |
| 18. Demonstrate the ability to document past medical history including cardiac catheter results, previous hospitalizations, risk factors medications, and allergies          | 1 | 2 | 3 | 4 | 5 |
| 19. Verbalize understanding of mechanical ventilation  | 1 | 2 | 3 | 4 | 5 |
| 20. Correctly interpret blood gas values   | 1 | 2 | 3 | 4 | 5 |
| 21. Begin to identify various means to correct abnormalities in blood gas values   | 1 | 2 | 3 | 4 | 5 |



- 5 = Outstanding level of attainment
- 4 = Very good level of attainment
- 3 = Adequate level of attainment
- 2 = Fair level of attainment
- 1 = Poor level of attainment

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 22. Express knowledge of commonly used drugs in the intensive care setting                                      | 1 | 2 | 3 | 4 | 5 |
| 23. Demonstrate correct administration of commonly used drugs in the intensive care setting                     | 1 | 2 | 3 | 4 | 5 |
| 24. Demonstrate the ability to interpret an EKG and recognize rhythm changes which occur                        | 1 | 2 | 3 | 4 | 5 |
| 25. Demonstrate the ability to document an EKG  | 1 | 2 | 3 | 4 | 5 |
| 26. Demonstrate the ability to recognize early signs and symptoms of complications following open heart surgery | 1 | 2 | 3 | 4 | 5 |
| 27. Identify appropriate interventions for complications following open heart surgery                           | 1 | 2 | 3 | 4 | 5 |
| 28. Demonstrate the ability to connect temporary pacemaker  | 1 | 2 | 3 | 4 | 5 |
| 29. Interpret the various hemodynamic variables used to assess patients   | 1 | 2 | 3 | 4 | 5 |
| 30. Identify appropriate interventions for treatment of the abnormal hemodynamic variables                      | 1 | 2 | 3 | 4 | 5 |
| 31. Demonstrate the ability to perform a complete patient assessment  | 1 | 2 | 3 | 4 | 5 |
| 32. Demonstrate the ability to document a complete patient assessment   | 1 | 2 | 3 | 4 | 5 |

- 5 = Outstanding level of attainment
- 4 = Very good level of attainment
- 3 = Adequate level of attainment
- 2 = Fair level of attainment
- 1 = Poor level of attainment

33. Demonstrate the ability to operate and troubleshoot the following equipment used in patient care delivery
- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| a. IMED   | 1 | 2 | 3 | 4 | 5 |
| b. chest tube drainage system   | 1 | 2 | 3 | 4 | 5 |
| c. EKG monitor and strip recorder   | 1 | 2 | 3 | 4 | 5 |
| d. pressure monitors  | 1 | 2 | 3 | 4 | 5 |
| e. IABP   | 1 | 2 | 3 | 4 | 5 |
| f. hyper/hypothermia devices  | 1 | 2 | 3 | 4 | 5 |
| g. portable monitors  | 1 | 2 | 3 | 4 | 5 |
| h. Swan-Ganz catheters  | 1 | 2 | 3 | 4 | 5 |
| i. feeding pump   | 1 | 2 | 3 | 4 | 5 |
| j. Kinair bed   | 1 | 2 | 3 | 4 | 5 |
| k. bed scale  | 1 | 2 | 3 | 4 | 5 |
| 34. Verbalize knowledge of normal and abnormal values of chemistry, hematology and coagulation studies  | 1 | 2 | 3 | 4 | 5 |
| 35. Identify appropriate treatments utilizing drugs and blood products to normalize abnormal lab values | 1 | 2 | 3 | 4 | 5 |
| 36. Demonstrate the ability to admit patients into the critical care unit                               | 1 | 2 | 3 | 4 | 5 |
| 37. Demonstrate the ability to transfer patients out of the critical care unit                          | 1 | 2 | 3 | 4 | 5 |

APPENDIX H  
 GOAL ATTAINMENT SCALE  
 CRITICAL CARE NURSING ORIENTATION PROGRAM  
 PRECEPTOR ASSESSMENT

Please rate your orientee's level of attainment of the following goals upon completion of the Critical Care Nursing Orientation Program using the following rating scale

- 5 = Outstanding level of attainment
- 4 = Very good level of attainment
- 3 = Adequate level of attainment
- 2 = Fair level of attainment
- 1 = Poor level of attainment

Please circle number of your choice.

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1. Perform competently in fulfilling the role expectations for surgical intensive care nursing  | 1 | 2 | 3 | 4 | 5 |
| 2. Locate, comprehend, and utilize hospital policies and procedures for delivery of patient care  | 1 | 2 | 3 | 4 | 5 |
| 3. Show initiative and independence in identifying and meeting learning needs   | 1 | 2 | 3 | 4 | 5 |
| 4. Become integrated into the staff on the unit   | 1 | 2 | 3 | 4 | 5 |
| 5. Develop organizational skills necessary for the delivery of safe patient care  | 1 | 2 | 3 | 4 | 5 |
| 6. Utilize and communicate effectively with various departments and personnel involved in the delivery of patient care  | 1 | 2 | 3 | 4 | 5 |
| 7. Know what physician to call for what problem and how to reach him/her  | 1 | 2 | 3 | 4 | 5 |
| 8. Be able to page and/or call perfusionist, respiratory therapist, blood gas tech, laboratory, dietary, housekeeping, biomedical, blood bank, or maintenance | 1 | 2 | 3 | 4 | 5 |
| 9. Recognize emergency situations   | 1 | 2 | 3 | 4 | 5 |

- 5 = Outstanding level of attainment  
 4 = Very good level of attainment  
 3 = Adequate level of attainment  
 2 = Fair level of attainment  
 1 = Poor level of attainment

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 10. Page a Dr. Cart and use emergency code blue button   | 1 | 2 | 3 | 4 | 5 |
| 11. Safely operate the defibrillator   | 1 | 2 | 3 | 4 | 5 |
| 12. Demonstrate communication skills by being able to give a report of all pertinent information to physician, designate, or oncoming nurse in a concise and accurate manner | 1 | 2 | 3 | 4 | 5 |
| 13. Become familiar with all standing orders of post-op CV and transplant patients   | 1 | 2 | 3 | 4 | 5 |
| 14. Develop a working knowledge of all hospital chart forms, flow sheets, and lab requisitions   | 1 | 2 | 3 | 4 | 5 |
| 15. Verbalize knowledge of anatomy and physiology integrating behavioral and pathophysiological concepts of human responses to illness                                       | 1 | 2 | 3 | 4 | 5 |
| 16. Demonstrate the ability to deliver patient care required on each shift   | 1 | 2 | 3 | 4 | 5 |
| 17. Demonstrate the ability to obtain past medical history including cardiac catheter results, previous hospitalizations, risk factors, medications and allergies            | 1 | 2 | 3 | 4 | 5 |
| 18. Demonstrate the ability to document past medical history including cardiac catheter results, previous hospitalizations, risk factors medications, and allergies          | 1 | 2 | 3 | 4 | 5 |
| 19. Verbalize understanding of mechanical ventilation  | 1 | 2 | 3 | 4 | 5 |
| 20. Correctly interpret blood gas values   | 1 | 2 | 3 | 4 | 5 |
| 21. Begin to identify various means to correct abnormalities in blood gas values   | 1 | 2 | 3 | 4 | 5 |

- 5 = Outstanding level of attainment  
 4 = Very good level of attainment  
 3 = Adequate level of attainment  
 2 = Fair level of attainment  
 1 = Poor level of attainment

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 22. Express knowledge of commonly used drugs in the intensive care setting                                      | 1 | 2 | 3 | 4 | 5 |
| 23. Demonstrate correct administration of commonly used drugs in the intensive care setting                     | 1 | 2 | 3 | 4 | 5 |
| 24. Demonstrate the ability to interpret an EKG and recognize rhythm changes which occur                        | 1 | 2 | 3 | 4 | 5 |
| 25. Demonstrate the ability to document an EKG  | 1 | 2 | 3 | 4 | 5 |
| 26. Demonstrate the ability to recognize early signs and symptoms of complications following open heart surgery | 1 | 2 | 3 | 4 | 5 |
| 27. Identify appropriate interventions for complications following open heart surgery                           | 1 | 2 | 3 | 4 | 5 |
| 28. Demonstrate the ability to connect temporary pacemaker  | 1 | 2 | 3 | 4 | 5 |
| 29. Interpret the various hemodynamic variables used to assess patients   | 1 | 2 | 3 | 4 | 5 |
| 30. Identify appropriate interventions for treatment of the abnormal hemodynamic variables                      | 1 | 2 | 3 | 4 | 5 |
| 31. Demonstrate the ability to perform a complete patient assessment  | 1 | 2 | 3 | 4 | 5 |
| 32. Demonstrate the ability to document a complete patient assessment   | 1 | 2 | 3 | 4 | 5 |

- 5 = Outstanding level of attainment  
 4 = Very good level of attainment  
 3 = Adequate level of attainment  
 2 = Fair level of attainment  
 1 = Poor level of attainment

33. Demonstrate the ability to operate and troubleshoot the following equipment used in patient care delivery
- |                                   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|
| a. IMED                           | 1 | 2 | 3 | 4 | 5 |
| b. chest tube drainage system     | 1 | 2 | 3 | 4 | 5 |
| c. EKG monitor and strip recorder | 1 | 2 | 3 | 4 | 5 |
| d. pressure monitors              | 1 | 2 | 3 | 4 | 5 |
| e. IABP                           | 1 | 2 | 3 | 4 | 5 |
| f. hyper/hypothermia devices      | 1 | 2 | 3 | 4 | 5 |
| g. portable monitors              | 1 | 2 | 3 | 4 | 5 |
| h. Swan-Ganz catheters            | 1 | 2 | 3 | 4 | 5 |
| i. feeding pump                   | 1 | 2 | 3 | 4 | 5 |
| j. Kinair bed                     | 1 | 2 | 3 | 4 | 5 |
| k. bed scale                      | 1 | 2 | 3 | 4 | 5 |
34. Verbalize knowledge of normal and abnormal values of chemistry, hematology and coagulation studies
35. Identify appropriate treatments utilizing drugs and blood products to normalize abnormal lab values
36. Demonstrate the ability to admit patients into the critical care unit
37. Demonstrate the ability to transfer patients out of the critical care unit

## APPENDIX I

### CRITICAL CARE NURSING ORIENTATION PROGRAM

#### ORIENTEE SATISFACTION

Please rate how satisfied you are with the information and clinical experiences you obtained in both the didactic (lecture) and clinical portions of the Critical Care Nursing Orientation Program, by using the rating scheme below:

- 4 = very satisfied
- 3 = somewhat satisfied
- 2 = slightly dissatisfied
- 1 = very dissatisfied
- N/A = did not experience

Please circle number of your choice for both didactic and clinical.

	DIDACTIC		CLINICAL
1. Basic EKG interpretations	1 2 3 4 N/A		1 2 3 4 N/A
2. Arrhythmia interpretation	1 2 3 4 N/A		1 2 3 4 N/A
3. Interventions for arrhythmias	1 2 3 4 N/A		1 2 3 4 N/A
4. Anatomy and physiology	1 2 3 4 N/A		1 2 3 4 N/A
5. Pathophysiology	1 2 3 4 N/A		1 2 3 4 N/A
6. Hospital policies and procedures	1 2 3 4 N/A		1 2 3 4 N/A
7. ICU physical setting	1 2 3 4 N/A		1 2 3 4 N/A
8. Cardiac Monitor	1 2 3 4 N/A		1 2 3 4 N/A
9. Defibrillator	1 2 3 4 N/A		1 2 3 4 N/A
10. Volume-controlled infusion pump	1 2 3 4 N/A		1 2 3 4 N/A
11. Other technical equipment	1 2 3 4 N/A		1 2 3 4 N/A
12. Critical Care nursing procedures	1 2 3 4 N/A		1 2 3 4 N/A
13. Admitting/discharging patients	1 2 3 4 N/A		1 2 3 4 N/A

- 4 = very satisfied  
 3 = somewhat satisfied  
 2 = slightly dissatisfied  
 1 = very dissatisfied  
 N/A = did not experience

Please circle number of your choice for both didactic and clinical.

	DIDACTIC					CLINICAL					
14. Laboratory values	1	2	3	4	N/A		1	2	3	4	N/A
15. Charts, records, forms	1	2	3	4	N/A		1	2	3	4	N/A
16. Patients on ventilators	1	2	3	4	N/A		1	2	3	4	N/A
17. Cardiac Transplant patients	1	2	3	4	N/A		1	2	3	4	N/A
18. Patients with pacemakers	1	2	3	4	N/A		1	2	3	4	N/A
19. Patients with chest tubes	1	2	3	4	N/A		1	2	3	4	N/A
20. Patients with intra-aortic balloon pump	1	2	3	4	N/A		1	2	3	4	N/A
21. Cardiac arrest procedures	1	2	3	4	N/A		1	2	3	4	N/A
22. Other emergency procedures	1	2	3	4	N/A		1	2	3	4	N/A
23. Communication with other personnel and departments	1	2	3	4	N/A		1	2	3	4	N/A
24. Giving report	1	2	3	4	N/A		1	2	3	4	N/A
25. Standing orders	1	2	3	4	N/A		1	2	3	4	N/A
26. Drugs commonly used in ICU	1	2	3	4	N/A		1	2	3	4	N/A
27. IV delivery of medications	1	2	3	4	N/A		1	2	3	4	N/A
28. Hemodynamic monitoring	1	2	3	4	N/A		1	2	3	4	N/A
29. ICP monitoring	1	2	3	4	N/A		1	2	3	4	N/A
30. Physical assessment	1	2	3	4	N/A		1	2	3	4	N/A
31. Post-op complications	1	2	3	4	N/A		1	2	3	4	N/A



- 4 = very satisfied  
 3 = somewhat satisfied  
 2 = slightly dissatisfied  
 1 = very dissatisfied  
 N/A = did not experience

Please circle number of your choice for both didactic and clinical.

	DIDACTIC						CLINICAL				
32. Emotional support for critically ill patient and family	1	2	3	4	N/A		1	2	3	4	N/A
33. Nursing care plans	1	2	3	4	N/A		1	2	3	4	N/A
34. Standards of care	1	2	3	4	N/A		1	2	3	4	N/A

Please rate how satisfied you are with the overall Critical Care Nursing orientation program using the following scale:

- 4 = very satisfied  
 3 = somewhat satisfied  
 2 = slightly dissatisfied  
 1 = very dissatisfied

35. Overall didactic teaching in the orientation program	1	2	3	4
36. Clinical preceptor	1	2	3	4
37. Overall clinical learning experiences in the orientation program	1	2	3	4
38. Orientation program as a whole	1	2	3	4

Please comment on any other aspect of the orientation program:

APPENDIX J

DEMOGRAPHIC AND PROFESSIONAL CHARACTERISTICS

ORIENTEE

1. What type of nursing program did you attend that permitted you to take the state board exam?
  1. Diploma
  2. A.D.
  3. B.S.N.
2. Date of graduation? \_\_\_\_\_
3. Your highest level of nursing education:
  1. Diploma
  2. A.D.
  3. B.S.N.
  4. M.S.N.
4. Years of experience as a registered nurse: \_\_\_\_\_
5. If you worked as an R.N. prior to this position, what positions did you hold, and for how long?
  1. Staff Nurse \_\_\_\_\_ years
  2. Assistant Head Nurse \_\_\_\_\_ years
  3. Head Nurse \_\_\_\_\_ years
  4. Nurse Educator \_\_\_\_\_ years
  5. Other \_\_\_\_\_ years
  6. Not applicable (skip to question 7)
6. If you worked as R.N., please circle all major areas of experience and length of service:
  1. Medical Floor \_\_\_\_\_
  2. Surgical Floor \_\_\_\_\_
  3. Emergency Room \_\_\_\_\_
  4. Recovery Room \_\_\_\_\_
  5. Operating Room \_\_\_\_\_
  6. Rehabilitation Unit \_\_\_\_\_
  7. Home Health Care \_\_\_\_\_
  8. Outpatient Center/Ambulatory Care \_\_\_\_\_
  9. Intensive Care/Critical Care \_\_\_\_\_
  10. Other \_\_\_\_\_
7. Do you have membership in any Professional Organization? Please circle all that may apply.
  1. American Nurses Association
  2. American Association of Critical Care Nurses
  3. Emergency Nurses' Association
  4. Other \_\_\_\_\_

8. How many professional journals do you read each month? \_\_\_\_\_
9. How many continuing education units (CEU's) did you earn in the last 12 months? \_\_\_\_\_
- 10A. Age: \_\_\_\_\_
- 10B. Sex: 1. Male 2. Female
11. Are you currently certified in CPR?  
1. Yes 2. No
12. Are you currently certified in ACLS (Advanced Cardiac Life Support)?  
1. Yes 2. No
13. Did your nursing education include lectures on critical care nursing?  
1. Yes 2. No
14. Did your nursing education include clinical experience in critical care nursing?  
1. Yes 2. No
15. If your nursing education included clinical experience, how long was the practicum?  
1. Number of weeks \_\_\_\_\_

THANK YOU FOR YOUR TIME AND CONSIDERATION

APPENDIX K  
DEMOGRAPHIC AND PROFESSIONAL CHARACTERISTICS  
PRECEPTOR

1. Basic level of nursing education:  
1. Diploma 2. A.D. 3. B.S.N.
2. Date of graduation? \_\_\_\_\_
3. Highest level of nursing education:  
1. Diploma 2. A.D. 3. B.S.N. 4. M.S.N. 5. Other
4. Number of years of experience as a registered nurse:  
\_\_\_\_\_ Years
5. Circle your primary areas of Nursing Practice and date of service:
  - A. Medical Floor \_\_\_\_\_
  - B. Surgical Floor \_\_\_\_\_
  - C. Emergency Room \_\_\_\_\_
  - D. Recovery Room \_\_\_\_\_
  - E. Operating Room \_\_\_\_\_
  - F. Rehabilitation Unit \_\_\_\_\_
  - G. Home Health Care \_\_\_\_\_
  - H. Outpatient \_\_\_\_\_
  - I. Intensive Care \_\_\_\_\_
  - J. Other \_\_\_\_\_
6. Number of years of experience in critical care nursing:  
\_\_\_\_\_ Years

7. To which of the following professional organizations do you belong:
- A. American Nurses Association/INA
  - B. American Association of Critical-Care Nursing
  - C. Emergency Nurses' Association
  - D. Other \_\_\_\_\_
8. Age: \_\_\_\_\_ Sex: 1. Male 2. Female
9. What nursing positions have you held prior to this position and for how long:
- A. Staff Nurse \_\_\_\_\_ years
  - B. Assistant Head Nurse \_\_\_\_\_ years
  - C. Head Nurse \_\_\_\_\_ years
  - D. Nurse Educator \_\_\_\_\_ years
  - E. Other \_\_\_\_\_ years
10. Which of the following professional nursing certifications do you hold? (circle all that apply)
- A. CCRN
  - B. CEN
  - C. CNRN
  - D. Other \_\_\_\_\_
11. Which of the following Heart Association certifications do you currently hold? (circle all that apply)
- A. Basic Life Support Provider (CPR)
  - B. Basic Life Support Instructor
  - C. Advanced Cardiac Life Support Provider (ACLS)
  - D. Advanced Cardiac Life Support Instructor

12. Which of the following hospital programs have you attended?  
(circle all that apply)
- A. Designate Workshop
  - B. Preceptor Workshop
  - C. Basic EKG Class
  - D. Critical Care Course
  - E. 12 Lead EKG Symposium
  - F. Quality Assurance Monitoring
  - G. Technicon Operations
13. How many professional journals do you read each month? \_\_\_\_\_
14. How many continuing education units (CEU's) did you earn in the last 12 months? \_\_\_\_\_
15. Title of any staff development programs you presented in the last 12 months?
- 
- 
-

APPENDIX L  
ORIENTEE INTRODUCTION  
MEET AND GREET SESSION

Hello,

My name is Mary Wisniewski. I am a graduate student here at Loyola University in the nursing service administration track. I also work here in the cardiovascular intensive care unit (2ICU).

I am here today to invite you to participate in a research study I am conducting as part of my education in graduate school. My interest is in the outcome of critical care nursing orientation.

I am specifically interested in nurses with little or no experience in critical care nursing. Could those of you who will work in the surgical intensive care units: 2ICU, 3ICU, 4ICU, with less than one year of critical care experience please join me to further discuss the study.

First, I would like to thank you for your time and attention. Having been through this orientation process, I can appreciate your excitement and disorientation.

Research is one part of your nursing role and job description here at Loyola. Research is the process used to validate and increase the body of knowledge in nursing. Your participation in research activities will serve to change the future of nursing.

Let me tell you about my study. The purpose of the study is to evaluate the outcomes of the critical care orientation program you are about to receive. The outcomes to be studied are: the increase in critical care knowledge and skills, achievement of goals, and satisfaction with the orientation process.

You will be asked to complete several questionnaires before and after the orientation program. I will also be obtaining information from your clinical preceptor on your nursing skills and goal attainment.

The risks of participating in this project are minimal. I want to assure you that your answers will be kept anonymous by removing your name from the questionnaires as they are received and replacing a code number. The reason I need some identification is to match pre-test and post-test data. Participation in this study will not in any way influence your job performance evaluation. The only thing I ask of you is your time to complete the questionnaires. You are also free to withdraw from the study at any time. You can also decide not to participate in this study at any time. You can also decide not to participate in this study without prejudice to your employment or

performance appraisal.

The potential benefit of this study is to gain knowledge about the level of satisfaction obtained from this program and to identify if the program is meeting its goals. Assessment of the structure, process, and outcomes of the orientation program will enable nursing administrators to evaluate the effectiveness of programs.

At this time, do any of you have any questions?

I will give you a copy of the purpose of the program and its description and a consent form. Please read the information and complete the consent form. I will then collect the consent forms.

Friday morning from 7AM to 9AM, the first set of questionnaires will be given to you. Upon completion of orientation, I will contact you to administer the final set of questionnaires.

THANK YOU VERY MUCH FOR YOUR COOPERATION



APPENDIX M

LOYOLA UNIVERSITY MEDICAL CENTER

NIEHOFF SCHOOL OF NURSING

Orientee Consent Form

Project Title: Orientation Program Evaluation

The purpose of this study is to evaluate the outcomes of the critical care orientation program you will receive upon employment at Foster McGaw Hospital. The outcomes to be studied are: the increase in critical care nursing knowledge and skills, achievement of goals, and satisfaction with the program.

You will be asked to complete several questionnaires before and after the orientation program to measure your critical care nursing knowledge, skills, goal attainment, and satisfaction with the orientation program. I will also be obtaining information from your clinical preceptor on your critical care nursing skills and goal attainment.

The risks of participating in this project are minimal. Your answers to all items will be seen by me after your name has been removed and replaced with a code number. Your answers will remain confidential, and will not in any way impinge on your job performance evaluation. The use of your time in participating will be the only inconvenience. You are free to withdraw from the study at any time. The alternative you have is non-participation in the study without prejudice to your employment or performance appraisal.

The potential benefit of this study is to gain knowledge about the level of satisfaction obtained from a bimodal (preceptor and didactic) educational model and to identify if the orientation program is meeting its goals. This information can then be used to plan more effective orientation programs to meet the needs of new critical care nurses.

I have fully explained to \_\_\_\_\_ the nature and purpose of the above-described procedure and the risks that are involved in its performance. I answered and will answer all questions to the best of my ability.

\_\_\_\_\_  
Signature: Principal Investigator

\_\_\_\_\_  
Date

## Participant Consent

I, \_\_\_\_\_, have been fully informed of the above-described procedure with its possible risks and benefits. I give permission for my participation in this study. I know that Mary Wisniewski, BSN, CCRN, RN, (principal investigator) will be available to answer any questions I may have. If, at any time, I feel my questions have not been adequately answered, I may request to speak with a member of the Medical Center Institutional Review Board. I understand that I am free to withdraw this consent and discontinue participation in this project at any time without prejudice to my employment. I have received a copy of this informed consent document.

I understand that evaluation research such as that in which I have agreed to participate, by its nature, involves necessary risk of injury.

In the event I believe that I have suffered any as the result of participation in the research program, I may contact Dr. Robert E. Henkin, Chairman, Institutional Review Board for the Protection of Human Subjects at the Medical Center, telephone (312) 531-3777.

I agree to allow my records to be available to other authorized researchers for the purpose of evaluating the results of this study. I consent to the publication of data which may result from these investigations for the purpose of advancing nursing knowledge, providing my name or any other identifying information (initials, social security numbers, etc.) is not used in conjunction with such publication. All precautions to maintain confidentiality of the records will be taken.

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Signature of Participant

---

Signature of Witness

## APPENDIX N

### PRECEPTOR INTRODUCTION

#### MEET AND GREET SESSION

Hello,

My name is Mary Wisniewski. I am a graduate student here at Loyola University in the nursing service administration track. I also work here in the cardiovascular intensive care unit (2ICU) for those of you who may not know me.

I am here today to invite you to participate in a research study I am conducting as part of my education in graduate school. My interest is in the outcome of critical care nursing orientation. I am specifically interested in nurses with little or no experience in critical care nursing.

First, I would like to thank you for your time and attention. Having been through this orientation process as preceptor, I can appreciate the time constraints in the process of orientation and in delivery of patient care.

One administrative functional interest I have is the process of orientation, and feel that an evaluation study of outcomes, satisfaction, and goal attainment may provide knowledge about the orientation program which may lead to improvement in the program so that we have the best program possible.

Research is one part of your nursing role and job description here at Loyola. Your participation in research activities will serve to change the future of nursing.

You will be asked to complete questionnaires before and after the orientation program on your own critical care nursing knowledge, your professional nursing experience, and your orientee's skills and goal attainment upon completion of orientation program. The orientees will be completing questionnaires on knowledge, skill, goal importance and attainment, and satisfaction with the orientation program.

The risks of participating in this project are minimal. I want to assure you that your answers will be kept anonymous by removing your name from the questionnaires as they are received and replacing a code number. The reason I need some identification is to match pre-tests and post-test data. Participation in this study will not in any way influence your job performance evaluation. The only thing I ask of you is your time to complete the questionnaires. You are also free to withdraw from the study at any time. You can also decide not to participate in this study without prejudice to your employment or performance appraisal.

The potential benefit of this study is to gain knowledge about the level of satisfaction obtained from this program and to identify if the program is meeting its goals. Assessment of the structure, process, and outcomes of the orientation program will enable nursing administrators to evaluate the effectiveness of programs.

At this time, do any of you have any questions?

I will give you a copy of the purpose of the program and its description and a consent form. Please read the information and complete the consent form. I will then collect the consent form.

Upon completion of your orientee's period of orientation, I will contact you to administer the final set of questionnaires.

THANK YOU VERY MUCH FOR YOUR COOPERATION

APPENDIX O

LOYOLA UNIVERSITY MEDICAL CENTER

NIEHOFF SCHOOL OF NURSING

Preceptor Consent Form

Project Title: Orientation Program Evaluation

The purpose of this study is to evaluate the orientee outcomes of the critical care orientation program they receive upon employment at Foster McGaw Hospital. The outcomes to be studied are: the increases in critical care nursing knowledge and skill, achievement of goals, and satisfaction with the program.

You will be asked to complete several questionnaires on your own critical care nursing knowledge and your orientee's skills and goal attainment upon completion of the orientation program. I will also be obtaining information from your orientee on their satisfaction with the orientation program.

The risks of participating in this project are minimal. Your answers to all items will only be seen by me only after your name has been removed and replaced with a code number. All information will remain confidential and will not in any way impinge on your job performance evaluation. The use of your time in participating will be the only inconvenience. You are free to withdraw from the study at any time. The alternative you have is non-participation in the study without prejudice to your job.

The potential benefit of this study is to gain knowledge about the level of satisfaction obtained from a bimodal (preceptor and didactic) educational model and to identify if the orientation program is meeting its goals. This information can then be used to plan more effective orientation programs to meet the needs of new critical care nurses.

I have fully explained to \_\_\_\_\_ the nature and purpose of the above-described procedure and the risks that are involved in its performance. I answered and will answer all questions to the best of my ability.

\_\_\_\_\_  
Signature: Principle Investigator

\_\_\_\_\_  
Date

## Participant Consent

I, \_\_\_\_\_, have been fully informed of the above-described procedure with its possible risks and benefits. I give permission for my participation in this study. I know that Mary Wisniewski, BSN, CCRN, RN, (principle investigator) will be available to answer any questions I may have. If, at any time, I feel my questions have not been adequately answered, I may request to speak with a member of the Medical Center Institutional Review Board. I understand that I am free to withdraw this consent and discontinue participation in this project at any time without prejudice to my employment. I have received a copy of this informed consent document.

I understand that evaluation research such as that in which I have agreed to participate, by its nature, involves necessary risk of injury.

In the event I believe that I have suffered any as the result of participation in the research program, I may contact Dr. Robert E. Henkin, Chairman, Institutional Review Board for the Protection of Human Subjects at the Medical Center, telephone (312) 531-3777.

I agree to allow my records to be available to other authorized researchers for the purpose of evaluating the results of this study. I consent to the publication of data which may result from these investigations for the purpose of advancing nursing knowledge, providing my name or any other identifying information (initials, social security numbers, etc.) is not used in conjunction with such publication. All precautions to maintain confidentiality of the records will be taken.

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Signature of Participant

---

Signature of Witness

## APPROVAL SHEET

The thesis submitted by Mary Frances Wisniewski has been read and approved by the following committee:

1. Anne Jalowiec, R.N., Ph.D., Director  
Associate Professor, Nursing, Loyola University of Chicago
2. Sheila Haas, R.N., Ph.D  
Associate Professor, Nursing, Loyola University of Chicago

The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Science in Nursing.

12-4-90  
Date

Anne Jalowiec, R.N., Ph.D  
Director's Signature