

A VALIDATION AND RELIABILITY
STUDY OF THE EMERGENCY
NURSES ASSOCIATION
EMERGENCY NURSING
PEDIATRIC COURSE
WRITTEN
EXAMINATIONS

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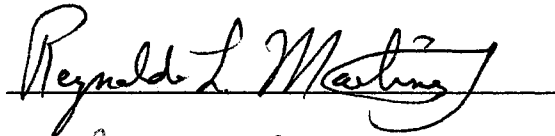
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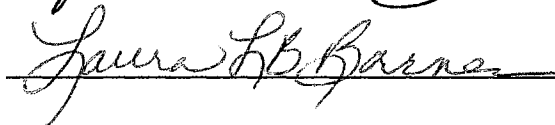
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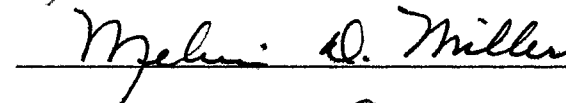
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Thesis Approved:


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PREFACE

The purpose of this research study was to determine the validity and reliability of the Emergency Nurses Association (ENA) Emergency Nursing Pediatric Course (ENPC) written examinations. With the assistance of the ENA and ten nurse experts from eight states throughout the United States, the validity of the ENPC written examinations was ascertained. Statistical analysis was also calculated to validate evidence of the reliability of the scores of the written examinations. The supposition by the ENA that the ENPC provided core knowledge and skills intrinsic to high quality emergency nursing care to the pediatric patient was supported. Given that 30 million pediatric patients are seen in the emergency departments throughout the United States on an annual basis, the public can be assured that the 30,000 registered nurses who have successfully completed the ENPC and the ENPC written examinations have been provided with the appropriate knowledge and skill to adequately care for these pediatric patients.

ACKNOWLEDGEMENTS

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Chapter 1

Introduction

This research study was conducted to determine the validity of the Emergency Nurses Association (ENA) Emergency Nursing Pediatric Course (ENPC) written examinations and the reliability of the scores of the examinations that were provided by the ENA from the previous two year period (2001-2002). The first chapter presented the background of the study, defined the problem, discussed the significance of the study, and provided an overview of the research method that was utilized. The chapter concluded with a delineation of assumptions and limitations of the research study and definitions of specific terms that are specific to and integrated throughout the study.

Background

In the United States, approximately 100 million individuals seek care in emergency departments on an annual basis (MacLean, 2002). Infants, children and adolescents represent approximately 30% of these emergency visits (ENA, 1998). The registered nurse is often the first health care provider that the emergency department patient encounters and is the gatekeeper to emergency services and resources (Raper, Davis, & Scott, 1999). The registered nurse must

be able to ascertain and anticipate the needs of each patient in order to initiate and provide appropriate nursing interventions to facilitate the most favorable outcome (ENA, 1993, 1998). Caring for ill and injured pediatric patients in the emergency department requires specialized education, training, and experience (Hegge, 1985).

Emergency pediatric nursing care is recognized as a specialty within the profession of nursing (ENA, 1993, 1998; Selekman & Bowden, 1999). The focus of emergency pediatric nursing is to improve nursing care and outcomes for infants, children and adolescents. This nursing specialty requires that each registered nurse possess knowledge, expertise and skills beyond those that are provided in basic nursing programs (Hegge, 1985). The majority of pediatric patients requiring nursing care and treatment in the emergency department are for non-emergency reasons. However, there are occasions when pediatric patients require emergent, immediate, life-saving nursing actions and interventions (ENA, 1993, 1998). The registered nurse responsible for these critically ill or injured patients must be adequately prepared to initiate immediate emergency life or limb saving nursing interventions, treatment and care (ENA, 1998).

The rapid changes in healthcare, diminished lifespan of information, increasing acuity of patient conditions, and nursing licensure and certification requirements, collectively mandate that registered nurses continue to learn throughout their professional careers (Hegge, 1985; Williams, 2001). The American Nurses Association (ANA) (1984) recognized that as a result of the continuous generation of nursing knowledge and technology, basic professional preparation was no longer sufficient for a lifetime of practice. ANA (1984) posited the need for continuing professional education to foster and enhance the professional growth and development for all nurses (Hegge, Powers, Hendricky, & Vinson, 2002).

In 1991, the ENA, responding to the requests of the membership for education, which focused on the pediatric patient, developed the ENPC. This continuing professional education course was designed specifically for registered nurses responsible for providing nursing care to the pediatric patient in the emergency setting (ENA, 1993; Ropele, 1998). The ultimate goals of the ENPC were to improve the care of the pediatric patient in the emergency department setting and increase the knowledge, skill, confidence and competence of the emergency nurses who care for these patients (ENA, 1993, 1998). The ENPC provides

the registered nurse with the core content, knowledge, and skills intrinsic to care of the emergency pediatric patient. The ENA has recommended that ENPC be the minimal educational standard for registered nurses providing emergency care to children (ENA, 1993, 1998). The ENA has proposed that registered nurses who integrate and implement knowledge and skills acquired in the ENPC in their nursing practice will ultimately contribute to a decrease in the morbidity and mortality associated with pediatric emergencies (ENA, 1993, 1998).

Approximately 30,000 registered nurses have completed the ENPC since development (ENA, 1998). Although this course is nationally and internationally recognized by the ENA, there was no data, reports or research studies located that have investigated, assessed, or determined the psychometric properties of validity and reliability of the ENPC written examinations. Therefore, given the number of registered nurses who have or will complete the course and written examinations, as well as the importance of competent emergency nursing care for the pediatric patient, an investigative study to ascertain, the validity of the ENPC written examinations and the reliability of the scores of the ENPC written examinations was undertaken.

Need for Study

In response to requests by the ENA membership for a greater focus on the emergency pediatric patient, the ENPC Task Force was formed in 1991. The purpose of this task force was to design a continuing professional education course specific for registered nurses caring for pediatric patients in the emergency setting (ENA, 1993, 1998). The ENPC was completed in 1993. The ultimate goal of the course was to improve care of the pediatric patient in the emergency setting. The course is based on a systematic and organized nursing approach. The ENPC contains defined standards of nursing care and treatment that are designed to increase knowledge, confidence, skills and techniques of registered nurses who are responsible for the nursing care of the emergency pediatric patient (ENA, 1993, 1998). The ENA acknowledges mastery of knowledge and skills intrinsic to the care of the emergency pediatric patient to all registered nurses who have successfully completed the course and written examinations by confirmation of a verification card. However, the validity and reliability of these written examinations has not been ascertained or empirically investigated and remains uncertain. Given the significant numbers of registered nurses who have, or will attend the course and complete the written examinations, a

research study was needed. This research study was conducted not only to determine the validity of the ENPC written examinations and reliability of the scores of the written examinations, but also to substantiate and support the supposition of the ENA that the ENPC provides core content, knowledge, and skills essential for competent nursing care of the emergency pediatric patient and should be the minimal educational standard for emergency pediatric nursing.

Problem Statement

The ENA purports that the ENPC provides core content, knowledge and psychomotor skills essential in the care of the emergency pediatric patient. All registered nurses who successfully complete the course and written examination receive a verification card. This card is valid for four years and signifies mastery of content and skills intrinsic in the emergency nursing care of the pediatric patient. The course is nationally and internationally endorsed by the ENA. Numerous states and accreditation agencies recognized that completion of the ENPC served as evidence of age-specific knowledge and competency in the emergency nursing care of the pediatric patient. There was no empirical evidence found that the ENPC written examinations were ever tested for validity or reliability. Therefore,

the supposition that the ENA has assumed since 1993 has not been substantiated.

Purpose of Study

The purpose of this study was to determine the validity of the ENPC written examinations and reliability of the scores of the ENPC written examinations.

Significance of the Problem

Caring for ill and injured pediatric patients in the emergency department is a challenging responsibility for all registered nurses (Hegge, 1985). Additional education and skill is required to assess and effectively respond to the unique needs of this patient population (Fredickson, Bauer, Arellano, & Davidson, 1994). The ENPC is a continuing professional education course designed by the ENA to provide the specialized knowledge, skills, and training required for registered nurses to appropriately care for the emergency pediatric patient (ENA, 1993, 1998). Registered nurses must be confident that concepts, topics, skills and nursing interventions integrated and taught in the ENPC, are based on the domains, knowledge and skills intrinsic to emergency nursing practice. They must be assured that the ENPC curriculum and content will adequately prepare each to effectively and safely care for the 30 million emergency pediatric patients that are seen

in emergency departments on an annual basis. A descriptive study to investigate the validity of the ENPC written examinations and reliability of the scores was needed.

Research Questions

The following research questions formed the investigative framework of the research study.

1. Are the ENPC written examinations valid?
2. Are the scores on the ENPC written examinations reliable?

Methodology

The descriptive design was selected in order to address specific questions that had not been previously investigated, addressed or ascertained through any recorded empirical research process (Burns & Grove, 1999; Gay, 1992; Kumar, 1996, & Polit & Hungler, 1995). The method of the study involved four separate approaches. First, a meta analysis of existing completed ENPC examinations was conducted. Second, the ENPC written examinations were reviewed by a panel of ten emergency nurses, for content validity. Each panel member was an expert in the field of emergency nursing. Third, nurse managers, or designees, of 104 hospitals in Oklahoma were surveyed to determine, if as purported by the ENA, completion of the ENPC should be a requirement for registered nurses to work in the emergency

department. Finally, 20 job descriptions of registered nurses who worked in emergency departments throughout Oklahoma were reviewed to ascertain if there were any commonalities in required skills, knowledge, or tasks that were also included in the ENPC written examinations.

Data Sets

The data sets of the study included: 1) a random sample of 612 completed ENPC written examinations that were provided by ENA, 2) verbal acknowledgements from Nurse Managers, or their designees of 104 purposely selected emergency departments in Oklahoma who responded to the single inquiry regarding if completion of ENPC was required for registered nurses to work in emergency department, 3) purposely selected panel of ten emergency pediatric nursing experts and 4) 20 job descriptions for registered nurses employed in 20 purposely selected emergency departments throughout Oklahoma.

Limitation of the Study

1. The ENA was unable to provide psychomotor skill evaluations to be included in the study. The psychometric assessment employed in this study focused **only** on the written examinations.

Assumptions of the Study

1. Emergency nursing pediatric experts will review all items and instructional objectives on the ENPC written examinations and rank each on the Content Validity Indicator.

2. The responses of the emergency department nurse managers, or their designees, were accurate.

Definitions

ACLS: Advanced Cardiac Life Support. The American Heart Association's continuing professional education program designed to prepare healthcare providers, with specific knowledge and skills, to respond and intervene in cardiac (heart) or respiratory (lung) emergencies.

Adult Education: "Educational process whereby persons whose major social roles are characteristic of adult status undertake systematic and sustained learning activities for the purpose of bringing about changes in knowledge, attitudes, values or skills (Darkenwald & Merriam, 1982 p.9).

Bar Graphs: A graphic presentation used to convey frequency distribution data. The bar graphs consist of horizontal bars. The height of each bar represents a corresponding frequency on the vertical axis. Each bar is separated (Polit & Hungler, 1995; Sax, 1997; Shavelson, 1996).

BLS: Basic Life Support. The American Heart Association Adult Education program designed to provide knowledge and skills to individuals to recognize and respond to life threatening emergencies.

Construct: An abstraction or concept that is adapted by researchers for a scientific purpose (Gay, 1992; Polit & Hungler, 1995).

Continuing Professional Education: Education of professional practitioners, regardless of their practice setting, that follows their preparatory curriculum and extends their learning, and which will continue throughout their careers (Queeney, 1996).

Course Director (ENPC): Registered nurse who is member of the ENA. The Course Director has successfully completed the ENPC Provider and Instructor course and is a verified ENPC Instructor. The ENA recommends that the Course Director teach two Provider Courses prior to designation as a Course Director (ENA, 1999). The Course Director is responsible to ensure there is compliance with all ENA guidelines.

Criterion: A standard that is accepted as a measure of the behavior under consideration (Sax, 1997).

Criterion-referenced test: Refers to any test that is constructed and designed to yield measurements that are interpretable as related to specific performance standards (Berk, 1984).

Domains: Well-defined categories or tasks (Berk, 1984).

Emergency Nursing: Specialty within the profession of nursing with provision of immediate nursing care to individuals who have identified problems as an emergency or where nursing intervention may prevent an emergency situation.

Emergency Nurses Association: Specialty nursing association serving the emergency nursing profession through research, publications, continuing professional education, professional development and injury prevention (ENA, 1993, 1998).

Emergency Nursing Pediatric Course: Specialized continuing professional education course designed and endorsed by the ENA to provide the registered nurse with cognitive and psychomotor skills associated with systematic, universal nursing process in the care of children from birth through adolescence (ENA, 1993).

Emergency: Condition requiring immediate medical attention. Any time delay would be harmful to the patient. The disorder or injury is acute and potentially threatening to life, limb or function (Lanros, 1978).

Envenomation: Injection of snake or insect venom into the body (ENA, 1998).

Examination: A task or series of tasks consisting of, at a minimum a set of items to be verified or completed or

questions to be answered. Well-defined procedures for administering the examination, informing the examinees of manner in which to respond or perform, and the scoring procedure (Sax, 1997; Waltz, Strickland, & Lenz, 1991).

Job descriptions: The delineation of major tasks, functions, duties, specifications, educational and training standards, and the context or conditions under which the work is performed (Gael, 1988).

Licensure: The function of each state to establish standards and qualifications for the registered nurse with the primary purpose to ensure competent nursing practice and to protect the public (Cherry & Jacob, 1999).

Measurement: The process by which numerical values are assigned to objects, attributes, characteristics, persons or events according to explicit formulation or rules (Hungler & Polit, 1995; Sax, 1997; Walsh, 1989; Waltz, Strickland & Lenz, 1991).

NCLEX-RN: National Council Licensure Examination for Registered Nurse. Successful completion of this criterion-referenced examination is required for entry into the nursing profession (Matassarini-Jacobs, 1989).

Neonate: Infant from birth to four weeks of age. If the infant is premature, he or she remains a neonate until the expected due date, plus 28 days (ENA, 1993, 1998).

Non-emergent: A condition, which does not require resources of an emergency department, or emergency services.

Referral for routine medical care, may or may not be needed. The patient's condition is not acute or limb or life threatening (Lanros, 1978).

Pediatrics: A branch of medicine concerned with development and care of infants, children and adolescents (Birth through 21 years of age) (ENA, 1993, 1998).

Practice of Nursing: The provision of services for purposes of nursing assessment, diagnosis and treatment of human responses to actual or potential health problems.

Registered Nurse: Individual who has successfully completed the (NCLEX-RN) and has been granted a license to practice as a registered nurse and use the title of registered nurse (RN).

Respiratory Distress: Compensated physical state in which normal gas exchange is maintained at the expense of an increase work of breathing (ENA, 1993, 1998).

Scores: Any coding or summarization of observed consistencies or performance regularities on a test, questionnaire, observation, procedure or other assessment (Messick, 1990).

Triage: Process used to determine the urgency of the need for emergency care based on nursing assessment findings.

The word triage means to sort or choose (ENA, 1993, 1998).

Urgent: A condition requiring medical attention within a period of a few hours. A possible or potential danger exists to the patient if medically unattended (Lanros, 1978).

Verification: Acknowledgement of mastery of content and skills in the ENPC. A verification card was developed by ENA and is awarded to registered nurses who successfully complete the ENPC and ENPC written examinations. This verification card is valid for four years (ENA, 1993, 1998).

Summary

Approximately 30 million children are seen in emergency departments on an annual basis. These children require emergency pediatric nursing care. Specialized training and education is necessary in order that registered nurses in the emergency setting can provide effective and appropriate nursing care to this specific and unique patient population.

The ENA developed the ENPC to enhance the registered nurse's ability to rapidly and accurately ascertain and assess the pediatric patient's responses to illness or

injury event (ENA, 1993, 1998). This course is endorsed by the ENA, and is conducted on both a national and international level. Approximately 30,000 registered nurses have completed this continuing professional education course. Yet, there was no extant evidence of data, reports, publications, or research studies, which have determined the evidence of validity of ENPC written examinations or evidence of reliability of the scores of written examinations. Due to the number of registered nurses that have completed, or will complete the course, as well as the professional, moral and ethical impact and consequences associated with caring for this high risk emergency pediatric patient population, a need for a research study to assess the psychometric properties of ENPC written examination was evident. The results and findings from this research will contribute both to adult education and nursing research.

Organization of Study

Chapter 2 provides a comprehensive review of the literature and theoretical framework upon which this research study is based. Chapter 3 describes the research design and methodology utilized. Chapter 4 presents the findings of the research. Chapter 5 provides the conclusions and implications for future research.

CHAPTER 2

Review of Literature

The review of literature provided the conceptual foundation and framework of the study. This chapter explored the concept of continuing professional education, reasons for participation and non-participation in adult and continuing professional education and importance of licensure and certification. The psychometric properties of validity and reliability are discussed. A description of emergency nursing and the ENPC are presented.

Continuing Professional Education

Professional is a term used to describe the range of occupational areas that are based and focused in a specialized body of knowledge with specific standards and competencies (Queeney, 1996). Professionals are considered central to the functioning of society (Bickman, 1998; Cervero, 1988). Historically, professionals have been described and classified in various ways. Houle (1980) considered the following as professionals: accountants, architects, clergy, dentists, engineers, foresters, healthcare administrators, lawyers, librarians, military officers, nurses, pharmacists, physicians and surgeons, school administrators, school teachers, social workers and veterans. Stark, Lowther and Haggerty (1986) similarly

identified other professional fields. These professions included: architecture, business administration, law, library science, medicine, social work, pharmacy and nursing. Drake (1976) succinctly summarized the characteristics of a professional:

1. Each profession has a distinct title that refers to certain specialized types of occupation and signifies level of excellence.
2. The term is applicable not only to the highly specialized occupations, such as doctors or lawyers, but applies to artists, teachers and nurses.
3. Personal livelihood is often derived from this occupation.

Essential to any definition and assumption of a profession is process for establishing competence, systematic rigorous training, specialized knowledge, principled standards of practice and a sense of responsibility of service to society (Bickman, 1998; Curry & Wergin, 1993; Stuart, 1975). Continuing professional education encompasses all education of professionals and practitioners that occurs after an individual has completed the basic or formal educational process (Apgar, 2001). Continuing professional education is designed to augment knowledge, skills, learning and professional practice that extends throughout careers after initial pre-service training, induction or licensing into a profession

(Cervero, 1992; Lysaught, 1970; Queeney, 1996; Stuart, 1975). Houle (1980) proposed that continuing professional education included purposeful efforts to provide learning to professionals that would advance them from a previously established level of accomplishment and extend, augment and amplify knowledge and skill.

Historically, education for professionals has been provided throughout the ages through apprenticeships and guilds (Queeney, 2000). The evolution, and refinement of specialized training, roles and responsibilities have continued throughout history. Skills that were once the product of apprenticeship have progressively emerged as separate and distinct disciplines and professions (Queeney, 1996). The theoretical framework and foundation of continuing professional education is based on the premise that enhancement of professional practice and accountability is best achieved through provision of a systematic approach to lifelong learning which is strengthened and defined through the integration of professional education and practice within the context of daily life (Queeney, 2000). Cervero (1984) noted that most professions not only embrace the seriousness and importance of lifelong professional education, but recognize the pivotal need and responsibility to perform

his or her professional duties to the highest standard of character, competence, and quality.

Commonalities in professions that have been noted in the literature included: central mission intrinsic to each profession, mastery of specific theoretical knowledge, self-enhancement, formal training, specific goals, validation of knowledge and skill, credentialing, creation of a subculture, public acceptance, and moral and ethical practice and service (Brookfield, 1986; Cervero, 1988; Cervero & Scanlan, 1985; Houle, 1980; Nowlen, 1988; Stern, 1983). Professions commonly utilize similar types of providers for continuing professional education. These providers included: college and universities, professional organizations, and independent providers (Cervero, 2001).

Houle (1980) purposed that continuing education is paramount in all professions in order to address each practitioner's need to update knowledge and skills. Knox (1993) similarly noted that continuing professional education enabled practitioners to progress from the novice to the expert in their field of practice or expertise. Most professions require members to participate in continuing professional education in order to maintain and enhance their professional practice (Miller, 2000). Themes commonly cited as causative factors and motivations for

professionals to seek continuing learning and participate in continuing professional education included: 1) rapidly changing information, 2) new technology, 3) requirements for licensure, 4) professional certification, 5) new or continued employment and, 6) societal demand and expectations for competent, safe and accountable practitioners (Cervero, 1988). Professionals are responsible for provision of high quality professional service and care to all members of society. This responsibility is impossible to maintain if pertinent aspects of the dynamic and changing flow and flux of new knowledge, technology and skills are not consistently assimilated and integrated in professional practice through continuous lifelong learning and education (Kelly & Joel, 1999). Registered nurses, as other professionals, must remain current and cognizant in their field of practice.

Approximately 90,000 registered nurses practice in more than 5,000 emergency departments throughout the United States. The average age of these registered nurses is 45.2 years (Shendell-Falik, 2001). Each of these registered nurses have completed a basic nursing education. These basic nursing programs range from a traditional diploma program, to graduate level degrees (Shendell-Falik, 2001; Waeckerle, Seamans, Whiteside, Pons, White, Burston, &

Murray, 2001). Registered nurses as adults, professionals and adult learners have professional obligations to participate in adult and continuing professional education. Such continuing professional education is required in order for registered nurses to remain aware of changes in technology, updated knowledge, nursing practice and standards throughout their nursing careers to provide safe, competent care for all patients (Becker, 1995; Bickman, 1998; Curry & Wergin, 1993; Knox, 1993; Rath, Boblin-Cummings, Bauman, Parrott, & Parsons 1996; Stuart, 1975). The ANA's (1984) position statement posited that continuing education is essential for all professional nurses to maintain and increase competency, for personal and professional growth and to ensure the protection of members of society.

Continuing professional education has a long-standing history and tradition within the profession of nursing (Cervero & Young, 1987; Devney, 1998). The major providers of continuing professional education for nursing historically were: colleges and universities, hospitals and other health care facilities, professional nursing organizations, and independent providers (Cervero, 1989; Shelton & Craig, 1983; Tobin, Yoder-Wise & Hull, 1979).

DeSilets (1995) reported that registered nurses participate in continuing professional education primarily for personal achievement, and to remain current in the practice of nursing. Grotelueschen, Kenny & Harnish, (1980) reported that employing institutions, individuals, patients and family members reported not only positive benefits, but significant improvement in nursing practice and patient care from registered nurses who had participated in adult and continuing professional education.

Participation in Adult and Continuing Professional Education

Adult education has been defined as a process whereby persons whose major social roles are characteristic of adults undertake systematic and sustained learning activities for the specific purpose of change in knowledge, activities, and skills (Darkenwald & Merriam, 1982).

Adult education refers to those educational activities, which are purposeful or planned for the adult, and emphasize the importance of the learner and the process (Darkenwald & Merriam, 1982; Merriam & Brockett, 1997). Historically, participation in adult education endeavors has been a voluntary activity (Brookfield, 1986; Johnstone & Rivera, 1965; Merriam & Caffarella, 1999). Houle (1961)

in his seminal study proposed that adults participate in educational activities for three distinct reasons, and categorized the groups of learners based on these reasons for participation. These learners were, goal-oriented, activity-oriented, and learning-oriented. Commonly cited reasons for participation included work or job, personal change or personal satisfaction (Cross, 1981; Johnstone & Rivera, 1965; Merriam & Caffarella, 1999). Other reported factors for participation include: personal motivation, professional advancement, social interest, and cognitive development (Boshier & Collins, 1985; Burgess, 1971; Carp, Peterson & Roelfs, 1974; Courtney, 1992; Fujita-Starck, 1996; Henry & Basile, 1994; Long, 1983; Morstain & Smart, 1974). Reasons cited specifically by women included: support from family, friends, co-workers and collegiate support and acceptance (Aiken, Cervero, & Johnson-Bailey, 2001; Kaswor, 1990; Puetz, 1980).

Deterrents to participation in adult education and continuing education reported were: lack of money and time (Darkenwald & Merriam, 1982; Cross, 1981; Johnstone & Rivera, 1965; & Merriam & Caffarella, 1999). Other reasons included: family responsibilities, low personal priority, perceived lack of worth or relevance of educational offerings, lack of interest in educational offerings,

overall negative perception of education, lack of personal motivation, indifference and lack of self-confidence (Scanlan & Darkenwald, 1984; Valentine, 1997).

Houle (1980) proposed that professionals are expected to maintain and modernize their abilities and skills throughout their working and professional lives. As the largest, predominately female group of healthcare professionals, registered nurses, represent a significant portion of participants of adult and continuing professional education (Farrah & Graham, 2000).

Continuing professional education has emerged as a component of adult education to address the needs of both society for competent professionals, and the professionals for structured education throughout their careers (Cervero, 2001; Houle, 1961, 1980; Queeney, 2000). Cervero (1988) proposed several reasons why professionals participate in continuing education. The reasons cited were: to maintain current abilities and skills, to better serve their clients, and to affirm and strengthen one's own individual identity within the profession. The ANA (1994) further acknowledged the need for continuing nursing education and purposed that: continuing education included professional learning experiences designed to enrich the nurse's contribution to quality health care and his or her pursuit

of professional career goals. Continuing education as described by the ANA (1994) included program offerings and independent studies.

Continuing Professional Education and Registered Nurses

Studies cited motivational orientation as a decisive factor for participation in continuing professional education (Kristjanson & Scanlon, 1989; Waddell, 1993). DeSilets (1995) surveyed 866 registered nurses and identified five specific factors for participation. These factors were: 1) professional and personal improvement, development, and commitment, 2) perceived benefits, 3) professional service, 4) collegial learning and interaction, and 5) job advancement and security. Other studies reported reasons that included: acquisition of new knowledge and skills, achievement of personal goals, personal feelings of achievement and self-actualization, relief from routine, compliance with authority, job satisfaction, increased competency, improvement in social relations, acquisition of credentials, renewal or maintenance of current licensure preparation for certification, and career change or preparation for advancement in current career (Blais, DuQuerte, & Painchaud, 1989; Clark & Dickinson, 1976; Courtney, 1992; Desilets, 1995; Dolphin, 1983; Fujita-Starck, 1996;

Kristjanson & Scanlon, 1989; O'Connor, 1979; Schoen, 1982; Thomas, 1986; Urbano & Jahns, 1988; Waddell, 1993).

Educational preparation and professional status have been recognized as predictive factors of participation in continuing professional education (Curran, 1977; DeSilets, 1995). Studies indicated that registered nurses with bachelor degrees participated in more continuing professional education than registered nurses with associate or diploma preparation (Beatty, 2000; Curran, 1977; DeSilets, 1995). Work area was also a determinant for participation. Registered nurses employed in high acuity areas such as intensive care units, critical care, or emergency departments participated more frequently in continuing professional education than registered nurses working in other patient care areas (Millonig, 1985; Starling, 1995). Similarly Apgar (2001) reported that trauma care nurses in Pennsylvania perceived that participation in continuing professional education enhanced their clinical knowledge, skills and abilities and also benefited patients and employers. The years of nursing experience, number of hours worked and specific shifts were also cited as decisive factors for participation in continuing professional education. Barriball and White (1996) reported that less experienced registered nurses and

those working part-time or on night shift, attended fewer continuing professional education activities than their more experienced, full-time and day shift colleagues and peers. Cervero, Rottet and Dimmock (1986) suggested that registered nurses who participated in continuing professional education were considered more innovative in their practice. Positive patient outcomes, change in behavior and nursing practice were reported by registered nurses from various nursing specialties after attending continuing professional education courses. These nursing specialties, ranged from emergency to community health nursing (Cox & Baker, 1981; Hedman & Miller, 1987).

Commonly cited reasons for non-participation by registered nurses in continuing professional education were lack of time and the cost of educational offerings (Cullen, 1988; McDiarmid, 1998; Parochka, 1985). These cited reasons were consistent with those reported by other non-nursing adult learners (Cross, 1981; Darkenwald & Merriam, 1982; Darkenwald & Valentine, 1985; Johnstone & Rivera, 1965). Dao (1975) identified nine significant factors or clusters for non-participation in continuing education. These clusters included:

1. Not enough time

2. Lack of awareness of available educational activities
3. Educational activities not perceived as personally important or valued by participant
4. Individual and personal problems
5. Lack of confidence in personal ability to succeed in educational activities
6. Negative feelings toward institution or facility providing the educational offering
7. Previous negative experiences in educational activities
8. Indifference or apathy to educational offerings
9. Social norms and/or employment which discourage participation in continuing professional education

Other reasons more specific to the profession of nursing included: difficulty in obtaining time off from employer, due to inadequate staffing, lack of support from nursing managers and supervisors, few tangible rewards and benefits from employing organizations, lack of available educational funds or resources, and personal and family responsibilities (Beatty, 2000; Cullen, 1988; Headman & Lazure, 1990; McDiarmid, 1998; Parochka, 1985; Scanlon & Darkenwald, 1984).

Apgar (2001) reported that trauma nurses in Pennsylvania consistently reported that inability to obtain time off from employer was a significant problem and

barrier for participation in professional continuing education. Darkenwald and Valentine (1985) reported personal and professional conflicts were factors that were detrimental to participation.

Link Between Continuing Professional Education and Nursing Practice

Professional continuing education has evolved as an important part of life-long learning and professional development. Professional continuing education activities strive to foster and facilitate registered nurses' knowledge, competence, performance, ability to problem-solve, and critically analyze technical and ethical aspects of their practice (Cervero, 1989; Schon, 1987). Continuing professional education is focused on processes by which professionals learn and incorporate knowledge and skill into practice. Continuing professional education in nursing refers to professional learning activities and experiences designed to enrich and contribute to quality healthcare and facilitate professional goals, through enhancement of competency, and advancement of standards, practice, performance and accountability (Alspach, 1982).

Cervero (1985) suggested four factors that were influential in the determination if change in performance would occur as result of participating in continuing

professional education. These factors were: the individual professional, the social system and structure, the proposed change, and the education program. Cervero (1985) reported that receptiveness of each individual's profession to new ideas was essential for change in performance. The social context, as well as the influence of peers on the ability of the participants to practice and utilize the knowledge and skills learned in continuing professional education was important. The nature of the social system, climate, context, and the receptiveness of the individual significantly affected not only the adoption of change and innovation, but also the transmission and acculturation of new ideas. The proposed change was also influenced by other factors: the flexibility and ability of participants to implement change, the perceived significance and importance of the change, and the ease of implementation proportionally influenced the change in behavior or performance. The relevance of the program to clinical practice, the clarity of program objectives, the overall effectiveness of faculty, and compatibility of teaching styles of instructors with learning styles of participants were also influential in the determination of changes in behavior, performance, and practice of registered nurses (Brunt, 2000; Cervero, 1985).

Peden, Rose and Smith (1990) utilized Cervero's model to measure the impact of continuing professional education on nursing practice. The responses of participants, and their immediate supervisors were evaluated at the beginning of a continuing professional education seminar and 60 days after completion of the seminar. The results indicated a significant change in behavior of participants after participation in the continuing professional education. This reported change was positively affected by the participant's perceived receptiveness of the social system and work environment to the new ideas. Other studies similarly reported positive changes in practice after participation in continuing professional education. These changes included: a more systematic, organized and efficient approach to patient care (Heick, 1981), improvement in nursing documentation, patient education and outcomes (Gill & Ursic, 1994), as well as initial and sustained improvement in quality assurance processes (Cox & Baker, 1981; Cervero & Rottet, 1984).

However, other studies failed to demonstrate a relationship between continuing professional education and change in practice or patient outcomes (del Bueno, 1977). Gosnell (1984) reviewed 17 studies and reported that results were inconclusive as to the effect of continuing

professional education on changes in nurse's behavior, practice, or performance or patient outcomes.

The impact and influence of continuing professional education remains a source of review and discussion. The registered nurses' ability to learn, understand and assimilate pertinent information is crucial to ensure both patient and public safety (Apgar, 2001). Continuing professional education is considered an integral component and accepted method for disseminating new knowledge, information and skills for nursing practice, and to positively influence the provision of safe and competent care to the public (Apgar, 2001).

Society has recognized and responded to the need for health care professionals to remain current in practices and standards of care through the passage of legislation and statutes that mandate continuing professional education to maintain one's licensure and for certification (Yoder-Wise, 2003). Minimal competency is assured through individual state statutes, Nursing Practice Acts, and continuing professional educational requirements to maintain one's licensure (Yoder-Wise, 2003).

Relationship Between Licensure and Continuing Professional Education

The individual practitioner, the profession of nursing and the public all realized the need for continuing professional education in order that the practitioner remain cognizant of changes in practice and standards (Devney, 1998; Hegge, 1985). Traditionally two approaches have been available for registered nurses to be recognized as healthcare professionals. These are public licensing programs and certifications (American Association of Colleges of Nursing [AACN], 1996).

Public licensing programs are administered by each individual state through statutes and each state's Nursing Practice Act (Selekman & Bowden, 1999). Individual State Practice Acts mandate that registered nurses must be licensed in the state in which they practice (Elkin, Nowicki, Berry, Sheppard, & Williams, 1988; Fitzpatrick, 2003). This single state licensing provides public protection and safety for citizens of each state while maintaining the individuality and authority of each state to regulate the practice of registered nursing (Raudonis & Anderson, 2000).

The state nursing license of the registered nurse serves as a contract between the individual nurse and the

citizens of each state for competent health care (ANA, 1995). The licensing of registered nurses is a function of each state with the primary purpose to protect the public. Specific laws and legislation have established standards and qualifications for each practitioner (Cherry & Jacob, 1999). Each state statute legally defines the scope and parameters for basic and advanced nursing practice (Raudonis & Anderson, 2000). Competency for entry into the workforce in nursing is defined within the United States is accomplished through the successful passing of the licensure examination (Waterhouse, Carrol & Beeman, 1993).

Historically, the regulation of nursing practice has remained under the direction of the profession of nursing and has a long tradition of self-regulation and self-direction. (Sliefelt, 1990). From 1870-1944, each state had individual state boards of nursing, which were guided by individual state Nurse Practice Acts (SBTPE) that regulated the practice of nursing. Each state developed and administered an individual licensure examination. This individual state testing made it difficult for nurses who worked in more than one state to have their individual state nursing licensure recognized (Matassarini-Jacobs, 1989). In 1944, the National League for Nursing (NLN) developed a program of norm-referenced national testing and

established a five-subject test. This examination was referred to as the State Board Test Pool Examination (SBTPE) (Matassarini-Jacobs, 1989). By 1952, all states had adopted and utilized this format. However, each state still determined their minimal passing score (Kalish & Kalish, 1978). In 1955, the ANA assumed responsibility for the SBTPE. In 1978 the National Council of State Boards of Nursing (NCSBN) assumed control of the development, design, and implementation of the National Council Licensure Examination (NCLEX-RN) (Kalish & Kalish, 1978).

In 1982, the NCSBN changed the NCLEX-RN from norm-referenced to criterion-referenced examination. The examination was redesigned from the previous five-part distinct subject format to an integrated test based on nursing practice and process (Matassarini-Jacobs, 1989). This revision was initiated to establish minimal standards and a national passing score for all entry-level practitioners throughout the United States. The NCLEX-RN was reviewed in 1982 by a panel of nurse experts to validate that the written examination measured competencies and performances that were required for registered nurses in practice (Matassarini-Jacobs, 1989). The first criterion-based NCLEX-RN was administered in 1982 (McQuaid & Kane, 1982). The successful completion of the NCLEX-RN

is now required for initial entry to practice, and be licensed as a registered nurse in all fifty states (Cherry & Jacob, 1999).

There were no studies found that compared the NCLEX-RN and ENPC. Although, studies have been conducted to determine predictors for success on NCLEX-RN. Scoring on the Mosby Assessment Test is reported as a common predictive tool for success or failure on the NCLEX-RN (Ashley & Oneil, 1991; Fowles, 1992; McKinney, Small, O'Dell, & Coonrod, 1988; Foti & Deyoung, 1991). Other predictors included: admissions criteria, entry and graduate grade point average, mathematic and natural science scores, successful completion of courses related to declared major, standardized examination scores and ethnicity (Aratrizik & Ababen, 1998; Barkley, Rhodes, & DuFour, 1998; Enders, 1997; Glick, McClelland, & Yang, 1986; Harrelson, Gallaspy, Knight, & Leaver-Dunn, 1999; McClellan, Yang, & Glick, 1992; Yocum & Scherubel, 1985; Waterhouse, Carrol, & Beeman, 1993; Whitley & Chadwick, 1986; Wong & Wong, 1999).

McClelland, Yang, and Glick (1992) studied the relationship between achievement in nursing courses and performance on the NCLEX-RN. The results reported that student's pre-nursing grade point average and American

College Testing (ACT) scores predicted the success or failure on the NCLEX-RN. Heupel (1994) found that that success on the NCLEX-RN was directly related to student achievements in sophomore and junior nursing theory courses, junior year overall grade point and senior nursing theory course.

The NCLEX-RN, and the ENPC both consist of multiple-choice items. Items on the NCLEX-RN are written and integrate various levels of knowledge, comprehension, application, analysis, synthesis and evaluation (Bloom, Engelhardt, Furst, Hill, & Krathwoltz, 1956; Wendt & Brown, 2000). The NCLEX-RN length and time for completion varies with each participant. As few as 50 questions, or as many as 265 questions, may be required. The number of questions generated is based on the responses of each participant. Questions are computer generated until safe and effective nursing practice is predicted or discontinued if responses do not reflect safe nursing practice (Matassarin-Jacobs, 1989). The successful completion of NCLEX-RN is the entry level and initial licensure into nursing practice (Matassarin-Jacobs, 1989).

Licensure is the first step in professional and state regulation. Licensure validates that a nurse has acquired basic knowledge and skills (Fitzpatrick, 2003; Matassarin-

Jacobs, 1989). However, this basic preparatory foundation does not prepare the registered nurse to provide specialized care to patients, such as is required in critical, emergency and trauma settings (Fitzpatrick, 2003). Approximately 25 states currently have continuing professional education requirements for registered nurses to renew their license or for reentry into active nursing practice (Yoder-Wise, 2003). The number requirements for of continuing professional education vary from state to state (Yoder-Wise, 2003).

Certification and Licensure

Certification is the process by which a non-governmental agency or association certifies that an individual licensed to practice within a profession has met certain predetermined standards specified by each profession for specialty practice (Cary, 2001).

Certification is viewed by the profession of nursing as a mark of excellence, and signifies educational achievement, competence, and professional validation, to both attain and maintain certification (Fitzpatrick, 2003). Certification validates knowledge, experience and clinical judgment, and serves as a process to protect the public (Cary, 2001; Fitzpatrick, 2003). Certification provides registered nurses with the opportunity to increase their abilities and

levels of confidence for mastering new learning and skills in specialized areas of nursing practice (Falk-Craven & Bassett-Duharnel, 2003).

Licensure and certification represent specific types of regulation and validation of knowledge and skills of the registered nurse (AACN, 1996). Initial licensure measures entry-level competence and skills (Chornick & Yocom, 1995; Fitzpatrick, 2003; Matassarini-Jacobs, 1989). Certification validates advanced knowledge, experience and clinical judgment in a nursing specialty (Cary, 2001).

Relationship Between Certification and Continuing Professional Education

Since the 1970s professional nursing certification has been recognized as a measure of distinctive nursing practice (Cary, 2001). Professional certification is a means of demonstrating clinical competency and is designed to measure practice beyond that required for basic nursing licensure (Anderson, Raudonis, & Kirschling, 1999; Cary, 2001; Elkin, Nowicki, Berry, Sheppard, & Williams, 1988).

Registered nurses are certified upon meeting eligibility requirements of specific certifying agencies. Certifying requirements vary, but historically include the successful completion of a written examination that is designed to assess the participants' knowledge of current

practice and standards in a selected area of nursing. After successful completion of requirements, a certification is awarded. Through the certification process the certifying agency or professional organization, acknowledges to both the individual and the general public, achievement of mastery in a particular nursing specialty (Selekman, & Bowden, 1999).

Certification has not only denoted recognition of excellence in nursing practice, but also exemplified commitment to continuous learning by the certified nurse (Cary, 2001). Reported benefits of certification included: greater professional autonomy, measurement of competency, and the acknowledgement and evidence of differences in levels and abilities of health care providers (Selekman & Bowden, 1999; Wyatt, 2001). Other cited positive benefits of certification included: financial compensation, public recognition, increased confidence and overall improvement in provision and quality of patient care (Selekman, & Bowden, 1999).

The first certification examination was administered in 1945, for nurse-anesthetists. Currently 410,000 registered nurses have been certified in more than 130 specialties from 67 certifying organizations (Cary, 2001; Fitzpatrick, 2003). Brown (1997) reported that quality of

care was perceived as significantly improved by patients when registered nurses were certified.

Cary's (2001) study of 19,452 nurses from 23 certifying organizations reported that the typical respondent was married, Caucasian, female, in her late 40s, with a minimum of a bachelor's degree, and was employed in a hospital setting. Respondents reported that certification had resulted in at least one positive change in their professional practice. Other outcomes of certification included positive personal, professional and practice outcomes, increased self-esteem, increased competency, credibility and autonomy, improved critical thinking skills and greater ability to detect abnormal signs and symptoms, fewer errors, and significant improvement in overall patient satisfaction (Cary, 2001; Raudonis, & Anderson, 2002).

Certification in Emergency Nursing is validation of specialized knowledge and skills unique to emergency nursing. This certification is achieved through successful completion of a nationally standardized written examination (ENA, 1998). Certified Emergency Nurse (CEN) is one of the recognized nursing specialties within nursing. The title of CEN was first recognized in 1983. CEN is currently held by 24,000 registered nurses and is valid for four years

(Rice, Abel, & Smith, 2001). The ENA is a recognized certifying organization (Cary, 2001).

Certifications in nursing specialties are routinely valid for between two to four years. Re-certification requirements to maintain certification vary, but routinely include successful completion of a certifying examination and/or evidence of continuing professional education and clinical practice in the area of certification. The educational requirements may be obtained through continuing professional education, successful completion of academic credits, publishing articles in professional journals, or conducting research in area of certification (Barger, 2000).

The growing movement toward specialty certification in nursing has resulted in increased demand for continuing professional education that is applicable to specific areas of specialty practice (Gold, Haas, & King, 2000). The content to be included in certification and licensure examinations is often based on the results of comprehensive job analysis of specific job skills, tasks, and performance responsibilities of the practitioners (Fitzpatrick, 2003; Raudonis & Anderson, 2002; Cary, 2001). A common practice, for both certification and initial license examinations, has been to conduct a role delineation study or job

analysis to clearly identify the roles, responsibilities and activities intrinsic to practice and performance. The knowledge and skills that are identified, are integrated in the objectives and included in the core content and items that are evaluated on the tests or examinations (Berk, 1984).

Relationship Between Job Analysis, Job Description, Licensure and Certification

Job analysis studies have become pervasive in professional and occupational licensure and certification (Chornick & Yocum, 1995). Historically, a job analysis provided the primary basis for defining core content and the nature of work and performance of any job classification. Traditionally, a job analysis commonly defined specific behaviors and requirements for which registered nurses are responsible and accountable. Job analysis must specifically delineate core knowledge and domains required in order to adequately determine critical skills and knowledge needed for both safe practice and protection of the public (Chornick & Yocum, 1995; Gael, 1984). The job analysis involves an organized and systematic collection of information related to activities, skills and knowledge for competent and safe performance of the job (Gael, 1983; Manese, 1988). The job analysis is a

common measurement for the description of skills, knowledge, and context and condition in which the work is performed. The job analysis factually describes the important work behaviors, technology, skills, knowledge, and behavior needed for competent performance (Gael, 1983; Manese, 1988). The results of the job analysis are necessary to determine and link an examination or test to the actual activities performed by the registered nurse in their employment. Job analyses are conducted to provide a coherent picture of the tasks and responsibilities of a role in order to develop a comprehensive and appropriate job description (Manese, 1988). Job analyses include the articulation of expectations to be accomplished by each employee and commonly results in a well-written job description (Puetz & Peters, 1994).

Job descriptions provide sources for determination of criteria and activities to evaluate nurses' performance, measure skills, tasks, knowledge and skills required for safe practice. Job descriptions specifically include the educational and experience qualifications for each position and performance expectations (Puetz & Peters, 1994).

LeBlanc, deJonge, deRijk, and Schaufeli (2001) utilized a job analysis approach to determine basic dimensions of the job of registered nurses as related to

psychological stress and patient outcomes in an intensive care unit. Chase (1988) described the value of performing job analysis for determination of the importance and frequency of tasks performed by registered nurses. A job analysis was conducted to delineate and categorize common domains of knowledge and skills specific to orthopedic nursing in development of the orthopedic nursing certification examination. Cosolo (2002) described the importance of a job analysis, job descriptions, skill lists, inventories and narrative data from registered nurses in the determination of their roles and responsibilities. Ocher and Pawlik-Plank (2000) integrated literature review, job analysis and narrative with research personnel, oncology staff and certified individuals in the design and development of a research nurse job description in a clinical-based oncology research facility. A job analysis was also conducted and instrumental in the review to clarify roles, responsibilities, and scope of practice of registered nurses working in critical care units (LeBlanc, deJonge, deRijk, Schaufeli, 2001).

Comprehensive job analyses were also conducted to ascertain specific core skills, knowledge and related activities of registered nurses in order to validate the content of the NCLEX-RN (Chornick & Yocum, 1995). Studies

were conducted to determine job related activities that were representative of the domains of nursing required for entry level into nursing. The results of the job analysis supported and validated the content that was included in NCLR-X-RN. The job analysis served as a rigorous and systematic approach to ensure the integrity of content validity of items, and standards of practice included in the initial licensure examination (Chornick & Yocum, 1995; Yocum, 1987).

There were no studies, or data found, which specifically incorporated job analysis in determination of content included on the ENPC written examinations. However, Shaefer, Raymond, Stamps-White (1992) evaluated two distinct methods for structuring performance dimensions in emergency nursing. The first method surveyed 659 emergency nurses. These registered nurses completed a job analysis questionnaire, which included 125 tasks. Each nurse was instructed to determine the frequency of each task as relevant in clinical practice. The second method utilized a panel of 21 nurse experts who categorized the same 125 items based on similarity of tasks rather than the frequency of each task. The results suggested the task similarity approach was less difficult than the task frequency for the determination of the relevance and

importance of emergency nursing tasks. These results of the survey were incorporated and integrated in the development of content and items to be included on the CEN examination.

Historical Review of Emergency Nursing

The registered nurse employed in the emergency department must possess skills and knowledge based on the nursing process and additional specialized skills intrinsic to care of emergency patients (ENA, 1998). The ENA is dedicated to the advancement of emergency nursing practice. The Emergency Department Nurses Association (EDNA) was formed in 1970 by Anita Dorr, and Judith C. Kellener. Both were emergency nurses who recognized the need for the unification of nurses involved in emergency care. Ms Dorr had formed the Emergency Room Nurses Organization in New York. Similarly Ms Kellener had organized the Emergency Department Nurses Association in California. The two groups combined membership in 1970 and formed the Emergency Department Nurses Association (EDNA). The purpose of the EDNA was twofold: first, the development of organized, systematic standards of nursing practice and second, to represent registered nurses who provided emergency care. This organization was formed to serve as a network from which emergency nurses were able to share knowledge and

skills, seek solutions for questions, concerns, issues specific to emergency nurses and support quality emergency nursing practice (ENA, 1998). In 1985 the name was changed from the EDNA to the ENA. This change was initiated in order that the practice of emergency nursing would be recognized based on the *roles and responsibilities of the emergency nurse*, rather than the *site of clinical practice* (ENA, 1998). The focus of the ENA has always been the provision of optimum emergency nursing care for patients and the advancement of emergency nursing practice (Kelly & Joel, 1999).

With the increasing acuity of patients, higher standards of care, as well as the episodic and unpredictable nature of emergency care, registered nurses, in emergency departments, have a professional and ethical responsibility to be well educated, highly skilled and able to competently manage the complex patients, procedures and equipment (Cioffi, 1999; Rice, Abel, & Smith, 2001). Each pediatric patient requires specialized nursing care, treatment and intervention. The continued professional education of the registered nurse caring for these patients has become a priority in emergency nursing (Cioffi, 1990; Taylor & Soud, 1991). The ENA (1995) Standards for Emergency Nursing Practice addressed the importance of

education and purported that each registered nurse must remain cognizant of current knowledge and changes in nursing practice.

Emergency nurses employed in emergency departments caring for pediatric patients are often encouraged or required by employers to successfully complete the ENPC. Mastery and successful completion of the ENPC is acknowledged by the ENC by the award of a verification card. The successful completion of the ENPC written examination is evidence of mastery of the specific nursing knowledge and skills intrinsic to care of the emergency pediatric patient (ENA, 1993, 1998). The ENPC *verification* card is considered by regulatory and accreditation agencies as evidence and validation of age-specific competencies for pediatric emergency patients (Joint Commission For Accreditation of Healthcare Organizations, 2003).

Emergency Nursing Pediatric Course

Pediatric emergency nursing is recognized as a separate and unique specialty within the discipline of nursing (ENA, 1998). Pediatric emergency nursing care is focused on the overall improvement in emergency care for infants, children and adolescents (ENA, 1998). The ENA recognized the need for development of continuing professional education and performance standards to ensure

that competent, high quality and systematic care was provided for children with injuries and illness (ENA, 1998).

The ENPC Task Force was formed in 1991 to develop the ENPC. This task force consisted of national and international pediatric emergency nursing experts and clinicians (ENA, 1998). The focus of the ENPC was to provide registered nurses with the knowledge and skills to provide emergency pediatric nursing care. The course was designed based on a systematic, organized approach to emergency pediatric nursing care with the integration of the nursing process (ENA, 1998). The ENA developed the ENPC in 1993. The course was based on the premise that reduction of morbidity and mortality of children is best achieved if emergency nurses are sensitive and understand the specific needs of children and are able to recognize and intervene appropriately to facilitate the best outcomes for each pediatric patient (ENA, 1993, 1998).

The concentrated two-day course was designed to enhance the registered nurse's ability to rapidly and accurately assess the pediatric patient's response to illness or injury events (ENA, 1998). Lectures and psychomotor skills stations are presented by trained ENPC Instructors. Lecture videotapes are available as an

alternative teaching format. The lectures presented by ENPC Instructors and lecture videotapes provide comparable information and core content (ENA, 1993, 1998).

Historically, nurse educators have used lecture format as the primary mode of instruction and teaching strategy to effectively provide instruction (Scholomer, Anderson, & Shaw, 1997). Lecturing has been described as a form of informative speaking with the primary goal of cognitive transfer of information. Lecture format has served as a mechanism to provide critical content and information to large numbers of participants in relatively short period of time without the necessity of repeating the same information to several groups (Cooper, 1972; Galbraith, 1988). The traditional lecture format is the most commonly utilized teaching method in the ENPC. The content is presented in an organized manner, within well-defined time frames with accompanying slides. There is also allocation of time for demonstrating and practicing the six psychomotor skills stations included in the course. The ENPC Instructors are encouraged to review, discuss, explain and clarify concepts, problems or ideas with all participants, but are encouraged to utilize the traditional lecture format as the primary mode of dissemination of information (ENA, 1998, 2000).

Every instructor of the ENPC has successfully completed an ENA ENPC Provider and Instructor Course (ENA, 1998). All Instructors are recommended by other ENPC Instructors. Only those registered nurses, who based on achievement on the written examinations and psychomotor skills stations performance, have demonstrated a high degree of knowledge and skills are recommended to attend and complete the ENPC Instructor Course.

The ENPC Instructor Course is a one day concentrated program that is designed to prepare new instructors to teach core content and psychomotor skills included in the ENPC. The curriculum is focused on adult learning-teaching strategies, and appropriate methods of lecturing and presentation. The description of characteristics of adult learners, and review of concepts of andragogy as described by Malcolm Knowles (1980, 1984, 1989) are also included. The importance of interaction, discussion, demonstration and recognition of each participant's expertise and experience is taught and reinforced throughout the instructor class (ENA, 1993, 1998). However, lecture is the fundamental approach and method recognized for teaching the ENPC. This teaching method is recommended in order that the core content and presentation will be provided in

the same manner, within the same time frame, irregardless of location of the ENPC (ENA, 1993, 1998).

All participants in the ENPC are registered nurses and adult learners. All have successfully completed a basic nursing education program and successfully passed the NCLEX-RN (ENA, 1993, 1998). As adults, each participant brings a wealth of knowledge and expertise to the learning environment (Knowles, 1980, 1984). Each participant is evaluated on the mastery of items included in the criterion-referenced examinations (ENA, 1993, 1998). Participants of the ENPC, as with other continuing professional educational offerings, expect these courses, certifications and licensure examinations to be psychometrically sound (Fitzpatrick, 2003).

Psychometric Properties

The term psychometrics refers to the theory and development of measurement instruments or measurement techniques through empirical research and application of theory in the development of measuring tools (LoBiondo-Wood, & Harber, 1994; Polit & Hungler, 1995; Sax, 1997). The study of measurement created a unique body of knowledge and is a compilation of both theory and practice (Sax, 1997). Measurement is the process that assigns numbers to attributes or characteristics of persons, objects, or

events according to explicit rules, formulations or regulations (Sax, 1997). A test or examination is a task or a series of tasks that is used to obtain systematic observations that are presumed to be representative of specific tasks or attributes (Sax, 1997). Tests are considered standardization if they have been designed to be administered and scored, based on uniformed conditions. Such tests or examinations provide each user with a common set of items, specific and clearly defined directions for administration, and scoring guidelines (Gay & Airasian, 2000; Sax, 1997). A standardized test therefore is one that is administered, scored and interpreted the same, regardless of the time or location in which the test or examination is administered (Gay & Airasian, 2000; Polit & Hungler, 1995; Waltz, Strickland, & Lenz, 1991).

Pen and pencil tests are one of the most commonly utilized measurement instruments (Polit & Hungler, 1995). These examinations require examinees to respond to items or tasks from which the examiner is able to make inferences regarding specific attributes or traits being measured (Sax, 1997). Tests are classified as: *norm-referenced*, or *criterion-referenced* (Sax, 1997). *Norm-referenced tests* are designed to measure achievement based on individual differences (Sax, 1997). *Criterion-referenced tests* are

focused on examinees' scores as related to a domain of knowledge rather than to another examinees score (Sax, 1997). The NCLEX-RN, CEN, and ENPC are all nationally recognized examinations which are both standardized and criterion-referenced.

Psychometric assessment is an essential and customary practice to ensure the development of a high quality test, or examination (Polit & Hungler, 1995; Sax, 1997). The development of adequate and valid measurement instruments, or tests, is essential in the field of nursing (Polit & Hungler, 1995; Sax, 1997). Psychometric properties of validity and reliability are fundamental considerations in the design, development, assessment and evaluation of any new or existing instrument (Polit & Hungler, 1995; Waltz, Strickland & Lenz, 1991).

Fundamental considerations in evaluation of psychometric properties of an instrument or test include: the number of the validity and reliability estimates, the nature and samples from which validity and reliability data were obtained, the degree of similarity between the situation for which the instrument is being evaluated and those for which psychometric data is available, and the appropriateness of the procedures utilized to assess

validity and reliability given the type of instrument and the intended use (Waltz, Strickland, & Lenz, 1991).

Psychometric properties of validity and reliability have been evaluated in studies from various nursing specialties (Fulmer, Paveza, Abraham, & Fairchild, 2000; Miles, Funk, & Carlsen, 1993; Reeve, 1994).

The evidence of validity of an instrument or test is the determination of the extent to which an instrument or test actually reflects the concept being examined (Berk, 1990; Burns & Grove, 1999; Kumar, 1996; Nunnally, 1978; Polit & Hungler, 1995; Rew, Stuppy & Becker, 1988; Sax, 1997). Validity provides the direct determination of how well a test, or examination has fulfilled the intended function and purpose (Anastasi, 1982). Validity is a matter of degree, and is an essential consideration in any instrument or test development or utilization (Messick, 1990).

Validity

According to Kerlinger (1986), "the commonest definition of validity is epitomized by the question: Are we measuring what we think we are measuring?" (p. 417). Evidence of validity is an evaluative judgment to the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of the

interpretation and actions based on test scores or other modes of assessment (Babbie, 1990; Messick, 1990; Sax, 1997).

Empirical investigations most commonly utilized for the determination of the degree of validity of a measurement, test, or examination include: content, criterion and construct validity (Anastasi, 1982; Kumar, 1996; Sax, 1997). The type of validity determination is based and dependent on the purpose of the measure, rather than the type of measure. An instrument that is designed for more than one purpose, will necessitate investigation of more than one type validity (Kumar, 1996; Waltz, & Bausell, 1983). Polit and Hungler, (1995) proposed that validity is the most important characteristic a test or measuring instrument can possess. One of the most commonly utilized methods of determining validity utilized in nursing research is content validity (Babbie, 1990; Carmines & Zeller, 1979; Polit & Hungler, 1995).

Content Validity

The judgment that an instrument is measuring what it is supposed to be measuring is based on the logical link between the items, the objectives and content (Kumar, 1996). The evidence of content validity is the degree to which a test measures an intended area and is the extent to

which items both measure the specific objectives and reflect the universe or domain of tasks under consideration (Anastasi, 1982; Burns & Grove, 1999; Gay & Airasian, 2000; Isaac & Michael, 1990; Messick, 1990; Sax, 1997; Waltz & Bausell, 1983). The focus is on the determination of whether or not items included and sampled in the measurement tool or examination adequately represent the domain of content addressed (Anastasi, 1982; Burns & Grove, 1999; Isaac & Michael, 1990; Sax, 1997; Waltz & Bausell, 1983; Waltz, Strickland & Lenz, 1991).

Content validity involves the systematic analysis of the test to determine whether there is a representative sample of the domain, behavior, and attribute to be measured (Anastasi, 1982; Messick, 1990). The domain to be assessed and tested must be systematically analyzed to ensure all major aspects are covered by test items in the correct proportions (Anastasi, 1982; Berk, 1984; Messick, 1990). The assessment of content validity should be established in the earliest development of an instrument (Carmines & Zeller, 1979; Cronbach, 1980; Nunnally, 1978; Williamson, 1981).

Tests, or examinations have evidence of content validity if the behavior and knowledge required in the items or skills correspond to the behavior and subject

matter identified in the objectives of that particular behavior or skill. Any inclusion of items that are unrelated to the objectives or failure to include items or skills required and delineated in the objectives contribute to lack of evidence validity (Anastasi, 1982; Sax, 1997). Judgments for relevance and representation from test sample to task are critical in specifying the universe of tasks, or domains (Berk, 1984; Messick, 1990). Content validity is necessary to address content relevance of a test that encompasses the match between item content and the objectives the items are intended to measure (Berk, 1984).

Commonly utilized methods to determine content validity are *review of literature and feedback and opinions from individuals who are considered experts in measuring the particular concept* (Burns & Grove, 1999; Gay & Airasian, 2000; Kerlinger, 1986; Sax, 1997). Content validity is the empirical process utilized when there is no indication, or evidence of any prior or current research (Brink & Wood, 1989). Content validity is evident based on the determination that the instrument of measurement includes adequate coverage and all major elements intrinsic and common to the known field (Brink & Wood, 1988; Isaac & Michael, 1990). The review of literature is conducted in the determination of the extent of relative content for any

measurement instrument, test, or examination. Review of literature has been extensively utilized in nursing (Burns & Grove, 1999).

A review of literature, was conducted to determine common domains specific to emergency pediatric nursing and included research articles, nursing, medical, and pediatric textbooks, trauma references and emergency nursing manuals to determine the common content, topics, chapters or domains that were consistently described. Common themes of pediatric nursing were: airway, breathing, circulation, disability, injuries, fluid and electrolytes, burns, maltreatment, trauma, pharmacology, transport, psychosocial and ethical issues (Bernardo & Bove, 1993; Cahill & Baiskers, 1986; Cardona, Hurn, Scanlon, Schlipp, & Veise-Berry, 1988; Kelley, 1994; Kit & Kaiser, 1990; Knexevick, 1986; Joy, 1989; Wong, 1996; Morray, 1987; Mancini & Klien, 1991). The topics specific to *emergency pediatric conditions* included: triage, trauma, stabilization, transport, crisis intervention, procurement and organ retrieval, and critical incident debriefing (Mitchell & Everly, 1993; Thomas, 1998). Nursing studies have utilized review of literature as a method and process for determination of commonality of themes and topics in specific domains or concepts.

Tanabe and Buschman (2000) conducted a review of literature for determination of the four domains of pain management knowledge that were applicable to emergency care. Pain assessment techniques, definition of the terms, actions and untoward effects of analgesic interventions and modalities were the four identified domains. These domains were integrated in the design and development of the Emergency Department Nurses' Knowledge of Pain Assessment and Intervention Strategies. Similarly Dempster (1990) critically reviewed literature, empirical studies and performed a conceptual analysis on the term autonomy prior to the development of the Dempster Practice Behaviors Scale which was designed to measure autonomy in the nursing practice of registered nurses.

A review of research articles was conducted in determination of the components that were essential to be included in the development of a Coordinated Care Pathway (Anders, Tomai, Clute, & Olsin, 1997). A review of the literature was a similarly important process in the development, assessment and evaluation of the Postpartum Depression Screening Scale (Beck & Gable, 2001). A multidisciplinary literature review was also completed prior to the design, and implementation of the Institute

for Safe Medication Practices Medication Error Worksheet
(Zuzelo, Inverso, & Linkewick, 2001).

The Use of Nursing Experts for Content Validation

Expert judgment is another mode of investigation for evidence of content validity of a measurement instrument or test (Hambleton & Zaal, 1990; Polit & Hungler, 1995; Waltz, Strickland & Lenz, 1991). The soundness of the validation process is greatly influenced by the method by which content experts are chosen and utilized during the instrument or test development (Gay & Airasian, 2000; Grant & Davis, 1997). Experts determine the congruence between content and objectives (Berk, 1984). These individuals are responsible to denote areas of congruence and points of mismatch between the objectives and test content that the test is designed to measure (Berk, 1984; Thorndike, 1982). Content related evidence commonly assumed the form of consensual professional judgment related to content relevance of items to the specified domain and the representation with which the test content includes and demonstrates the specific domain content (Lynn, 1986).

Studies have recommended that the number of experts needed for a content validity determination is between two and twenty (Gable & Wolf, 1993; Tilden, Nelson & May, 1990; Waltz & Bausell, 1983). Lynn (1986) proposed that a

minimum of five experts provide a sufficient level of control for chance agreement, and the maximum should not exceed ten. The selection is based on the expert's familiarity with research problem, study population, and theoretical formulations underlying the instrument (Davis 1992; Polit & Hungler, 1995). Studies have utilized panels of experts to ascertain the evidence of content validity for development and evaluation of various nursing instruments which range from medical, surgical to mental health (Beck & Gable, 2001; Berarducci & Lengagher, 2002; Boughn, 1995; Davis 1988; Krickbram, Rowan, Duehett & Savick, 1994; Leddy, 1996; Recker & O'Brien, 1995; Reeve, 1994).

The input from five content experts was incorporated in the development of the Elder Assessment Instrument for screening of elderly patients in the emergency setting (Fulmer, Paveza, Ivo, & Fairchild, 2000). Similarly, the Emergency Department Consumer Satisfaction Scale for measuring consumer satisfaction with emergency department nursing care was designed based on the input and feedback of five content experts (Davis, 1988). Feedback and recommendations from nurse experts was instrumental in the development of a scale to measure nursing presence (Kostovich, 2002). Three pain experts and one gerontology

nurse expert were utilized and their suggestions were integrated in the design and development of a 52-item knowledge questionnaire related to pain management principles. The instrument was designed to evaluate responses from emergency nurses (Tanabe, & Buschmann, 2000). Seven osteoporosis experts, which included five rheumatologists and two advanced practice nurses assessed the representation of content which was instrumental in the development of the Osteoporosis Knowledge Questionnaire (Beraducci & Lengacher, 2002).

The Importance of Criterion-Related Validity

In contrast to content validity, criterion-related validity is based on the degree of empirical correlation between the test scores and criterion scores (Nunnally, 1978; Polit & Hungler, 1995). One requirement of the criterion-selected approach is the availability of a reliable and valid criterion with which to measure the instrument or examination (Polit & Hungler, 1995). Criterion-related validation procedures indicate the effectiveness of a test in predicting an individual behavior or performance in specified situations (Polit & Hungler, 1995).

Criterion-related approach to validity is focused on the establishment of a relationship of the instrument with

another measure of the same criterion (LoBiondo-Wood & Haber, 1994; Polit & Hungler, 1995). Correlation serves as the basis to predict an individual's understanding of a criterion measure of interest (Messick, 1990). Nursing studies have incorporated and integrated criterion validity in development and assessment of measurement instruments.

The evidence of criterion validity of the Geriatric Depression Scale was supported by the positive correlation of scores of the Geriatric Depression Scale and scores of both the Zung Self-Rating Depression Scale and the Hamilton Rating Scale for Depression. Significant positive correlation of 0.84 and 0.83 respectively were reported (Abraham, Neundorfer, & Currie, 1992). The Denver Developmental Screening Test is designed to classify a child's development stage based on very specific criterion-based measurement to assist the clinician's ability to identify normal and abnormal behavior which is beneficial in the determination and prediction of performance (Frankenburg, Dodds, & Fandell, 1970). The two types of criterion-related validity that have been commonly employed in research are concurrent and predictive (Polit & Hungler, 1995).

Concurrent Validity

Concurrent validity is the degree to which scores on one test, or examination correlate to scores on another test, or examination when both are administered within the same time frame (Gay & Airasian, 2000; Lobiondo-Wood & Haber, 1994). Concurrent validity is relevant for tests employed for determination and diagnosis of existing status rather than predictive of future outcome (Anastasi, 1982; Lobiondo-Wood & Haber, 1994; Sax, 1997; Waltz, Strickland & Lenz, 1991). The coefficient or validity coefficient is the determination of the discrimination among individuals on a delineated criterion. If the coefficient is high, the test, or examination has a good concurrent validity (Gay & Airasian, 2000; Lobiondo-Wood & Haber, 1994; Sax, 1997; Waltz, Strickland & Lenz, 1991).

Leddy (1996) reported evidence of the concurrent validity with a new instrument, the Functional Performance Inventory, with three existing measures, the Functional Status Questionnaire, the Duke Activities Status Index, and Katz Adjustment Scales for Relatives. Validity coefficient of 0.81 for the Functional Status Questionnaire, 0.85 for the Duke Activities Index and the Katz Adjustment Scales for Relatives correlation of 0.85 supported the findings.

Predictive validity is concerned with predicting future outcomes (Walsh, 1989).

Predictive Validity

Predictive validity refers to the degree of correlation between the measurement of the criterion and some future measure of the same criterion (Sax, 1997; Waltz, Strickland & Lenz, 1991). Prediction tests are constructed or selected to sample the skills, attributes or traits measured by the criterion. High predictive validity coefficient infers that the prediction is a good measure of the criterion (Sax, 1997). Predictive validity coefficients of 0.60 or 0.70 are generally considered to be high (Gay & Airasian, 2000; Sax, 1997; Waltz, Strickland & Lenz, 1991). Predictive validity is determined by the degree of correspondence between the two measures involved. If correlation is high no other standards are required (Nunnally, 1978).

Nursing studies have incorporated predictive validity for determination of success or failure on the NCLEX-RN based on correlations of cumulative grade point average, Mosby Assessment Test, and nursing theory classes (Foti & DeYoung, 1991; Heupel, 1994). Krichbaum, Rowan, Duckett, Ryden and Savik (1994) estimated predictive validity of The Clinical Evaluation Tool (CET) by examining correlations

between nursing students' scores on the CET and variables of age, grade point, aptitude and moral reasoning scores.

Information that is provided by predictive validity is especially relevant to tests used in selection and classification of personnel (Anastasi, 1982).

The Importance of Construct Validity

Construct validity is based on the extent to which an instrument measures some theoretical construct, or trait (Anastasi, 1982; LoBiondo-Wood & Haber, 1994; Messick, 1990; Sax, 1997). Constructs are concepts adopted and developed to explain and organize response consistencies and are derived from established relationships (Cronbach & Meehl, 1955; LoBiondo-Wood & Haber, 1994; Messick, 1990). The instrument designer adopting this approach is concerned with the questions: What is the measuring device really measuring? Is the concept or construct under investigation being adequately measured with this instrument? (Polit & Hungler, 1995; Sax, 1997). The significance of construct validity is the linkage between theory and theoretical conceptualization (Beck & Gable, 2001; Polit & Hungler, 1995). Construct validity has been utilized in a myriad of nursing studies. Haber (1990) used hypothesis-testing to establish evidence of construct validity for the Level of Differentiation of Self-Scale. The tool was theoretically

derived from the Bowen Theory Differentiation of Self. Haber (1990) derived five hypotheses that represented suppositions related to differentiation of self, stress, and adult dysfunction.

Statistically significant findings supported the hypotheses and the conceptual accuracy of the Level of Differentiation of Self-Scale. Gulick (1991) conducted factor analysis in order to ascertain the construct validity of the instrument for the Self-Assessment of Activities of Daily Living for multiple sclerosis patients. Boughn (1995) reported evidence of construct validity on an instrument measuring autonomy-related attitudes and behaviors in women nursing students. Factor analysis, and contrasted groups were utilized. The results indicated that autonomy-related attitudes and behaviors specific to women can be detected through the use of the developed instrument. Kostovich (2002) determined construct validity of The Presence of Nursing Scale by comparing total scores on the instrument to a single item indicator of patient satisfaction. The results indicated a positive correlation of 0.80.

Evidence of construct validity was ascertained through confirming factor analysis of the effectiveness of the Postpartum Depression Screening Scale with the Edinburgh

Postnatal Depression Scale and the Beck Depression Inventory. Results of study indicate all instruments were highly correlated.

Convergent validity refers to a search for other measures of the construct (LoBiondo-Wood & Haber, 1994). When the relationship of one test or measurement to independent measures or indices of the same construct, trait or attribute are ascertained, convergent validity is supported (LoBiondo-Wood & Haber, 1994). Convergent validity has been utilized in nursing studies (LoBiondo-Wood & Haber, 1994; Polit & Hungler, 1995; Waltz & Bausell, 1983).

Convergent Validity

Correlative analysis is performed and if measures are positively correlated, convergent validity has been supported (Lobiondo-Wood & Haber, 1994; Polit & Hungler, 1995; Sax, 1997; Waltz & Bausell, 1983). In the development of the Health Related Hardiness Scale (HRHS), Pollock and Duffy (1990) established evidence of convergent validity by correlating the HRHS with the Kobasa's Hardiness Scale. Beck and Gable (2001), examined construct validity of the Postpartum Depression Screening Scale and the Edinburg Postnatal Depression Scale and Beck Depression Inventory. Coefficients for the Beck Depression Inventory

and the Edinburg Postnatal Depression Scale were reported 0.91 and 0.89 respectively and supported the evidence of construct validity between the two instruments. Evidence is also required to demonstrate that constructs do not correlate with irrelevant factors. The ability to differentiate the construct from others is divergent validity (LoBiondo-Wood & Haber, 1994).

Divergent Validity

Divergent validity searches for instruments that measure the opposite of the construct (LoBiondo-Wood & Haber, 1994). Discriminate or divergent empirical evidence discounts alternate constructs (Messick, 1990). Divergent validity refers to the ability to differentiate the construct from others that may be similar. If the divergent measure is negatively related to other measures, validity for the measure is strengthened (LoBiondo-Wood & Haber, 1994). Therefore, divergent or discriminate validity is indicated by low correlation between irrelevant factors or constructs designed to measure some other construct (Polit & Hungler, 1995; Sax, 1997; Thorndike, 1982). This demonstration of low correlation with irrelevant variables is as significant as demonstration of high correlation with other measures of the construct (Anastasi, 1982; Polit & Hungler, 1995; Sax, 1997; Waltz,

Strickland, & Lenz, 1991). In the development of the Miller Hope Scale (MHS) evidence of divergent validity was established by correlating the MHS with the Hopeless Scale. A negative correlation between the MHS and Hopeless Scale demonstrated the divergent validity of the MHS. Walsh and Bausell (1983) recommended test validation should incorporate the examinations of both convergent and divergent validity.

Value implications, relevance of the test and ability and social consequences are other considerations in determination validity from a consequential perspective (Messick, 1994; Moss, 1998). Considerations of value implications and social consequences are essential as a component of the validity process (Cronback, 1988; Messick, 1990; Moss, 1988; Reckase, 1998).

Consequential Aspects of Validity

The consequential aspect of validity has not been consistently addressed in nursing studies (Goodwin, 2002; Messick, 1994). Nursing studies routinely focus on instrument or test development, description of psychometric properties of validity and reliability, but less often address the consequential aspect of validity. Consequential validity is focused on value and implication of score interpretation as a basis for action. Actual or

potential consequences of test use, as related to issues of bias, fairness and distributive justice are essential considerations (Braum, Jackson, & Wiley, 2002).

Reckase (1998) noted that test titles must be representative of test content and consequential validity is best ascertained and assessed by test developers who are sensitive to social issues and value implications. Consequential bias of validity should be considered in any test that has explicit cause and effect relationships, such as placement decisions, prerequisite or minimum competency determination. Sheppard (1997) noted that consequential validity should be utilized to guide intervention, differential diagnosis, or link test scores and outcomes. Messick (1990) proposed that consequential implications of validity should be a consideration with any test interpretation and use as related to social and individual consequences. Licensure, certification and continuing professional education must be psychometrically sound to provide and measure knowledge and critical skills needed for safe practice and protection of the public and include both evidence of validity and reliability (Chorwick & Yocum, 1995).

Reliability

"In everyday English, reliability simply means dependability, or trustworthiness" (Gay, 1987, p. 161). Reliability of the test scores or of the measurement refers to the ability to produce consistent scores each time the test or the measurement is administered (Burns & Grove, 1999; Gay, 1987). The greater the degree of consistency and stability in an instrument, the greater the reliability of the instrument (Kumar, 1999). The measurement of scores of a test, or examination are reliable if they reflect true rather than chance aspects of the task or ability and random conditions have been reduced. The reliability will be high and measurements will provide accurate data (Sax, 1997; Thompson, 2003). The overall goal of all measurement is to achieve accurate results (Waltz, Strickland & Lenz, 1991).

Reliability describes the extent to which measurement can be depended on to provide consistent, unambiguous information (Sax, 1997). Regardless of the data collection tool utilized, the intent must be accuracy. Therefore, reliability is concerned with the consistency, accuracy, precision, equivalence, homogeneity, stability and repeatability of the instrument, test, or examination (Brink & Wood, 1989; Kerlinger, 1986; LoBiondo-Wood &

Haber, 1994). The more reliable an instrument, the more confidence the researcher has that the scores that were obtained and are representative of true, rather than chance events (Gay & Airasian, 2000).

The reliability of an instrument is not a property of the instrument, but rather of the instrument when administered to a certain sample under certain conditions is the major criteria for assessing quality and accuracy and is based on the research process (Burns & Grove, 1999; Kumar, 1999; Polit & Hungler, 1995; Sax, 1997).

A reliable measurement is one that maximizes the true score component and minimizes the error component. The greater the error, the greater the unreliability (Polit & Hungler, 1995; Sax, 1997). If error variance is high, there is a corresponding decrease in the evidence of reliability. Similarly, when error variance is reduced, true and obtained variance will more closely approximate each other, with resultant increased reliability (Sax, 1997). A reliable measurement does not respond to chance factors or environmental conditions, and has consistent results if repeated or administered to the same person or if used by different investigators (Brink & Wood, 1989; Sax, 1997).

Test reliability is consistency of scores obtained by the same persons when retested with the identical test or with an equivalent form of the test (Anastasi, 1982). The evaluation of score reliability is essential in all studies and is a matter of degree. All scores include random fluctuations and are not perfectly reliable, since there are no perfect scores (Sax, 1997; Thompson, 2003).

Common procedures to estimate the reliability of scores of an examination or test included: *test-retest*, *form equivalence*, and *internal consistency* (Gay & Airasian, 2000; Kerlinger, 1986; Polit & Hungler, 1995; Thompson, 2003; Waltz, Strickland & Lenz, 1991). Stability is concerned with how stable scores of the measurement remain over time. Stability is measured by correlating test scores obtained from the same individual over a specified period of time (Polit & Hungler, 1995; Sax, 1997; Thompson, 2003). The evaluation of reliability of scores of tests is important in all studies as the reliability of data in a given study will drive, support, and substantiate the study results (Thompson, 2003).

Stability

Stability refers to the degree of consistency of repeated measurements (Burns & Grove, 1999; Gay & Airasian, 2000; Sax, 1997). Stability is evidenced when scores

obtained on a test, or measurement, at one time are the same or similar when a test or measurement is re-administered. The more similar the scores remain over time, the more stable or consistent the test scores (Gay & Airasian, 2000; Sax, 1997). Stability is generally utilized with physical, technological measures and pen and pencil tests (Burns & Grove, 1999). Stability assumes that the factor or trait measured remains constant. Any change in value, or score is the consequence of random error.

The estimation of reliability is focused on the instrument's susceptibility to extraneous factors from one application to another (Burns & Grove, 1999; Gay & Airasian, 2000; Polit & Hungler, 1995). Test-retest method is recommended for determining the quality of measures and other devices designed to assess characteristics known to be relatively stable over the time period under investigation (LoBiondo-Wood, & Harber, 1994). A major problem affecting stability is the determination of the most appropriate time interval between the two successive testing sessions. Stability coefficients require that the measure be administered at least twice in order that scores from the two tests can be correlated to obtain a reliability coefficient (Sax, 1997; Thompson, 2003). Stability coefficients require a well constructed test that

when administered would yield reliability coefficients of 0.90 (Walsh, 1989).

Test - Retest

Test-retest procedure has been utilized in nursing studies. Boughn (1995) reported evidence of stability of The Caring Respective Instrument (CPS) based on the test-retest method. The CPS was initially administered to 275 nursing students during lecture or clinical laboratory setting and re-administered to the same sample two weeks later. Calculation of Pearson's correlation for total scores was 0.90.

Younger (1983) incorporated the test-retest method in determination of evidence of reliability of scores in The Mastery of Stress Instrument. The instrument was initially administered to 62 participants, and was re-administered two weeks later. Correlation reported ranged from 0.79 to 0.82. Beraducci and Lengacher (2002) administered the Osteoporosis Knowledge Questionnaire to a group of 15 women immediately after completion of the educational program on osteoporosis and re-administered the same questionnaire in two weeks. Pearson product correlation was reported at 0.77. Recker and O'Brien (1995) utilized test-retest in determination of reliability of the multiple choice orientation tests that were utilized in critical care

units. The results reported evidence of test-retest stability was supported.

Short-term memory may influence each participant and produce highly consistent scores, the estimate of reliability subsequently may be artificially inflated. Specific memory is less problematic as the interval between the two testing is lengthened (Thorndike, 1982). However, excessively increased intervals between testing may increase performance due to learning, maturation and experience. The estimate of reliability may consequently be artificially low (Gay & Airasian, 2000). The higher the correlation reliability, the less susceptible scores are to random daily changes in condition of examinee or of the testing environment (Anastasi, 1982). Regardless of the type of testing, the recommended interval should rarely exceed six months (Anastasi, 1982). Transfer or practice expected difficulties encountered in test-retest reliability are reduced significantly with alternate forms of the test (Anastasi, 1982; Sax, 1997).

Equivalence

One of the major methods for determination of evidence of equivalence reliability is construction of two different forms or versions of an instrument or examination to measure the same concept (Brink & Wood, 1989). Evidence of

reliability of scores is based on two equivalent or alternate forms of the instrument that is administered to the same subjects during a specific testing period (Brink & Wood, 1989). The measures are considered alternative or parallel if each is linked in a systematic manner (Rust & Golombok, 1999). Each form is constructed with the same objective procedures, and based upon identical conceptual definition. Each form contains the same number of items, identical format, structure and level of difficulty. Identical directions for administration, scoring and Interpretation, are utilized (Anastasi, 1982; Brink & Wood, 1989; Gay & Airasian, 2000; Sax, 1987; Waltz, Strickland, & Lenz, 1984). Alternate form, includes administration of both instruments consecutively (Brink & Wood, 1989; Sax, 1997). The extent of correlation of the resulting two scores supports evidence of equivalence. Parallel forms are often considered the most desirable index of reliability. This methodology involves two different representative samples of items (Anastasi, 1982; Isaac & Michael, 1990; Rust & Golombok, 1999). Scores of the test or instruments, which correlate highly, are considered equivalent. Two measures are deemed alternate or parallel if each has approximately equal means, equal correlations and equal standard deviations and may be used

interchangeably with the same concept being measured on both forms (Brink & Wood, 1984; Sax, 1997).

Hoskins (1988) developed two alternate forms of the Partner Relationships Inventory. After administration, the results indicated consistent scores. Recker and O'Brien (1995) developed parallel forms of Critical Care Orientation Tests. Both forms were administered to 20 experienced critical care nurses within one week and high correlation was reported.

Due to time constraints, difficulties in constructing of comparable forms, and need for two administrations, alternate forms have been consistently implemented (Anastasi, 1981; Sax, 1997; Thompson, 2003; Waltz, Strickland & Lenz, 1991).

Internal Consistency

The internal consistency approach or homogeneity to estimating the reliability of test or measurement is one of the most commonly used procedures in nursing research (Polit & Hungler, 1995). The determination of an instrument's internal consistency or homogeneity is primarily utilized to ascertain or determine the correlation of various items within instrument (Gay & Airasian, 2000; Polit & Hungler, 1995; Sax, 1997; Waltz, Strickland, & Lenz, 1991). Internal consistency estimates

are often utilized, as this methodology requires only a single administration of the measurement, test, or examination (Polit & Hungler, 1995; Sax, 1997; Thompson, 2003; Walsh, 1989). Internal consistency may be calculated through three different approaches: Split-half, Kuder-Richardson and Coefficient Alpha (Anastasi, 1982; Polit & Hungler, 1995; Sax, 1997; Thorndike, 1982). Each approach provides data relevant to consistency among items based on single administration (Thompson, 2003; Walsh, 1989). Each indicator is considered a separate, but an equal measure of the entire underlying concept (Brink & Wood, 1989).

Split-half Approach

Reliability estimate from split-half approach involves dividing items of the instrument into two equivalent halves. The procedure is appropriate if instrument is of substantial length, circumstances are unfavorable to administration of the same test at two separate times or two different forms to a group (Gay & Airasian, 2000; Issac & Michael, 1990). The split-half approach requires only one administration of the test. Different reliability estimates may be obtained due to different administration or "splits" of the test. The major source of error is primarily based on the items. Results from differences in item-content quality, on the two halves as well as any

changes in examinees in reliability must be a consideration (Sax, 1997). Temporal changes that often occur with examinees are not influenced or reflected in split-half reliability as this approach requires only a single test administered (Sax, 1997). Longer tests provide a more adequate sample of items and therefore tend to be more reliable than a shorter test (Sax, 1997). The Spearman-Brown "prophecy" formula is used to calculate correlation (Anastasi, 1982; Lobiondo-Wood & Haber, 1994; Sax, 1997; Thompson, 2003). Utilization of split-half reliability approach is not recommended for speed tests (Gay & Airasian, 2000; Issac & Michael, 1990; Sax, 1997).

Aratrizik (1991) study investigated the appraisal of pain and coping, utilized the split-half approach. A pilot test that included a sample of 30 patients with metastatic breast cancer that were experiencing pain completed the Pain Experience Inventory with a reported reliability coefficient of 0.85.

Kuder-Richardson 20

The Kuder-Richardson 20 (KR 20) is the estimate of the internal consistency of instruments for determination of how items on a measurement, tool, test or examination relate to other items, and to the entire test (Gay & Airasian, 2000). The KR 20 provides reliability estimates

that are equivalent to the average of the split-half reliabilities for all halves (Gay & Airasian, 2000; Sax, 1997). The KR 20 is used for assessing reliability for dichotomously scored items (LoBiondo-Wood & Haber, 1994). This technique yields a correlation that is based on the consistency of responses to all the items of a single form of a test or examination that is administered one time (LoBiondo-Wood & Haber, 1994). Items that have more than two scores require the Cronbach's Alpha Coefficient. The KR 20 is also applicable if the difficulty level of each item has been determined (Anastasi, 1982; Sax, 1997; Thompson, 2003; Walsh, 1989; Waltz, Strickland & Lenz, 1991). An acceptable level of reliability of scores is determined by the type of test, or measurement, being evaluated. Coefficient of 0.70 to 0.80 for an instrument is indicative that the instrument reflected the discriminations in the concept (Burns & Grove, 1999). Assumption of the KR 20 statistical calculation reliabilities is that the test measures power rather than speed and items measure the same trait, factor or attribute the test is homogeneity in content (Sax, 1997; Thorndike, 1982).

Strauss and Swain (1990) developed the Krantz Health Opinion Survey, which was designed to measure one's

preference for information and control over one's health. KR 20 was calculated indicated for moderate level of internal consistency (Lobiondo-Wood & Habar, 1989).

The Cronbach's Alpha Coefficient is applicable with measurements involving items of any form (Sax, 1997; Thompson, 2003). The KR 20 and Coefficient Alpha yield the identical scores if items are scored 0 or 1 (Sax, 1997).

Cronbach's Alpha Coefficient

Cronbach's Alpha Coefficient also referred to as Coefficient Alpha is commonly used in nursing research to estimate reliability of scores that are not based on the dichotomous response format (Knapp, 1991; Sax, 1997). Many measurements, tests or examinations have a Likert scale response and used the Cronbach's Alpha for determination of internal consistency (LoBiondo-Wood & Haber, 1994). The Cronbach's Alpha can be used when respondents receive from zero to any number of points for each item. Conversely the KR 20 is limited to dichotomous responses and scores of 0-1.0 (LoBiondo-Wood & Haber, 1994; Sax, 1997). Cronbach Alpha Coefficient value of 0.81 was reported for validation of an instrument to measure the quality of nursing care in hospital emergency units (Barrio, Garcia, Cerijo; & Garcia-Lopez, 2002). Internal consistency reliabilities for Postpartum Depression Screening Scale (2001) ranged from

0.83 to 0.94 (Beck & Gable, 2001). Cronbach's Alpha formula for coefficient alpha was used to obtain estimates of internal consistency reliability for Functional Performance Inventory in patients with Chronic Obstructive Pulmonary Disease for each subscales as well as the entire instrument. Results ranged from 0.75 to 0.93 (Kline-Leidy, 1999). Resnick and Jenkins (2000) reported coefficient alpha of 0.92 when determining Self-efficacy for Exercise Scale. Cronbach's Alpha Coefficient of 0.92 was similarly reported on the Davis Consumer Satisfaction Scale (Davis, 1988). Kostovich (2002) reported evidence of reliability with calculation of Cronbach's Alpha. This study was conducted to design a scale to measure nursing presence. The study included 330 acutely ill hospitalized patients, who completed the 25 Item Presence of Nurse Scale. Cronbach's Alpha Coefficient was 0.95 for the newly designed instrument.

Summary

Chapter 2 provided an overview of studies and resources related to concepts of continuing professional education, participation and non-participation, and discussion of licensure, certification and job analysis. Psychometric properties of validity and reliability were reviewed. Nursing studies were cited that had integrated

one or more of the psychometric properties in determination of validity and reliability of various measurement instruments, tests and examinations.

Chapter 3

Methodology

This chapter described the type of research design selected, the sample, and the measurement methods utilized. The data collection methods are delineated. There is a description of the development of forms and procedures utilized for data collection and analysis.

Design

A descriptive research approach was selected and implemented to empirically investigate unresolved questions concerning psychometric properties of the ENA ENPC written examinations. This methodology was used to address specific questions related to validity and reliability of the written examinations that had not been previously investigated, addressed, or entertained through any empirical research methodology (Burns & Grove, 1999; Gay, 1992; Kumar, 1996; Polit & Hungler, 1995).

Data Sets

There were four distinct data sets included in the study. First, 612 completed written examinations of all three versions of the ENPC were randomly selected and provided from available completed written examinations for the previous two years (2001 - 2002) by a representative of

the ENA. Second, ten nursing experts were purposely selected by the investigator to evaluate content validity of the ENPC written examinations. Third, 104 nurse managers, or designees, of emergency departments of acute care facilities throughout Oklahoma were purposely selected and contacted by investigator to determine if completion of the ENPC was required for registered nurses to work in emergency departments. Finally, 20 job descriptions for registered nurses were purposely selected and reviewed by the investigator. These job descriptions were obtained from 20 acute care facilities throughout Oklahoma to ascertain if completion of ENPC was included on the job description. Each data set was unique and required specific procedures for implementation.

Procedure

A descriptive research study was conducted to ascertain the psychometric properties of validity and reliability of the ENPC written examinations and to specifically answer the research questions: 1) are the ENPC written examinations valid?, and 2) are the scores of the ENPC written examinations reliable? Central to these research questions was the necessity to first, ascertain if any previous procedures have been implemented to assess the fundamental psychometric properties of validity and

reliability and second, conduct an investigative study to address the two research questions. First, attempts were made by the investigator to determine if the psychometric properties of validity and reliability for the ENPC written examinations had been investigated by either the ENPC Task Forces or other researchers. Second, research procedures and methodologies were implemented to address the two unanswered research questions.

In order to ascertain if any psychometric properties were assessed for the ENPC written examinations, representatives from the ENA and the two ENPC Task Forces were contacted. A review of literature was also conducted by the investigator in an attempt to locate any documentation, reports, studies, articles, or data related to the validity and reliability of the ENPC written examinations.

ENA Input

The ENA Director of Education was initially contacted by the investigator and was advised that previous records and data regarding ENPC test development, implementation, or evidence to support validity and reliability could not be located. None of the original 1993 versions of the ENPC written examinations were available (J. Mika, personal communication, March 24, 2003).

Historically, from 1993 until 1998, prior to each ENPC, the written examinations were mailed to the Course Director. The Course Director was an ENPC Instructor and ENA member who was responsible for ensuring that the ENPC was conducted in accordance with ENA guidelines (ENA, 1999). The ENA **mandated** that all written examinations were to be secured until day of testing to ensure the security and integrity of the ENPC examinations. The total number of written examinations provided by ENA directly corresponded to the number of participants that were enrolled in each ENPC. There were no additional written examinations provided. Photocopying or reproduction of any portion of the ENPC written examinations was **prohibited**. All written examinations were to be returned to the ENA at the conclusion of each ENPC. All returned written examinations were re-verified and recounted when received by the ENA.

In 1998, the ENPC written examinations were revised. All 1993 versions of the written examinations were destroyed by the ENA. None of the 1993 versions of the ENPC written examinations were maintained by the ENA. Due to previous ENA directives, no copies of the original 1993 written examinations were available (J. Mika, personal communication, April 15, 2003).

ENPC Task Force Members

The investigator also attempted to contact members of the 1991 and 1998 ENPC Task Forces to ascertain if psychometric assessments had been conducted on the written examinations. The names of task force members were obtained from various sources which included: personal knowledge of the investigator, citations in the 1993 and 1998 ENA ENPC Provider Manuals, as well as other various ENA publications and review of literature.

The ENPC Task Force members were contacted, by the investigator, in order that each would be provided the opportunity to clarify and describe any procedures or processes that may been implemented in the development and assessment of the psychometric properties of validity and reliability for the ENPC written examinations. Information was procured from personal telephone conversations and electronic mail. Two of the members of the 1991 ENPC Task Force were unable to recall any of the specific processes that were implemented. However, three members of the 1991 ENPC Task Force reported that test blueprints were initially developed, an item analysis was conducted, and a consensus of members was obtained for determination of scores required for successful completion and evidence of mastery of the written examinations. However, no inter-

rater agreement or statistical analysis had been conducted (L. Bernardo, personal communication, March 3, 2003). One member of the 1998 ENPC Task Force reported that no psychometric assessments were performed on the 1998 revisions of ENPC written examinations. (H. Hawkins, personal communication, March 27, 2003)

Review of Literature

A review of literature was conducted to determine if any other empirical research related to the ENPC had been conducted. Two nursing studies had utilized the ENPC (Ropele, 1998; Veurink-Balicki, 1998). Ropele's (1998) study evaluated if emergency nurses perceived increases in knowledge and skill in caring for pediatric emergency patients, after completion of the ENPC. The study also investigated if non-certified registered nurses reported a greater increase in knowledge and skill than certified registered nurses after successful completion of the ENPC written examinations. Veurink-Balicki (1998) evaluated emergency nurses perceptions of stress prior to and after completion of the ENPC.

Ropele (1998) reported that emergency nurses perceived an increase in overall knowledge and skill after completion of the ENPC. There were no reported statistical differences between the scores of certified and non-

certified registered nurses on the written examinations. Veurink-Balicki (1998) reported that emergency nurses perceived a benefit from successful completion of the ENPC and reported less perception of stress in caring for pediatric patients after completion of the course. Neither study included any supportive evidence related to the psychometric properties of the ENPC written examinations. No other supporting data related to psychometric assessments of the ENPC written examination was located.

Based on the information provided by the representatives of ENA, the ENPC Task Force members, and lack of supporting data in the literature, the research questions: 1) are the ENPC written examinations valid, and 2) are the scores of the ENPC written examinations reliable?, remain unanswered. Permission was received from the ENA and Oklahoma State Institutional Review Board to conduct a descriptive research investigation to answer the two research questions. (See Appendix A)

Are the ENPC written examinations valid?

In order to answer the research question, are the ENPC written examinations valid? The researcher conducted a review of literature that identified several approaches to address the various aspects of validity. Each aspect of validity is associated with a different validity questions.

Content validity was selected to be included in the research study. This psychometric property is often assessed when there is no indicator of any prior research (Brink & Wood, 1989). Content validity is of special relevance in the design of tests, or examinations, to measure knowledge and mastery in a specific content areas (Brink & Wood, 1989; Polit & Hungler, 1995). Specific validity questions related to content validity included:

1. Is the content of the ENPC written examinations relevant to the instructional objectives?
2. Is the content of the ENPC written examinations relevant to job performance?

In order to determine the content validity of the ENPC written examinations, and to address each of the two specific validity questions, two commonly utilized research procedures were implemented: a review of literature, and feedback and opinions from individuals who are considered experts in measuring the particular concept (Burns & Grove, 1999; Gay & Airasian, 2000; Kerlinger, 1986; Sax, 1997).

A review of literature was conducted to determine the commonality of topics, subjects or domains that were consistently cited the emergency nursing care of the pediatric patient. The topics that were consistently described in the resources reviewed were: the pediatric

patient, triage, assessment, airway, breathing and circulation management, child maltreatment, crisis intervention, poisonings, stabilization and transport, specific ethical and legal considerations, and emergencies related to the trauma, specific anatomical systems (airway, respiratory, cardiac, circulation, orthopedic and neurological), burns and poisoning, and other medical conditions.

The review of literature substantiated that the content of the ENPC included the 12 most commonly cited topics or domains. These domains were integrated and incorporated in the ENPC written examinations. The 12 domains cited in the literature corresponded with the 12 major topics or chapters contained in the ENA ENPC Provider Manual and items on the written examinations. (See Table 1)

Table ___I___

**Comparisons of Domains Cited in the Literature and
Corresponding ENPC Topics**

Domains in Literature	Topics in ENPC
Pediatric patient	The pediatric patient The neonate
Triage Assessment	Initial assessment and triage
Airway management / Respiratory management	Respiratory distress and failure
Child maltreatment	Child maltreatment
Crisis intervention	Crisis intervention
Stabilization	Stabilization
Transport	Transport
Ethic considerations	Stabilization and transport
Legal considerations	Crisis intervention
Poisonings	Toxicologic emergencies
Cardiac	Cardiovascular emergencies
Circulation	Emergencies
Orthopedic	Pediatric trauma
Neurological	Pediatric trauma
Burns	Burns
Medical	Medical emergencies

Panel of Experts

A panel of nursing experts was formed to assess and evaluate the content validity of items and instructional objectives of the 12 domains/topics included in the ENPC written examinations and to answer the specific validity question: is the content of the ENPC written examinations relevant to the instructional objectives? The domains included: *the pediatric patient, initial assessment and triage, respiratory distress and failure, pediatric trauma, cardiovascular emergencies, burns, child maltreatment, the neonate, medical emergencies, toxicologic emergencies,*

crisis interventions, and stabilization and transport.

(See Table 2)

Table II

Chapters Included in the ENPC	
Topics of ENPC	
1.	Burns
2.	Cardiovascular Emergency
3.	Child Maltreatment
4.	Crisis Intervention
5.	Initial Assessment and Triage
6.	Medical Emergencies
7.	Pediatric Trauma
8.	Respiratory Distress and Failure
9.	Stabilization and Transport
10.	The Neonate
11.	The Pediatric Patient
12.	Toxicologic Emergencies

Criteria for Nurse Experts

In order to be considered a nurse expert for the purpose of this study, each registered nurse had to meet the following criteria:

1. Current member of ENA
2. Advanced academic degree (Master or Doctorate), or
3. Certification in advanced practice (Nurse Practitioner or Physician Assistant) or
4. Member of one of the ENPC Task Forces
5. Current ENPC Instructor

This criterion was selected by the investigator in order to ensure that each nurse expert would be familiar with the research questions and was committed to adult and continuing education and lifelong learning.

Procedure for Selection of Nurse Experts

In order to select the most qualified nurse experts, the ENA was contacted and agreed to provide the investigator with a list of 15 registered nurses who met the established criteria. The registered nurses included on the list provided by the ENA represented various regions of the United States. The investigator had concurrently developed a list of 102 potential nurse experts who also met the defined criteria. The list was developed from data obtained from several resources. These sources included: 1) electronic retrieval of names of ENPC state representatives from the official ENA website, and 2) authors cited in articles from various emergency nursing publications, such as Journal of Emergency Nursing, Emergency Nurses Association Connection, and the ENA ENPC Provider Manual. Interestingly, the two lists did not share any common names.

Multiple attempts were made by investigator to contact the nursing experts by telephone or electronic mail. However, due to changes in employment, incorrect or outdated demographic data, the investigator was only able to personally contact 25 of the 117 nurse experts. A prepared script describing the purpose of the study, time requirements and rationale for selection was read to all

contacted nurse experts (See Appendix B). Ten nursing experts agreed to participate in the study and represented eight states. Nursing experts from various regions were purposely selected in order that the experts would be able to identify any colloquial terms or practices which may have been inappropriately included in the written examinations (Grant, Kinney & Guzzetta, 1990). After verbal agreement had been received by each of the ten nursing experts, the Consent to Participate in Research Study, developed by the investigator, and accompanying cover letter was mailed to each expert (See Appendix C) The cover letter explained the reason for the study and rationale for selection as a nurse expert (Sudman & Bradburn, 1982). (See Appendix D)

Consent for Participation in Research Study

The consent for participation in research study was developed by the investigator and approved by the ENA and Oklahoma State University. (See Appendix C) The written consent described the purpose of the research study and methods implemented to protect confidentiality and anonymity of each nursing expert. The Consent for Participation in Research Study was mailed to each nursing expert with a returned self-addressed envelope. All nurse experts were instructed to sign and return consent form

prior to completion of the Content Validity Indicator and General Information Form. All consents were returned to investigator prior to receipt of responses on the Content Validity Indicator and General Information Form.

General Information Form

An investigator-designed General Information Form was developed and electronically mailed to each nurse expert. The General Information Form was designed to elicit specific demographic information. (See Appendix E) The demographic data included: gender, age, education, years in nursing, years in emergency nursing, type of facility of employment, validation of membership in ENA, years as ENPC Instructor, number of ENPC courses conducted on annual basis, and number and success rate of participants. In order to ensure confidentiality of each nurse expert, names, addresses and geographic locality of the respondents were not requested (See Appendix F).

Content Validity Indicator

In order to determine the content validity of the ENPC examinations, and also specifically the validity question: is the content of the ENPC written examinations relevant to instructional objectives? A Likert scale questionnaire was developed by the investigator. The questionnaire, entitled *Content Validity Indicator*, included instructional

objectives and specific items for each of the 12 topics. The *Content Validity Indicator* was designed in order that each nurse expert would be able to evaluate if the test items and instructional objectives were relevant and representative of each specific domain that was being evaluated (Berk, 1984).

The instructional objectives are listed at the beginning of each chapter in the 1998 version of ENPC Provider Manual. These objectives were designed to identify key lecture content and areas for evaluation of each topic. The major topics included on the Content Validity Indicator were: *pediatric patient, initial assessment and triage, respiratory distress and failure, pediatric trauma, cardiovascular emergencies, burns, child maltreatment, neonate, medical emergencies, toxicologic emergencies, crisis intervention, stabilization and transport*. The description of each topic was included in the ENPC Provider Manual (ENA, 1993, 1998). All of the nurse experts were ENPC Instructors. All ENPC Instructors have copies of the ENPC Provider Manual and were familiar with the 12 topics. All ENPC Instructors were trained to review and discuss instructional objectives with participants at the beginning of each topic presentation in each ENPC session. All items included on Version A and

Version R of the written examination were included on the *Content Validity Indicator*. Each topic was on a separate page and included the instructional objectives and items related to each specific topic. An area for comments was also provided.

The *Content Validity Indicator* included specific instructions for completion. Each of the 12 domains were identified. Two versions of the ENPC written examinations, Form A and Form R, were identified. All items corresponding to each topic (domain) were identified. All forms and directions were electronically transmitted to the nurse expert (See Appendix G). The nurse experts were advised, in writing, that completion of the *Content Validity Indicator* would require approximately two hours. The nurse experts were instructed to rank each item and instructional objective on the Likert scale from 1 through 4 based on the relevance of each to content of each of the 12 topics (Davis & Grant, 1993; Goodwin, 1997; Lynn, 1986). The ranking was: 1-Not Relevant, 2-Somewhat Relevant, 3-Quite Relevant, 4-Very Relevant. (See Appendix H)

The initial request was sent the first week in May, 2003. (See Appendix I) A second reminder was sent the third week of May, 2003. All responses from the nurse experts were completed and returned by the investigator by

the third week in June, 2003. (See Appendix J) The results were compiled, and the data analyzed. The Inter-rater Agreement (IR) and the Content Validity Index (CVI) were reviewed and calculated.

Emergency Nursing Pediatric Course Requirement

Studies indicated that registered nurses commonly participated in continuing professional education for personal and professional development, and less frequently for job related requirements (Blais, DuQuert, & Painchaud, 1989; DeJoy, 1997; Furze & Pearcey, 1999). The investigator attempted to determine if healthcare facilities in Oklahoma required the ENPC, and answer the specific validity question: is the content of the ENPC written examinations related to job performance?

In order to address this validity question, the investigator personally contacted nurse managers of emergency departments, or their designees of 104 acute care facilities in Oklahoma. All the acute care facilities were purposely selected since all had emergency departments and provided care to emergency pediatric patients. These acute care facilities were located throughout Oklahoma and ranged in licensed bed size from 16 to 618. The licensed bed size of each facility is regulated by the Oklahoma State Department of Health, and represents the total number of

beds that each facility is licensed to provide patient care services. The investigator contacted each of the 104 nurse managers, or designees. The investigator explained the purpose of the research study and inquired if completion of ENPC was a requirement for registered nurses to work in the emergency department. All of the 104 responses were recorded. The results were tabulated. Government facilities, Veterans hospitals, rehabilitation centers, behavioral health facilities in Oklahoma were excluded. These facilities do not routinely provide emergency pediatric services.

**Job Descriptions for Registered Nurses Employed in the
Emergency Department**

Given that 30% of all emergency care is provided to pediatric patients, the investigator had intended to conduct a comprehensive job analysis to ascertain, the commonalities in roles, responsibilities, skills, knowledge and continuing professional education required for safe nursing practice in the emergency department and determine if this content was included in the ENPC written examinations. The study was conducted not only to ascertain commonalities of roles, responsibilities and competencies of registered nurses who worked in emergency departments, but to specifically address the validity

question: is the content of the ENPC written examinations related to job performance?

A job analysis is the systematic collection of factual information that is representative of the critical skills, knowledge, activities, and training and education required for competent performance on the job (Manese, 1989). A job analysis provides the comprehensive, coherent picture of the roles and responsibilities of any job. The individual job description specially delineates the skills, context and conditions in which work is performed and training that is essential for work performance (Manese, 1989). One of the techniques that has been employed to assess job content is review of the job description (Gael, 1983, 1988; Manese, 1989).

The directors of 20 Human Resource Departments representing 14 hospitals within a large corporate healthcare system in Oklahoma with which the investigator was familiar and six other facilities within the state were surveyed. The large corporate system facilities were included since each was founded on the mission and philosophy of commitment to high level, service, quality care and education for all patients and staff. The other six hospitals were randomly selected by the investigator from the remaining 90 acute care facilities that had been

included in the survey for determination if completion of ENPC was a requirement for registered nurses to work in the emergency department. The facilities ranged from small rural facilities to large tertiary referral centers. All 20 Human Resource Directors were advised of purpose of study and agreed to provide registered nurse job descriptions and all related skill checklists, competencies, and task inventories. The investigator was interested in ascertaining if continuing professional education, training, knowledge and skills, such as ENPC were included on the job descriptions or other requested checklists.

The names and locations of facilities were deleted from all data received to ensure anonymity. The 20 job descriptions included in the study varied in format, length and verbiage. However, only 12 of the job descriptions received included skill checklists, tasks inventories or competencies. The investigator was notified that the requested skill checklists, competencies, and task inventories, were not available. Given the inability to procure all skill checklists, competencies or task inventories, the determination of commonalities in knowledge, skills and tasks, and requirement for ENPC was

based on similarities included in the 20 job descriptions.

A comprehensive job analysis was not conducted.

ENPC Written Examinations

In order to answer the reliability question: are the scores of the ENPC written examinations reliable, the ENA was contacted and agreed to provide the investigator with a sample of completed written examinations from the available completed written examinations. All three versions of the 1998 ENPC written examinations were requested and were to be included in the research study. Version A is a 50 question, multiple choice examination based on the 12 domains included in the ENPC. The written examinations were designed to assess each participant's acquisition and mastery of content presented in the ENPC Provider Manual and during lectures (ENA, 1998). Version B is the identical content that is included in Version A, except the numbering of the questions have been reversed. Version R is the retake written examination which contains multiple choice questions that were not included on Version A or B.

The population consisted of 6,000 ENPC written examination answer sheets, which had been completed by registered nurses who had attended the ENPC between 2001 and 2002. The completed written examination answer sheets included all three versions of the ENPC written

examinations (Version A, B and R). Systematic random sampling of all the available written examination answer sheets was used to compile the 612 written examination answer sheets, which were provided by ENA. The sample contained 10% of the total population, as recommended by Gay and Airisian (2000). The sample included all three versions of the written examination answer sheets and included: 370 answer forms for Version A, 209 answer forms for Version B, and **all** the available 33 answer forms for Version R. In order to ensure confidentiality of all respondents, all information, except the version and recorded responses were from the 612 written examinations answer sheets.

Items on the ENPC

Each version of the ENPC written examinations consisted of fifty multiple choice items. Items were a representative sample of all 12 domains included in the ENPC. Each item has four choices, with only one correct response. Each response was scored as correct or incorrect. The minimum number required for successful completion was 40 questions or 80%. There are three versions of the written examinations, Form A, Form B, and Form R. Form A and B are considered the parallel forms of the same examination. The content is identical, only the

order of questions has been reversed. The R version is the retake version. This version is administered only: if the participant did not initially achieve the required standard score of 80%, or 40 correct responses, but was successful on the three psychomotor skill stations. No psychomotor skills results were provided by ENA.

Analysis of Data Sets

Analysis of each data set was individually reviewed and calculated in order to address the two research questions: are the ENPC written examinations valid? and are the scores of the ENPC written examinations valid? The two specific validity questions were also investigated. Is the content of the ENPC written examinations relevant to the instructional objectives? Is the content of the ENPC written examinations relevant to job performance?

ENPC Written Examination Responses

In order to answer the research question: are the scores of the ENPC written examinations reliable, the responses of the provided written examinations, were tabulated and statistical calculations were performed using the Cronbach Alpha Coefficient. The first step was to input data from the 612 written examination answer sheets. In order to input the data, the recorded responses on the 612 answer forms were transferred from original scanner

sheets received from the ENA to new scanner sheets that could be electronically scanned. The data was electronically scanned and transmitted to a computer data bank. Cronbach's Alpha Coefficient was calculated utilizing the Statistical Package for Social Sciences, Version II (SPSS) to ascertain internal consistency reliability of scores of ENPC written examinations. Descriptive statistics of mean, median, standard deviation, and range were also compiled.

Agreement of Nurse Experts

Inter-rater agreement (IR) and content validity index (CVI) were calculated to answer the research question: are the ENPC written examinations valid? and the specific validity question: is the content of the ENPC written examination relevant to the instructional objectives?

Inter-rater Agreement

The IR was determined based on the agreement of relevancy of each item and instructional objectives to specific domains among the ten experts (Grant & Davis, 1997; Martuza, 1977; Waltz & Bausell, 1981). Levels of acceptable inter-rater agreement range from 0.70 (Davis, 1992) to 0.80 (Selby_Harrington, Mehta, Jutsum, Riportella-Muller, & Quade, 1994). The IR was quantified as the number of agreements among the nurse experts divided by the

total number of items or instructional objectives on the written examinations. The number of agreements were measured as the items or instructional objectives rated 1 or 2 by the nurse experts and the items or instructional objectives rated 3 or 4 by the panel of experts (Grant & Davis, 1997; Lynn, 1986; Martuza, 1977; Waltz, Strickland, & Lenz, 1991; Zufelo, Inverso, & Linkewich, 2001). Brennan and Hayes (1995) emphasized the critical role and importance of the inter-rater agreement in the evaluation of the psychometric properties of an instrument.

Content Validity Index

The CVI was determined, based on the rankings by each nurse expert of each item of version A and R of the ENPC written examinations. The item CVI was calculated based on the proportion of items ranked as quite/very relevant (3 or 4) by all the nursing experts (Lynn, 1986; Waltz & Bausell, 1983; Waltz, Strickland, & Lenz, 1981). The total CVI was also calculated as the percentage of the total items judged by the experts as content valid (Zuzelo, Inverso, & Linkewich, 2001).

ENPC Requirement and Job Performance

To answer the specific validity question: is the content of the ENPC written examinations related to job performance? The result of the responses from the 104

surveyed nurse managers, or designees related to the single inquiry if completion of ENPC was required to work in the emergency department, were compiled and tabulated. The responses were graphically illustrated on bar graphs.

Job Descriptions

The commonalities of the content of the 20 job descriptions were reviewed by the investigator, summarized and evaluated for the requirement of ENPC. All results were recorded, tabulated and graphically illustrated on bar graphs. A job analysis was not conducted due to inability to procure skill checklists, task inventories, or competencies from the 20 acute care facilities.

Summary

The research method selected and rationale for selection was described. The description of steps the researcher initiated and utilized during the study were presented. The process implemented for selection of sample was described. The rationale for determination of criterion for and selection of panel of experts was discussed. The procedure for contacting the 104 acute care facilities to determine if completion of ENPC was required for employment by nurses employed was described. The process for determination of commonalities in roles and responsibilities of registered nurses employed in emergency

departments, and requirement of ENPC, based on 20 job descriptions was described.

The development of forms included in the study was described. The procedures for the calculation of both descriptive and statistical analysis of data was delineated to address both the validity and reliability questions of the study.

CHAPTER 4

Findings of the Study

The data and findings for the study were calculated and analyzed. The data were compiled, from the four separate and distinct data sets to answer the two research questions and two specific validity questions: Are the ENPC written examinations valid? Are the scores of the ENPC written examinations reliable? Is the content of the ENPC written examinations relevant to the instructional objectives? Is the content of the ENPC written examinations relevant to job performance? The profile of nurse experts was compiled. The responses and rankings of the nurse experts were recorded and tabulated. The responses of the nurse managers, or designees, from the 104 acute care facilities in Oklahoma were evaluated as related to the inquiry concerning requirement of completion of ENPC for employment in the emergency department. The commonalities of requirements, tasks and competencies for registered nurses were compiled based on job descriptions that were received from 20 acute care facilities with emergency departments in Oklahoma. Cronbach's Alpha Coefficient was calculated to ascertain evidence of reliability of internal consistency of the scores of the written examinations.

Profile of Nurse Experts

In order to answer the research question: are the ENPC written examinations valid? The panel of nurse experts was formed, based on specifically defined criteria, to assess the content validity of the ENPC written examinations. The nurse experts were requested to evaluate: 1) each item and the instructional objectives on the written examinations as related to relevancy of topics or domains, 2) and the overall relevancy of the entire ENPC written examination. The descriptions of each nurse expert were compiled based on recorded responses and general comments on the General Information Form. The responses of the ten nursing experts were diverse and comprehensive and were representative of clinical and academic, knowledge and expertise. The panel of nurse experts included nurse practitioners, physician assistants, directors of emergency departments, Coordinators of Emergency Medical Services, Chief Nursing Officers, academic instructors, and an attorney. The nurse experts resided in various regions of the United States. Eight states were represented and included: New York, Virginia, Florida, Oklahoma, Missouri, Ohio, Illinois, and California. (See Appendix F)

All nurse experts had one of the following educational requirements: advanced educational degrees, certification

in nursing or healthcare specialty, or were previous members of an ENA ENPC Task Force. The average age of the nurse experts was between 41 and 50 years. This data is consistent with reported average age of registered nurses in the United States of 45.2 years (Shendell-Falik, 2001). Two of the nurse experts were male. This data is significantly higher than the overall 50% male representation as registered nursing is historically a female dominated profession. The majority of the nurse experts (90%) had been in nursing and in emergency nursing, more than 16 years. More than half (60%) of the sample reported advanced educational degrees in non-nursing. However, five nurse experts reported Master degrees in nursing. Responses to basic nursing education were diverse and included: Associate Degrees 20%, Diploma Degrees 40%, and Bachelor Degree 40%. The majority of the nurse experts worked in acute care facilities and emergency departments. The size of the acute care facilities varied from 50 to over 300 licensed beds. Seven of the ten nurse experts reported current employment in acute care facilities with over 301 beds. All were members of the ENA. Six of the ten respondents had retained this membership for an average of 11 to 15 years. The majority of the nursing experts (90%) conducted between one and five courses on an annual

basis. The nurse experts reported that 80% of these courses had between 11 and 20 participants. The success rate was high, with eight of the ten nurse experts reporting participant success rate of 90-99%. Six of the ten facilities in which the nurse experts were employed required completion of ENPC for employment in the emergency department. (See Appendix M)

The Inter-rater Agreements

The agreements of the nurse experts as related to the relevancy of each item and instructional objective of the ENPC written examination was calculated.

Items

In order to answer the research question: are the ENPC written examinations valid? The agreement of the item relevance was determined by the panel of experts. The Inter-rater agreement (IR) among the nurse experts was calculated. Each nurse expert was instructed to independently rank the relevance of each item to specified content domain. The IR procedure utilized in the study was described by Lynn (1986), Waltz and Bausell (1981), and Waltz, Strickland, & Lenz (1991). The IR was quantified as the total number of agreements among these experts divided by the total number of items on the written examinations (Zuzelo, Inverso, & Linkewich, 2001). The number of

agreements was measured as items rated 1 or 2 by the panel of experts and items rated 3 or 4. Levels of acceptable inter-rater agreement ranges from 0.70 (Davis, 1992), to 0.80 (Selby-Harrington, Meleha, Jutsum, Riportella-Muller, & Quade, 1994). Inter-rater item agreement calculation for version A was 0.932 and 0.906 for version R. Both were within the levels of acceptable inter-rater agreement (Grant & Davis, 1997). (See Table 3)

Table III

Inter-rater Item Agreements Among Ten Nurse Experts

Version A	Version R
0.932	0.906

The overall percentage of item agreement was also calculated. The percentage was calculated as number of total non-agreements by total agreements among the panel of nurse experts. (See Table 4)

Table IV

Percentage of Item Agreement Among the Panel of Nurse Experts

Version A	Version R
0.94	0.91

Discussion of Individual Items

There were two items on version A in which only seven out of the ten nursing experts ranked the item 3 or 4. These

items were Item 7 and Item 10. Item 7 was related to preventive strategies for the pediatric patient. Item 10 addressed implementation of specific comfort measures for the patient during initial triage of the pediatric patient.

There were two items on version R in which only seven of the ten nursing experts ranked each item 3 or 4. These items were Item 8 and Item 19. Item 8 focused on the requirements for transfer of a patient to another facility, and Item 19 was related to the need to recognize and determine the most appropriate nursing diagnosis based on signs and symptoms of patient that were ascertained by registered nurse during initial assessment and triage of the patient. These items were within levels of acceptable inter-rater agreement (Grant & Davis, 1997). (See Table 5)

There were four items on version R of the ENPC written examination in which seven of the ten nursing experts were in agreement that the questions were not relevant. These were Items 9, 33, 37, and 40. Item 9 was related to the determination of the acuity of a pediatric patient that had sustained an orthopedic injury as the result of pediatric trauma. Item 33 focused on appropriateness of the pediatric patient's reaction to envenomation. Item 37 addressed the nursing approach to be implemented in order to explain a toxicologic emergency to a sibling of the

pediatric patient. Item 40 focused on the emergency pediatric nurse determination of the effectiveness of respiratory equipment used for resuscitative efforts the pediatric patient in respiratory distress. (See Table 6)

Table: V

Domains in which Seven of Ten Nurse Experts Ranked the Items 3 or 4 on Version A and Version R of the ENPC Written Examinations

Domain	Version A	Version R
The Pediatric Patient	X	
Initial Assessment and Triage	X	X
Respiratory Distress and Failure		
Pediatric Trauma		
Cardiovascular Emergencies		
Burns		
Child Maltreatment		
Neonate		
Medical Emergencies		
Toxicologic Emergencies		
Crisis Intervention		
Stabilization and Transport		X

Table VI

Domains of Items and Item Number of the ENPC Written Examination Version R Rated as Somewhat Relevant or Not Relevant By at Least Seven of the Nurse Experts

ITEMS	Domain
9	Pediatric Trauma
33	Toxicologic Emergencies
37	Toxicologic Emergencies
40	Respiratory Distress

Instructional Objectives

The IR for the instructional objectives was calculated. The IR was quantified as the total number of agreements among the experts divided by the total number of instructional objectives. The number of agreements was measured as the instructional objectives ranked 1 or 2 and the instructional objectives ranked 3 or 4 (Polit & Hungler, 1995; Waltz & Bausell, 1981). The inter-rater agreement for the instructional objectives was 0.941 for Version A and 0.924 for Version B. Both were within the acceptable levels of inter-rater agreement (Grant & Davis, 1997; Waltz, Strickland & Lenz, 1991). (See Table 7)

Table VII

Inter-rater Agreement as Related to Instructional Objectives Among the Ten Nurse Experts

Version A	Version R
0.941	0.924

The overall percentage of instructional objectives agreement among the ten nurse experts was calculated. The percentage was quantified as the total number of non-agreements among the nurse experts by total number of agreements. (See Table 8)

Table VIII

**Percentage of Agreement Related to Instructional Objectives
Among the Panel of Nurse Experts**

Version A	Version R
0.93	0.92

Discussion of Instructional Objectives

Six of the ten nurse experts ranked all the instructional objectives 3 or 4 on both versions of the ENPC written examinations. The remaining four nurse experts ranked at least one instructional objective a 1 or 2, somewhat relevant and not relevant. Ten of the twelve domains were included in the ranking. The instructional objectives that were ranked 1 or 2 were related to: physical assessment of patient, nursing diagnosis of patient, anatomic and physiologic differences between the adult and pediatric patient and nursing interventions.

(See Table 9)

All ten nursing experts were in agreement and ranked all the instructional objectives related to initial assessment and triage, pediatric trauma and burns 3 or 4, quite relevant or very relevant.

Table IX

**Domains of Instructional Objectives That Were Ranked 1 or 2
by Four of the Ten Nurse Experts**

Domains	Version A	Version R
The Pediatric Patient	X	X
Respiratory Distress and Failure	X	X
Cardiovascular Emergencies	X	X
Stabilization and Transport		X
Child Maltreatment	X	
The Neonate	X	X
Medical Emergencies	X	X
Toxicologic Emergencies	X	X
Crisis Intervention	X	X

The Index of Content Validity

The Index of Content Validity (CVI) was calculated for each item on the ENPC written examinations. The CVI item calculation was the proportion of items that were ranked 3 or 4 by each nurse expert. The item CVI ranged from 0.60 to 1.0 for Version A and 0.20 to 1.0 for Version R. The total CVI for the ENPC written examinations, Version A and Version R, was calculated as the percentage of the total items determined by the nurse experts as content valid. The determination of content valid was a ranking of either a 3 or 4 by the nurse experts (Waltz & Bausell, 1981; Zuzelo, Iverso, & Linkewich, 2001). The total CVI was also estimated by calculation of the average congruency percentage as described by Waltz, Strickland, and Lenz (1995). The proportion of items ranked 3 or 4 as quite/very relevant on the *Content Validity Indicator* by

each nurse expert was calculated and converted to a percentage. The mean percentage was then tabulated to obtain the average congruency percentage (Waltz, Strickland, & Lenz, 1991). The average congruency percentage for version A was 0.93 and version R was 0.91. An average congruency percentage of 0.90% or higher is considered acceptable (Waltz, Strickland, & Lenz, 1991). (See Tables 10 & 11) Both methods resulted in similar results.

The total index of content validity for Version A of the ENPC written examination was 0.93 and Version R was 0.91. (See Table 10)

Table X

Total Index of Content Validity for ENPC Written Examinations

Version A	Version R
0.93	0.91

Table XI

Average Congruency Percentage of Content Validity

Version A	Version R
0.93	0.91

Overall Relevance of Written Examinations

Each nurse expert was instructed to rank the relevance not only of each individual item and instructional objective on version A and version R of the ENPC written

examinations, but the relevance of the entire written examinations. Five of the nurse experts ranked each version of the written examinations a 3 (quite relevant) and five of the nurse experts ranked each version of the written examination 4 (very relevant). The overall ranking agreement and the overall relevancy on each version of the written examinations was 1.0 (Isaac & Michael, 1990).

General Comments

Each nurse expert was also encouraged to provide comments related to any item, instructional objective or the overall relevance of the examination on the *Content Validity Indicator*. The comments that were provided included:

1. Rewording of several questions would improve relevance.
2. Given the opportunity to critically analyze this exam, my initial assessment proved to be incorrect, this exam does test knowledge provided in the program. Perhaps some of the objectives need to be reworked.
3. Overall, I think that the test does cover the material and meets the objectives. A couple of questions are outdated due to changes in the AHA Guidelines. Some of the distracters could be better.
4. Overall the questions are quite relevant, many are somewhat relevant. Some questions appear relevant to the emergency department care of infants and children, but relate poorly to the stated objectives. I had not realized until this review how the "medical" interventions are stressed more than nursing interventions.

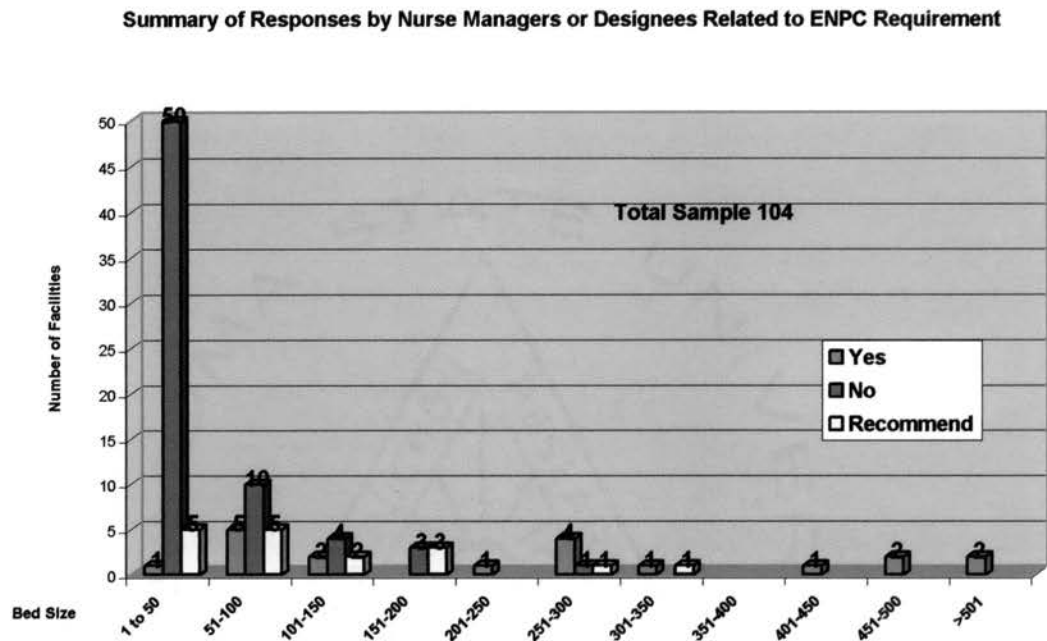
5. While the questions appear to adequately assess knowledge obtained in the ENPC course, they do not always meet stated objectives of each section. If the questions could be somewhat moved to appropriate sections, the examination itself is very relevant.
6. Most questions from the standpoint of themes or general areas/topics were relevant, but quite a few seemed less relevant by the way the questions were asked/written and the associated answers.
7. The number of objectives and items on the test are inconsistent and not based on importance of the topic.

Responses From Nurse Managers

In order to answer the validity question: is the content of ENPC written examinations related to job performance, 104 Nurse Managers of emergency departments, or designees, responded to the single inquiry regarding the requirement for completion of the ENPC. (See Figure 1) The responses were tabulated. The majority of the 104 acute facilities included in the survey were licensed for 150 beds or less.

Figure

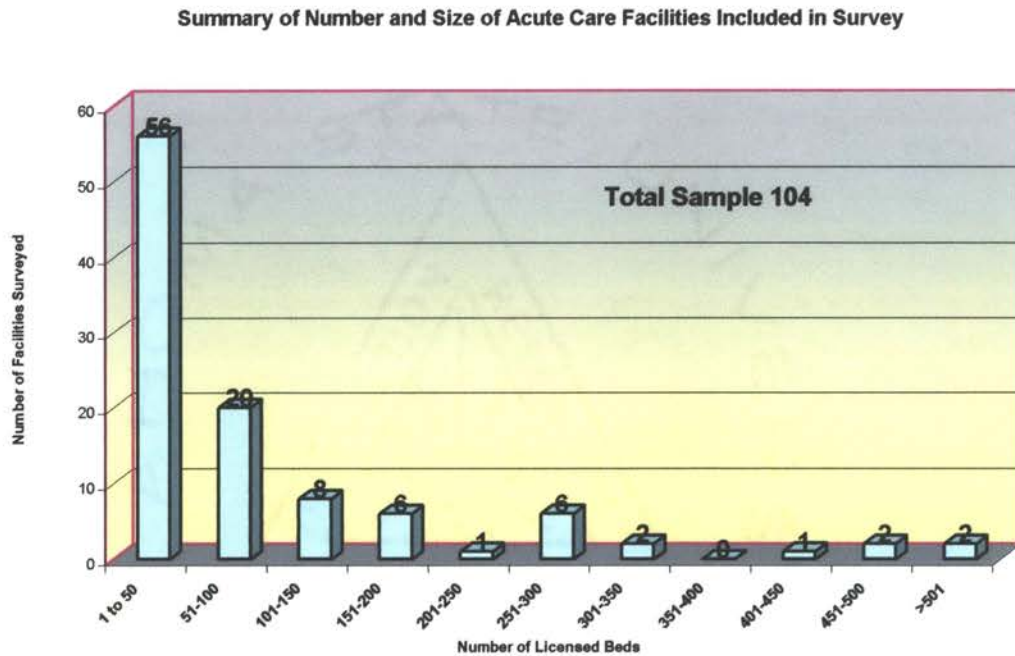
I



The findings of the study indicated that the majority of the acute care facilities in Oklahoma that were included in the study, (81%) are licensed for beds between 1 and 150. This sample ranged from small rural community to large tertiary facilities located throughout the state. The majority of these acute care facilities **did not** require completion of the ENPC. Although the ENA has proposed that ENPC provided core content, knowledge and skills intrinsic to emergency pediatric nursing (ENA, 1993, 1998). However, as the number of licensed beds increased the number of

facilities requiring ENPC completion correspondingly increased. (See Figure 2)

Figure 2



Review of Job Descriptions

In order to ascertain if the content of ENPC written examinations were related to job performance, job descriptions for registered nurses employed in 20 emergency departments throughout Oklahoma were reviewed. The job descriptions were obtained for both small and large facilities. Ten of the facilities were small rural community hospitals with licensed bed capacities of 100 beds or less and the remaining ten facilities were licensed for more than 101 beds. The length of job descriptions

ranged from three to ten pages. The format and verbiage of content was diverse. Commonality of tasks, skills, and responsibilities required for all registered nurses that were delineated on the job descriptions included: *position summary, licensure requirements, experience, additional certifications, utilization of nursing process, compliance standards, interrelationship standards, task standards, general competencies and other educational requirements.*

Position summary defined and delineated the main function of the role of the registered nurse. This component described the specific responsibilities intrinsic to the position (Umiker, 1998). Current registered licensure was mandated by all of the facilities. Experience in registered nursing was included in all job descriptions. The smaller facilities did not specifically delineate the number of years of experience required. However, specific requirements of between two and five years of experience was required by the larger facilities. Knowledge and utilization of the nursing process, which is the organized, systematic approach to nursing care, assessments, implementation and evaluation was required by all 20 facilities. Compliance standards, which are related to the organizational mission, values, philosophy, policies and procedures, requirements for attendance, punctuality,

appearance, dress code, were described and required by all the facilities. (Umiker, 1998). Interrelationship standards, which addressed work habits, initiative, creativity, reliability, communication skills, team work, personal and professional relationships were also required by all 20 facilities. Task standards, which are related to quality improvement, productivity, timeliness, cost-effectiveness, and infection control were also required by all 20 job descriptions. Overview of competencies addressed general skills and procedures required for safe practice, from the eight available skill checklists included: *physical assessment, nursing process, critical thinking, patient education, medication administration, specialized equipment, and resources and personnel.* (See Table 12)

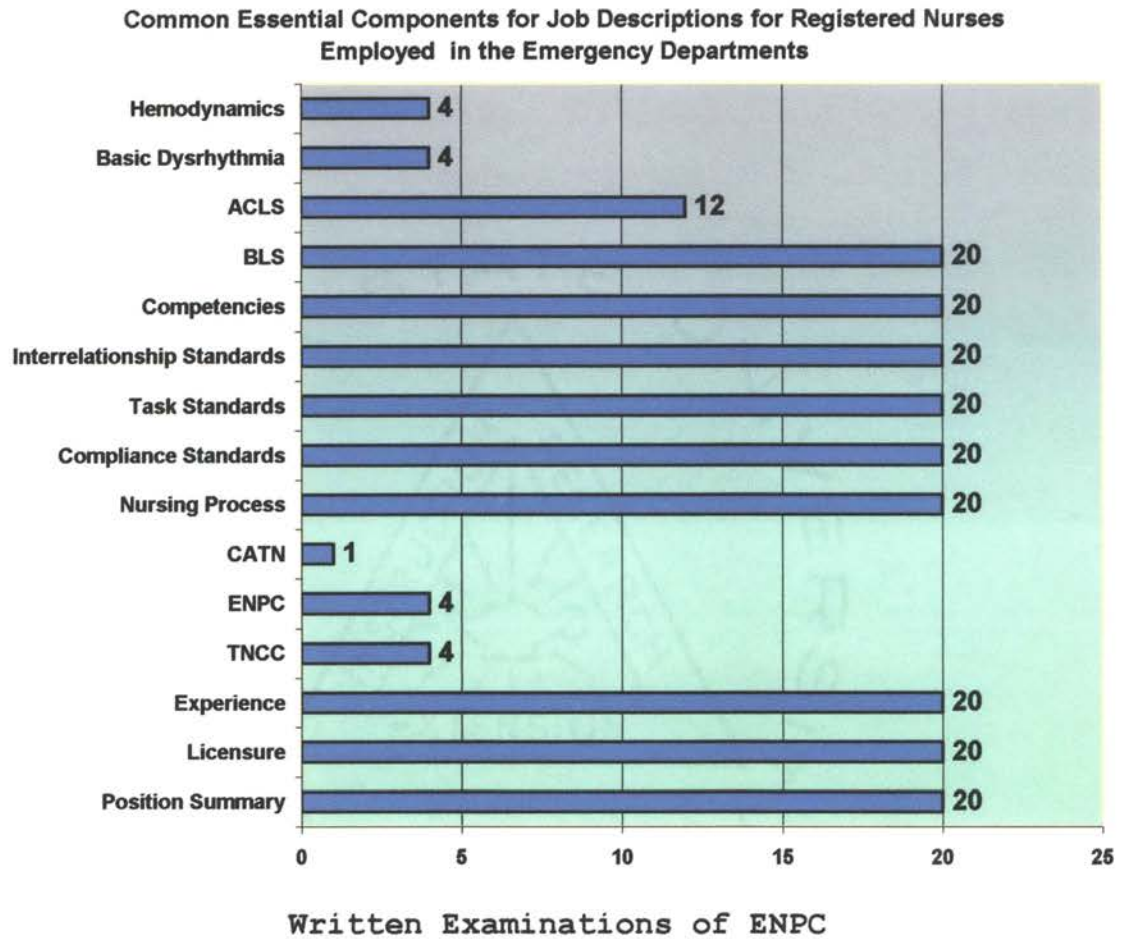
Table XII

**Common Categories of Competencies, General and Task Skill
Checklists Included For Registered Nurses in Emergency
Departments**

Competency	Sample Skill or Task
Physical Assessment	Complete nursing assessment of patient. Able to determine degree and extent of burn.
Nursing Process	Complete appropriate care plan based on nursing assessment, diagnosis, intervention and evaluation.
Critical Thinking	Differentiate normal versus abnormal vital signs. Analyze and interpret EKG rhythm strips. Choose device for oxygen delivery. Determine need for analgesic.
Patient Education	Teach pain management techniques. Teach fever control measurements in a manner that the patient is able to understand.
Medication Administration	Set up patient controlled analgesic pump. Administer medications via parenteral routes.
Interventional Procedures Specialized for Equipment	Immobilize cervical spine with cervical collar and spine board. Assist with thoracotomy. Perform visual acuity examination.
Utilization of Resources	Refer patient to appropriate community resources. Initiate emergency preparedness plan.
Utilization of Personnel	Appropriately monitor, evaluate, and mentor support and professional personnel.

Other educational requirements varied. However, 20 facilities required Basic Life Support (CPR). Advanced Cardiac Life Support (ACLS) was required by twelve of the facilities. Basic Arrhythmia Course, which is a course designed to provide the practice with knowledge and skills to recognize and initiate appropriate therapeutic modalities for normal and abnormal cardiac rhythms was required by four facilities. Hemodynamics, which is a advanced course on the monitoring of patients in order to assess and evaluate the physiological status of the patient was required by four of the facilities. The completion of ENPC was required by only **four** of the facilities. These were the larger facilities with over 301 licensed beds. Other continuing professional education required by the four largest tertiary regional referral centers were: Emergency Nurses Association Trauma Nursing Core Course (TNCC), and Emergency Nurses Association Course in Advance Trauma Nursing (CATN). (See Figure 3)

Figure 3



In order to answer the research question: are the scores of the ENPC written examination reliable, 612 completed written examinations that were provided by a representative of the ENA were tabulated. The total included: 307 of Version A, 209 Version B and 33 Version R. The ENA representative advised that due to the high success rate on the ENPC, with less than one percent of all registered nurses required to retake the examination, **all**

Version R written examinations were included (J. Miksa, personal communication, March 26, 2003).

Descriptive Statistics

Descriptive statistical results of all three versions was tabulated and reported. The mean of version A was 45.8796, median 47.00, the standard deviation was 3.2133, and variance was 10.3252. The scores ranged from 16 to 50 with the required minimum of 40. The mean for Version B was 46.0, median was 47.0, standard deviation was 3.4376, and variance was 11.8173. The scores ranged from 40 to 50 with required minimum was 40. The mean for Version R was 41.970, median was 44, standard deviation was 7.090, and variance was 50.26. Scores ranged from 7 to 48 with required minimum of 40. (See Table 13)

Table XIII

Summary of Measures of Central Tendency and Variability of the Three Versions of the ENPC Written Examinations

	Mean	Median	Standard Deviation	Variance	Total Sample
Version A	45.8796	47.00	3.2133	10.3252	370
Version B	46.0	47.0	3.4376	11.8173	209
Version R	41.970	44.0	7.090	50.26	33

Statistical Analysis

Cronbach Alpha Coefficient was calculated to ascertain evidence of reliability of internal consistency of scores on three versions of written examinations. Version A was 0.6759, version B was 0.7240, and version R was not calculated due to small sample. Version A and Version B contain the identical items, except the order was reversed. The sequence of the items and disparity in the number of written examinations in this sample may have contributed to the difference in the alpha coefficient.

Summary

Chapter 4 presented the findings of the study and responded to the two research questions: is the ENPC written examinations valid, and are the scores of the ENPC written examinations reliable? The profile of ten nursing experts was discussed. The results of Inter-rater Agreement and Index of Content Validity were described. Overall relevance and ranking of both versions of written examinations and general comments of all nursing experts were provided. The responses of 104 nurse managers, or designees as related to requirement of completion of Emergency Nursing Pediatric Course for employment were discussed and graphically illustrated. The commonalities of components of the 20 job descriptions for registered

nurses employed in emergency departments were delineated and visually displayed. Statistical analysis to ascertain evidence of reliability of internal consistency of scores on all versions was discussed.

CHAPTER 5

Conclusions of the Study and Implications For Future Research

This chapter integrated the findings presented in Chapter 4 and synthesized the results in association with the two major research questions: are the ENPC written examinations valid?, and are the scores of the ENPC written examinations reliable?, and the specific validity questions, is the content of the ENPC written examinations relevant to the instructional objectives?, is the content of the ENPC written examinations relevant to job performance? Implications for future research concluded the chapter.

Conclusions of the Study

The research study was conducted to ascertain the psychometric properties of validity and reliability of the ENPC written examinations. Data was collected from four distinct data sets and was guided by the following research questions:

1. Are the ENPC written examinations valid?
2. Are the scores of the ENPC written examinations reliable?

The four data sets included: 1) rankings and general comments from the panel of nurse experts, 2) responses from the nurse managers, or designees of 104 emergency

departments throughout Oklahoma, 3) job descriptions provided by the 20 Human Resource directors, and 4) answer sheets from 612 written examinations. All the data sets were reviewed and analyzed, not only to address the questions, but to make inferences and judgments regarding the findings and implications for future research.

Validity and Reliability of the ENPC Written Examinations

The ENPC written examinations are valid and reliable. The supposition of the ENA that the ENPC provides core knowledge and skills that are intrinsic to the emergency nursing care of the pediatric patient was supported. The written examinations included the core content, or domains that were consistently described in the literature, and was substantiated by the rankings of the panel of nurse experts. Specialized knowledge and skill is essential for emergency nurses to be able to quickly recognize and appropriately intervene for the emergency pediatric patient. The specialized knowledge and skill is not provided in basic nursing. In order to improve the quality of patient care and decrease the morbidity and mortality of the emergency pediatric patient, the ENPC must be the **minimal** educational requirement and the **"Gold Standard"** for all registered nurses caring for emergency pediatric patients.

Instructional Objectives of ENPC Written Examinations

The instructional objectives of the ENPC written examinations were relevant. There were inconsistencies in relation to the number of items included on the written examinations, as compared to the number of stated instructional objectives for certain topics or domains.

Child maltreatment is a topic that is presented in the ENPC and has four specific instructional objectives:

1. Describe the epidemiology of child maltreatment.
2. Discuss risk factors for maltreatment and neglect.
3. Describe the nursing assessment of the maltreated child.
4. Describe nursing interventions for maltreated children and their families.

There was one item on Version A and Version B of the written examinations and three items included on Version R related to child maltreatment.

The instructional objectives require review and revision to more accurately reflect the importance of the content included of each topic as evidenced by the number of items on the written examinations. Members of the ENPC Task Force, representatives of ENA, and other selected individuals who have expertise in adult education, curriculum development, and research evaluation and

measurement must conduct a review at least on an annual basis to evaluate the overall content, instructional objectives and number of corresponding items included in the ENPC written examinations.

Mastery of Content by Registered Nurses

There was a high degree of mastery of content by participants as evidenced by scores that were significantly above the required minimum score and the low retake rate.

Less than one percent of all participants are required to complete Version R (J. Mika, personal communication J. Mika, May 3, 2003). This knowledge and skills presented in the ENPC and validated on the written examinations will influence the provision of high quality nursing care and ultimately decrease the morbidity and mortality associated with the myriad of pediatric emergencies (ENA, 1993, 1998).

Review of Items on ENPC Written Examinations

The items included on the ENPC written examinations are a representative of the 12 domains of emergency pediatric nursing. Given the fact that four of the items on Version R were ranked irrelevant by the panel of nurse experts, review the items on the ENPC written examinations is needed. The four items deemed irrelevant were written at the more basic cognitive levels. The items were not reflective of the more complex hierarchical levels of

comprehension, application, analysis, synthesis and evaluation, which are necessary in the acquisition of the more specialized knowledge and skills. Items must evaluate critical thinking skills, which require not only knowledge, but understanding, analysis, synthesis, application and evaluation (Puetz & Peters, 1994). Such a review is imperative to ensure items represent and demonstrate integration of all levels of knowledge and learning. Items that are irrelevant should be revised or deleted to improve the overall quality of the ENPC written examinations.

Link Between ENPC Written Examinations and Job Performance

The content of the ENPC written examinations is related to job performance and the ENPC should be required by all acute care facilities that provide emergency pediatric care. The larger facilities recognize the importance of this continuing professional education and require completion for registered nurses who work in the emergency department. The larger facilities are historically located in the more populated regions of the state and are often the receiving centers for the smaller hospitals. These facilities routinely provide care for the more acutely injured or ill emergency pediatric patient and require registered nurses to be adequately prepared and educated to care for these patients. Employment in these

emergency departments and job performance was equated with completion of the ENPC.

The small facilities do not require the ENPC. The average cost of the ENPC is approximately one hundred and fifty dollars per participant. This cost may be prohibitive to the smaller facilities, which often have limited resources allocated for continuing professional education. The ENA must focus on the provision of information to all facilities, to ensure that all are informed of the importance of the course for the improvement of patient care and outcomes. The ENA must investigate and consider other adult-learning strategies other than the traditional lecture to present the ENPC. These strategies must be less cost prohibitive, flexible with fewer time constraints for participants, and include the utilization of other teaching and learning methods. Such methods may include lecture videos tapes, teleconferences, or computer assisted instruction, with consideration and investigation of the possibility of distant education. Grants are other cost reduction methods should also be considered by the ENA for smaller facilities.

Job Descriptions and ENPC

The ENPC is not considered a core component or requirement on job descriptions. Although the ENPC is considered evidence and validation of age-specific competency in the care of the emergency pediatric patient by state, regulatory and accreditation agencies for acute care facilities. The larger facilities recognized the need for the registered nurse employed in the emergency department to acquire these specialized skills and knowledge. The importance and value of ENPC in the smaller facilities remains in doubt. The value of the ENPC must be disseminated to all facilities and registered nurses to foster understanding of the importance of appropriately trained registered nurses to: improve patient care and decrease the mortality and morbidity of the emergency pediatric patient. The important activities, skills and knowledge required for competent performance on the job, as well as the appropriate training and education needed for the core-level knowledge and skills, and age specific competencies to adequately perform the job must be described in the job description (Manese, 1988).

Implications for Future Research

Several implications for future research were identified during the course of this research study. Each

implication was based on unanswered questions or inquiries regarding phenomena of interest.

Success Rate on ENPC Written Examinations

The relevance of the high scores on the ENPC written examinations success rate and the infrequent need for retesting, raises several research questions: Is the level of experience of registered nurses a determinant for the high success rate on the ENPC written examinations? Are the items on the written examinations reflective of the level of knowledge and skill required for emergency pediatric nursing? Further research and investigation is warranted to address each of these unanswered questions.

Completion of the ENPC and Change in Nursing Practice

The larger facilities with emergency departments recognized the need for ENPC for registered nurses to work in the emergency department. Although there are numerous research studies that proposed that continuing professional education affects change in nursing practice, there have been no studies found related to ENPC that addressed this phenomenon. Further research is therefore indicated to investigate if completion of ENPC affects change in behavior and nursing practice, and ultimately patient outcomes. Research is needed to answer the following research questions: Does successful completion of ENPC

affect professional nursing practice? Does successful completion of ENPC written examinations affect patient outcomes?

Job Analysis Research and the ENPC

A job analysis is needed to ensure that the ENPC written examinations contain items representative of all the roles and performances of emergency pediatric nurses in the current ever-changing environment of increased technology and knowledge. The determination of actual responsibilities, duties, tasks and activities that define the professional role based on a role delineation study, or job analysis, is indicated. Initial licensure and certification agencies have commonly used this type of research. This method has been used to ascertain that the content of the examinations is valid and representative of nursing knowledge, skills and performance as required in specialized areas. These studies are needed to assess the emergency pediatric nursing role in the context of daily "real life" practice and performance. The results of such a study could be integrated and incorporated in the refinement of the ENPC written examinations.

Replication of Research Study

The larger facilities in Oklahoma consistently required ENPC for registered nurses to work in emergency

departments. Similarly the responses of the panel of nurse experts further supported that ENPC was required for employment in the larger facilities throughout the country. Further research is indicated with a larger sample of facilities through the country in order that results can be generalized to the wider population.

TNCC and ENPC

The results of the research have significant implications for emergency nursing and those patients who require specialized care and interventions. Further research is recommended that is focused on the psychometric properties of the ENA Trauma Nursing Core Course (TNCC). The TNCC is a continuing professional education that is similar to the ENPC, but is directed toward the care of the emergency adult patient. Such a research study would provide additional data and information relevant to the other 70 million patients who seek treatment and care in emergency departments on an annual basis.

Other Aspects of Validity of ENPC Written Examinations

The content validity of the ENPC written examinations was determined through this research study. Future research is needed for the investigation of the other aspects of validity, as related to the ENPC written examinations, and include: criterion, construct and

consequential validity. Each aspect of validity can be investigated individually, or collectively, in order to answer the question: are the ENPC written examinations valid?

Comments of the Nurse Experts

The general comments of the panel of nurse experts were diverse and insightful. These written comments of the nurse experts when considered alone or collectively, represented a plethora of data and issues which are implications for further empirical investigations. Such research and inquiry may be approached from either a quantitative, qualitative or combined approach. The results will contribute to the body of adult education and nursing knowledge.

Summary

The research study supported the validity of the ENPC written examinations and reliability of the scores. The supposition endorsed by ENA that this professional continuing education course provides core content and skills intrinsic for the provision of emergency pediatric nursing care was supported. The 30,000 registered nurses that have completed the course, as well as future participants, can be assured that content provided will

adequately prepare each to care for the emergency pediatric patient.

The research study generated unanswered questions which are considerations for future empirical investigation and research. Such research can add to the body of knowledge for adult education and nursing.

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Appendix A

Oklahoma State University
Institutional Review Board

Protocol Expires: 5/4/2004

Date: Monday, May 05, 2003

IRB Application No ED03124

Proposal Title: A VALIDITY AND RELIABILITY STUDY OF THE EMERGENCY NURSES ASSOCIATION
EMERGENCY EMERGENCY NURSING PEDIATRIC COURSE WRITTEN EXAMINATION

Principal
Investigator(s):

Mary Sigler
604 West Louise Avenue
Vinita, OK 74301

Robert Nolan
210 Willard
Stillwater, OK 74078

Reviewed and
Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

Dear PI :

Your IRB application referenced above has been approved for one calendar year. Please make note of the expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved projects are subject to monitoring by the IRB. If you have questions about the IRB procedures or need any assistance from the Board, please contact Sharon Bacher, the Executive Secretary to the IRB, in 415 Whitehurst (phone: 405-744-5700, sbacher@okstate.edu).

Sincerely,



Carol Olson, Chair
Institutional Review Board

Appendix B
Script for Potential Nurse Experts

Date:

Contact:

Hello, my name is Mary K. Sigler. I am an Emergency Nursing Pediatric Course Instructor from Oklahoma. I am currently a doctoral candidate at Oklahoma State University in Stillwater, Oklahoma, conducting a validity and reliability study of the Emergency Nurses Association Emergency Nursing Pediatric Course written examinations.

I am currently selecting a panel of emergency pediatric nursing experts to review the content validity of the current Emergency Nurses Association Emergency Nursing Pediatric Course written examinations. Criteria for inclusion on the panel includes a registered nurse who is a member of the Emergency Nurses Association with a Master's Degree in Nursing or related field, or certification in advanced practice, or previous or current member of ENPC Task Force, and a current Emergency Nursing Pediatric Course Instructor. Since you meet all criteria, I would appreciate your consideration to participate as a member of the panel of nurse experts.

Each member of the panel will independently rank the relevancy of each item and objective(s) on the written

examination to the content of each topic. Content validity index will then be calculated based on the responses of all experts and ranking of each item. A General Information Form will be included, to be completed in order to provide demographic data to be included in the research study. A consent for participation will be mailed and I request that the consent be read and signed prior to participation in the research study.

Do you have any questions? If yes _____, investigator will respond to question(s). If no _____, investigator will continue to read the script.

The total process would require approximately two (2) hours of your time. Would you consider participation as a member of the panel of nurse experts? If yes _____ continue, if no _____ respond.

Thank you. I appreciate you time.

If yes:

The consent will be mailed to:

Address

Please read and sign and return in the enclosed stamped envelope.

A cover letter, instructions, and Content Validity Indicator will be electronically submitted to

Please use your personal copy of the Emergency Nurses Association copyrighted Form A and Form R ENPC examinations to compare relevancy of each item and instructional objective(s) to the content for each topic.

Your support and assistance is greatly appreciated.

Results will be reported to the Emergency Nurses Association.

If you should have any questions please contact me at 918-256-2818 or e-mail at ksigler@neok.com.

Thanks again.

Appendix C
Consent for Participation in Research Study

I, _____, hereby authorize or direct Mary K. Sigler, or associates or assistants of her choosing to perform the following procedure: A validity and reliability study of the Emergency Nurses Association Emergency Nursing Pediatric Course written examinations. The study involves descriptive research and is being conducted through Oklahoma State University by Mary K. Sigler, Doctoral Candidate Occupational and Adult Education.

The purpose of the study is to investigate the validity and reliability of the Emergency Nurses Association Emergency Nursing Pediatric Course written examinations. A panel of emergency pediatric nurse experts will evaluate the content validity of items on the Emergency Nurses Association Emergency Nursing Pediatric Course written examinations. Each emergency pediatric nurse expert will rank each item and objective(s) on the written examination on a Likert scale entitled: *Content Validity Indicator*. Each emergency pediatric nurse expert will complete investigator designed questionnaire entitled *General Information Form* for procurement of demographic data.

Every effort will be employed to protect the anonymity and confidentiality of each nurse expert that participates in the research study. Procedures to be utilized to protect the confidentiality include: no identifiable components on the Content Validity Indicator and General Information Form will not require name, address, telephone or social security number or any other data that may ascertain identification of any respondent. Completion of the Content Validity Indicator and General Information Form will require approximately two (2) hours.

There are no foreseeable risks or discomforts to any of the respondents. The benefits of the study will provide psychometric research evaluation of the validity and reliability of the Emergency Nurses Association Emergency Nursing Pediatric Course written examinations, which will contribute to the field of adult education and nursing research.

I understand that participation in this research study is voluntary and will not be penalized if I choose not to participate. I am free to withdraw my consent at any time after I notify Mary K. Sigler at telephone number 918-256-2818. Questions or comments related to this research, respondents' rights and/or research related injury to respondents may also be communicated to Mary K. Sigler at

telephone number 918-256-2818. I may also contact Sharon Backer, IRB Executive Secretary, Oklahoma State University, 415 Whitehurst, Stillwater, Oklahoma at telephone number 405-744-5700.

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: _____ Time: _____ (A.M. / P.M.)

Name (Please Print)

Signature

Appendix D
Cover Letter

Katie Sigler, ARNP
604 West Louise Avenue
Vinita, Oklahoma 74301

Dear Nurse Expert;

Currently I am a Doctoral candidate at Oklahoma State University, Stillwater, Oklahoma in Occupational and Adult Education, conducting a validation and reliability study of the Emergency Nurses Association Emergency Nursing Pediatric Course written examination. With your education, experience and expertise in Emergency Pediatric Nursing, I would appreciate your support in evaluating the content validity of the Emergency Nursing Pediatric Course written examinations.

The enclosed Content Validity Indicator is designed to rank each item and objective(s) on the written examination as relevant to the content of each of the twelve topics included in the course. All responses will remain confidential, but will be included in the overall computation of the content validity of the written examinations.

Please utilize your personal copy of the ENA copyrighted Form A or Form R written examinations to compare each item, and rank relevancy of each item and

instructional objective on the Likert scale: (4) - very relevant; (3) - quite relevant; (2) - somewhat relevant; and (1) - not relevant. A consent for participation will be included. Please read, sign and return the consent form in the self-addressed stamped envelope. Please complete the Content Validity Indicator and General Information Form. Permission to conduct the study was granted by the Emergency Nurses Association and is partial requirements for completion of doctoral studies at Oklahoma State University.

I would appreciate your assistance in completion of the Content Validity Indicator and return as soon as possible. I realize that your schedule is busy and your time valuable, however, completion of Content Validity Indicator should require approximately two (2) hours. This data will be included in research study and provided to the Emergency Nurses Association.

I appreciate your support and assistance in this project and thank-you in advance for your participation.

If you should have any questions concerning this study, you may contact me at 918-256-2818 or electronically by e-mail at ksigler@neok.com.

Sincerely,

Mary K. Sigler

Appendix E
General Information Form

Please complete the General Information Form. Responses will be included as demographic profile of nurse experts in the study entitled:

A validation and reliability study of the Emergency Nurses Association Emergency Pediatric Course Measurement.

1. Age in years: Less than 20; 20-30; 31-40; 41-50; 51 and above
2. Gender: M F
3. Years in Nursing: Less than 1; 2-5; 6-10; 11-15; 16-20; Over 21
4. Years in Emergency Nursing: Less than 1; 2-5; 6-10; 11-15 16-20; over 21
5. Basic Nursing Education: Diploma; Associate Degree; Bachelor Master; Doctorate
6. Highest educational achievement in nursing. (Please check all that apply)
 Diploma in Nursing Associate Degree in Nursing
 Bachelors in Nursing Masters in Nursing
 Doctorate in Nursing
 Advanced Practice (Please specify)
7. Highest educational achievement (non-nursing). (Please check all that apply)
 Associate Degree Bachelor Degree Master Degree
 Doctorate Other _____ (Please specify)
8. Employment (Please check all that apply)
 Academic Setting Acute Care Facility
 Long Term Facility Home Health Hospice
 Private Practice
 Clinic Emergency Department
 Other (Please specify) _____
9. Number of Patient Beds (if applicable): 1-25; 26-50; 51-100; 101-200; 201-300; over301; NA
If NA please explain: _____

10. Member of Emergency Nurses Association (ENA)
 Yes No
If yes - number of years ENA member:
 Less than 1; 2-5; 6-10; 11-15; 16-20
11. Emergency Nursing Pediatric Course Instructor
 Yes No
If yes - number of years as Emergency Nursing Pediatric
Course Instructor:
 Less than 1; 2-5; 6-10; 11-15; 16-20
12. Number of ENPC courses conducted on an annual basis:
 None 1-5 6-10 11-20 21-30 over 31
13. Number of ENPC participants per course:
 1-10 11-20 21-30 over 31
14. Success rate of participants:
 100% 99%-90% 89%-80% 79%-70% Less than
69%
15. Is ENPC required to work in the emergency department at your
facility?
 Yes No

Appendix F
Description of Panel of Experts

Nursing Expert A	Nursing Expert B	Nursing Expert C	Nursing Expert D	Nursing Expert E
Age: 41-50 NY Gender: F	Age: 31-40 VA Gender: F	Age: 41-50 FL Gender: M	Age: 41-50 FL Gender: F	Age: >51 OH Gender: F
Yrs in Nursing >21 Yrs. in ER Nsg >21	Yrs in Nursing 16-20 Yrs. in ER Nsg 16-20	Yrs in Nursing 16-20 Yrs. in ER Nsg 16-20	Yrs in Nursing >21 Yrs. in ER Nsg >21	Yrs in Nursing >21 Yrs. in ER Nsg >21
Basic Nursing Educ. Diploma	Basic Nursing Educ. Associate	Basic Nursing Educ. Bachelor	Basic Nursing Educ. Associate	Basic Nursing Educ. Diploma
Highest Educational Achievement in Nursing Master	Highest Educational Achievement in Nursing Master	Highest Educational Achievement in Nursing Bachelor	Highest Educational Achievement in Nursing Associate	Highest Educational Achievement in Nursing Diploma
Highest Educational Achievement in Non-Nursing Bachelor	Highest Educational Achievement in Non-Nursing None	Highest Educational Achievement in Non-Nursing Master	Highest Educational Achievement in Non-Nursing Master	Highest Educational Achievement in Non-Nursing None
Employment: Emergency Dept Acute beds > 301	Employment: Emergency Dept Acute beds > 301	Employment: Emergency Dept Acute beds 201-300	Employment: Emergency Dept Acute beds 26-50	Employment: Academic Acute beds > 301
Member of ENA Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Member of ENA Yes <input type="checkbox"/> No <input type="checkbox"/>	Member of ENA Yes <input type="checkbox"/> No <input type="checkbox"/>	Member of ENA Yes <input type="checkbox"/> No <input type="checkbox"/>	Member of ENA Yes <input type="checkbox"/> No <input type="checkbox"/>
Number of years ENA member: 11-15	Number of years ENA member: 11-15	Number of years ENA member: 11-15	Number of years ENA member: 16-20	Number of years ENA member: 11-15
Emergency Nursing Pediatric Course Instructor Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Emergency Nursing Pediatric Course Instructor Yes <input type="checkbox"/> No <input type="checkbox"/>	Emergency Nursing Pediatric Course Instructor Yes <input type="checkbox"/> No <input type="checkbox"/>	Emergency Nursing Pediatric Course Instructor Yes <input type="checkbox"/> No <input type="checkbox"/>	Emergency Nursing Pediatric Course Instructor Yes <input type="checkbox"/> No <input type="checkbox"/>
Number of years ENPC Instructor: 6-10	Number of years ENPC Instructor: 11-15	Number of years ENPC Instructor: 6-10	Number of years ENPC Instructor: 6-10	Number of years ENPC Instructor: 6-10
Number of ENPC courses conducted on an annual basis: 1-5	Number of ENPC courses conducted on an annual basis: 1-5	Number of ENPC courses conducted on an annual basis: 1-5	Number of ENPC courses conducted on an annual basis: 1-5	Number of ENPC courses conducted on an annual basis: 6-10
Number of ENPC participants per course: 11-20	Number of ENPC participants per course: 11-20	Number of ENPC participants per course: 1-10	Number of ENPC participants per course: 11-20	Number of ENPC participants per course: 21-30
Success rate of participants: 79-70%	Success rate of participants: 99-90%	Success rate of participants: 99-90%	Success rate of participants: 99-90%	Success rate of participants: 99-90%
ENPC Requirement for employment No	ENPC Requirement for employment No	ENPC Requirement for employment No	ENPC Requirement for employment Yes	ENPC Requirement for employment Yes

Expert E previous ENPC Task Force member

Appendix F
Description of Panel of Experts

Nursing Expert F	Nursing Expert G	Nursing Expert H	Nursing Expert I	Nursing Expert J
Age: 41-50 IL Gender: F	Age: 41-50 MO Gender: M	Age: 41-50 OK Gender: F	Age: 31-40 OK Gender: F	Age: 41-50 CA Gender: F
Yrs in Nursing 16-20 Yrs. in ER Nsg 16-20	Yrs in Nursing >21 Yrs. in ER Nsg >21	Yrs in Nursing >21 Yrs. in ER Nsg >21	Yrs in Nursing 6-10 Yrs. in ER Nsg 6-10	Yrs in Nursing >21 Yrs. in ER Nsg >21
Basic Nursing Educ. Bachelor	Basic Nursing Educ. Diploma	Basic Nursing Educ. Diploma	Basic Nursing Educ. Bachelor	Basic Nursing Educ. Bachelor
Highest Educational Achievement in Nursing Master	Highest Educational Achievement in Nursing Diploma	Highest Educational Achievement in Nursing Diploma	Highest Educational Achievement in Nursing Master	Highest Educational Achievement in Nursing Master
Highest Educational Achievement in Non-Nursing Master	Highest Educational Achievement in Non-Nursing Bachelor	Highest Educational Achievement in Non-Nursing Doctorate	Highest Educational Achievement in Non-Nursing None	Highest Educational Achievement in Non-Nursing None
Employment: Emergency Dept Acute beds > 301	Employment: Emergency Dept Acute beds 101-200	Employment: Emergency Dept Acute beds >301	Employment: Emergency Dept Acute beds >301	Employment: Emergency Dept Acute beds >301
Member of ENA Yes ___X___ No ___	Member of ENA Yes ___X___ No ___	Member of ENA Yes ___X___ No ___	Member of ENA Yes ___X___ No ___	Member of ENA Yes ___X___ No ___
Number of years ENA member:11-15	Number of years ENA member:11-15	Number of years ENA member:16-20	Number of years ENA member:< 1 YR	Number of years ENA member:6-10
Emergency Nursing Pediatric Course Instructor Yes ___X___ No ___	Emergency Nursing Pediatric Course Instructor Yes ___X___ No ___	Emergency Nursing Pediatric Course Instructor Yes ___X___ No ___	Emergency Nursing Pediatric Course Instructor Yes ___X___ No ___	Emergency Nursing Pediatric Course Instructor Yes ___X___ No ___
Number of years ENPC Instructor: 11-15	Number of years ENPC Instructor: 6-10	Number of years ENPC Instructor: 6-10	Number of years ENPC Instructor: 2-5	Number of years ENPC Instructor: 6-10
Number of ENPC courses conducted on an annual basis: 1-5	Number of ENPC courses conducted on an annual basis: 1-5	Number of ENPC courses conducted on an annual basis: 1-5	Number of ENPC courses conducted on an annual basis: 1-5	Number of ENPC courses conducted on an annual basis: 1-5
Number of ENPC participants per course: 11-20	Number of ENPC participants per course: 11-20	Number of ENPC participants per course: 11-20	Number of ENPC participants per course: 11-20	Number of ENPC participants per course: 11-20
Success rate of participants: 99-90%	Success rate of participants: 99-90%	Success rate of participants: 99-90%	Success rate of participants: 100%	Success rate of participants: 99-90%
ENPC Requirement for employment Yes	ENPC Requirement for employment Yes	ENPC Requirement for employment Yes	ENPC Requirement for employment Yes	ENPC Requirement for employment No

Nursing Expert G – Certified Midlevel Physician Assistant
Nursing Expert I – Nurse Practitioner
Nursing Expert J – Nurse Practitioner

Appendix G
Content Validity Indicator
Instructions

Please review the Emergency Nurses Association Emergency Nursing Pediatric Course objectives and corresponding items on the examination.

Please rank the relevancy of each item and objective(s) of each topic. Please utilize the ENA/ENPC copyright Form A and Form R written examinations to complete the content validity indicator.

Please place X under the number that **BEST** describes the relevancy of each item and objectives of each topic.

4 = Very Relevant 3 = Quite Relevant

2 = Somewhat Relevant 1 = Not Relevant

A = Form A R = Retake

Should you identify any area(s) that have been omitted from the written examination, please document these findings in the comment section provided.

The data will be compiled for determination of content validity.

After completion, please return electronically to the investigator.

ALL DATA AND RESPONSES WILL REMAIN CONFIDENTIAL AND WILL BE INCLUDED IN THE RESEARCH STUDY.

Thank you for your support.

Sincerely,

Mary K. Sigler, ARNP

Content Validity Indicator

Appendix H The Pediatric Patient

Objectives:

- Discuss how pediatric development stages affect the child's reaction to illness, injury, pain and death;
- Delineate the specific nursing interventions for the pediatric patient based on developmental stages;
- Identify basic anatomic and physiologic differences between adult and pediatric patients.

Please rank the relevance of each item and objective(s) to the content included in the Pediatric Patient.

4 = Very Relevant 3 = Quite Relevant

2 = Somewhat Relevant 1 = Not Relevant

FORM	QUESTION	4	3	2	1	COMMENTS
A	7					
A	8					
A	16					
A	29					
R	29					
R	32					
R	42					
R	46					

Initial Assessment and Triage

Objectives:

- Discuss the components of a pediatric primary assessment;
- Correlate life-threatening conditions with the specific component of the primary assessment;
- Describe interventions needed to manage life-threatening conditions found during the primary assessment;
- Identify the components of a pediatric secondary assessment;
- Identify the components of pediatric triage;
- Evaluate the effectiveness of nursing interventions as related to patient outcomes.

Please rank the relevance of each item and objective(s) to the content included in *Initial Assessment and Triage*.

4 = Very Relevant 3 = Quite Relevant
 2 = Somewhat Relevant 1 = Not Relevant

FORM	QUESTION	4	3	2	1	COMMENTS
A	10					
A	22					
A	24					
A	26					
A	35					
R	3					
R	19					
R	20					
R	41					

Respiratory Distress and Failure

Objectives:

- Identify the anatomic and physiologic characteristics of the respiratory system as a base for the signs and symptoms of respiratory distress or failure;
- Identify the more frequent causes of respiratory distress and failure in children;
- Identify the appropriate nursing diagnoses and expected outcome based on the assessment findings;
- Delineate the specific interventions needed to manage the child with respiratory distress or failure;
- Evaluate the effectiveness of nursing interventions related to patient outcomes;
- Identify health promotion strategies related to respiratory distress and failure.

Please rank the relevance of each item and objective(s) to the content included in Respiratory Distress and Failure

4 = Very Relevant

3 = Quite Relevant

2 = Somewhat Relevant

1 = Not Relevant

FORM	QUESTION	4	3	2	1	COMMENTS
A	1					
A	2					
A	11					
A	15					
A	23					
A	34					
R	2					
R	10					
R	14					
R	40					
R	47					
R	49					

Pediatric Trauma

Objectives:

- Identify the anatomic and physiologic characteristics of the pediatric as a basis for the signs and symptoms associated with trauma;
- Identify the appropriate nursing diagnosis and expected outcomes based on the assessment findings;
- Delineate the specific interventions needed to care for the pediatric patient;
- Evaluate the effectiveness of nursing interventions related to patient outcome;
- Identify health promotion strategies related to pediatric trauma.

Please rank the relevance of each item and objective(s) to the content included in Pediatric Trauma.

4 = Very Relevant 3 = Quite Relevant
 2 = Somewhat Relevant 1 = Not Relevant

FORM	QUESTION	4	3	2	1	COMMENTS
A	13					
A	17					
A	18					
A	19					
A	20					
A	43					
A	49					
R	9					
R	11					
R	15					
R	16					
R	25					
R	26					
R	27					
R	28					
R	45					

Cardiovascular Emergencies

Objectives:

- Identify the anatomic and physiologic characteristics of the children as a basis for the signs and symptoms associated with cardiovascular compromise;
- Identify the most frequent causes of shock in children;
- Identify the appropriate nursing diagnoses and expected outcomes based on the assessment findings;
- Delineate the specific interventions needed to manage the child with cardiovascular compromise;
- Evaluate the effectiveness of nursing interventions related to patient outcomes;
- Identify health promotion strategies related to the cardiovascular system.

Please rank the relevance of each item and objective(s) to the content included in Cardiovascular Emergencies.

4 = Very Relevant 3 = Quite Relevant

2 = Somewhat Relevant 1 = Not Relevant

FORM	QUESTION	4	3	2	1	COMMENTS
A	4					
A	25					
A	44					
A	46					
A	50					
R	1					
R	4					
R	12					
R	23					
R	31					
R	44					

Burns

Objectives:

- Identify the anatomic and physiologic characteristics of the pediatric patient as a basis for the signs and symptoms of burns;
- Identify the most frequent causes of burns;
- Identify the appropriate nursing diagnoses and expected outcomes based on the assessment findings;
- Delineate the specific interventions needed to manage the child with burns;
- Evaluate the effectiveness of nursing interventions related to patient outcomes;
- Identify health promotion strategies related to the burns.

Please rank the relevance of each item and objective(s) to the content included in Burns.

4 = Very Relevant 3 = Quite Relevant

2 = Somewhat Relevant 1 = Not Relevant

FORM	QUESTION	4	3	2	1	COMMENTS
A	3					
A	28					
A	30					
A	31					
R	16					
R	17					
R	18					

Child Maltreatment

Objectives:

- Describe the epidemiology of child maltreatment;
- Discuss risk factors for maltreatment and neglect;
- Describe the nursing assessment of the maltreated child;
- Describe nursing interventions for maltreated children and their families.

Please rank the relevance of each item and objective(s) to the content included in Child Maltreatment.

4 = Very Relevant 3 = Quite Relevant

2 = Somewhat Relevant 1 = Not Relevant

FORM	QUESTION	4	3	2	1	COMMENTS
A	32					
R	21					
R	34					
R	39					

The Neonate

Objectives:

- Identify the anatomic and physiologic characteristics of neonates as a basis for their special needs;
- Describe normal and abnormal findings in the neonate;
- Identify the appropriate nursing diagnoses and expected outcomes based on the assessment findings;
- Delineate the specific interventions needed to manage the neonate;
- Evaluate the effectiveness of nursing interventions related to patient outcome;
- Identify health promotion strategies related to the neonate.

Please rank the relevance of each item and objective(s) to the content included in the Neonate.

4 = Very Relevant 3 = Quite Relevant

2 = Somewhat Relevant 1 = Not Relevant

FORM	QUESTION	4	3	2	1	COMMENTS
A	12					
A	33					
A	42					
R	7					
R	22					

Medical Emergencies

Objectives:

- Identify the physiologic characteristics of children as a basis for signs and symptoms of medical illness;
- Identify common causes of medical emergencies in children;
- Identify the appropriate nursing diagnoses and expected outcomes based on the assessment findings;
- Delineate interventions needed to management of the child with selected medical emergencies;
- Evaluate the effectiveness of nursing interventions;
- Identify health promotion strategies related illness prevention.

Please rank the relevance of each item and objective(s) to content included in Medical Emergencies.

4 = Very Relevant 3 = Quite Relevant

2 = Somewhat Relevant 1 = Not Relevant

FORM	QUESTION	4	3	2	1	COMMENTS
A	5					
A	6					
A	45					
A	47					
A	48					
R	5					
R	6					
R	24					
R	43					
R	48					
R	50					

Toxicologic Emergencies

Objectives:

- Identify common causes of pediatric toxicologic emergencies;
- Identify the appropriate nursing diagnoses and expected outcomes based on the assessment findings;
- Delineate interventions needed to management of the child who has suffered a toxicologic emergency;
- Evaluate the effectiveness of nursing interventions related to patient outcome;
- Identify health promotion strategies related preventing toxicologic emergencies.

Please rank the relevance of each item and objective(s) to content included in toxicologic emergencies.

4 = Very Relevant 3 = Quite Relevant

2 = Somewhat Relevant 1 = Not Relevant

FORM	QUESTION	4	3	2	1	COMMENTS
A	21					
A	36					
A	37					
A	38					
A	40					
R	13					
R	33					
R	35					
R	36					
R	37					
R	38					

Stabilization and Transport

Objectives:

- Identify the indications for the transfer of the pediatric patient;
- Discuss the stabilization required prior to transfer;
- Compare and contrast ground and air transport of pediatric patients;
- Describe the personnel that are needed to safely transport the ill or injured child.

Please rank the relevance of each item and objective(s) to content included in Stabilization and Transport.

4 = Very Relevant 3 = Quite Relevant

2 = Somewhat Relevant 1 = Not Relevant

FORM	QUESTION	4	3	2	1	COMMENTS
A	14					
A	41					
R	8					

Crisis Intervention

Objectives:

- Identify the nursing assessment of families in crisis;
- Plan appropriate interventions for families in crisis;
- Identify the key signs and symptoms of a family's crisis response;
- Identify two methods of stress reduction for the emergency care team.

Please rank the relevance of each item and objective(s) to the content in Crisis Intervention.

4 = Very Relevant 3 = Quite Relevant

2 = Somewhat Relevant 1 = Not Relevant

FORM	QUESTION	4	3	2	1	COMMENTS
A	9					
A	27					
A	39					
R	30					

Overall Relevance of the Written Examination

Please rank the overall relevance of the examination
(circle the appropriate ranking).

4 = Very Relevant

3 = Quite Relevant

2 = Somewhat Relevant

1 = Not Relevant

Additional Comments:

Appendix I
Initial Request

Katie Sigler, ARNP
604 West Louise Avenue
Vinita, Oklahoma 74301

Dear Nurse Expert;

Currently I am a Doctoral candidate at Oklahoma State University, Stillwater, Oklahoma in Occupational and Adult Education, conducting a validation and reliability study of the Emergency Nurses Association Emergency Nursing Pediatric Course written examination. With your education, experience and expertise in Emergency Pediatric Nursing, I would appreciate your support in evaluating the content validity of the Emergency Nursing Pediatric Course written examination.

The enclosed Content Validity Indicator is designed to rank each item and objective(s) of the written examination to the content of each of the twelve topics included in the course. All responses will remain confidential, but will be included in the overall computation of the content validity of the written examination.

Please utilize your personal copy of the ENA copyrighted Form A or Form R written examination to compare each item, and rank relevancy of each item on the Likert scale: (4) - very relevant; (3) - quite relevant; (2) -

somewhat relevant; and (1) - not relevant. A consent for participation will be included. Please read, sign and return the consent form in the self-addressed stamped envelope. Please complete the Content Validity Indicator and General Information Form. Permission to conduct the study was granted by the Emergency Nurses Association and is partial requirements for completion of doctoral studies at Oklahoma State University.

I would appreciate your assistance in completion of the Content Validity Indicator and return as soon as possible. I realize that your schedule is busy and your time valuable, however, completion of Content Validity Indicator should require approximately two (2) hours. This data will be included in research study and provided to the Emergency Nurses Association.

I appreciate your support and assistance in this project and thank-you in advance for your participation.

If you should have any questions concerning this study, you may contact me at 918-256-2818 or electronically by e-mail at ksigler@neok.com.

Sincerely,

Mary K. Sigler

Appendix J
Second Request

Katie Sigler, ARNP
604 West Louise Avenue
Vinita, Oklahoma 74301

Dear Nurse Expert;

This is a reminder regarding the Content Validity Indicator research information sent to you previously. I realize that you are extremely busy, but if you could complete both the General Information Form and the Content Validity Indicator and return to me by May 21, 2003, I would certainly appreciate your assistance. This data must be compiled and submitted by May 30, 2003.

I appreciate the support you demonstrate by completing these forms. This research study will add to the body of knowledge for nursing as a whole, but emergency pediatric nursing in particular.

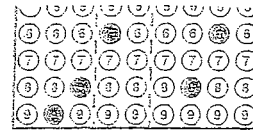
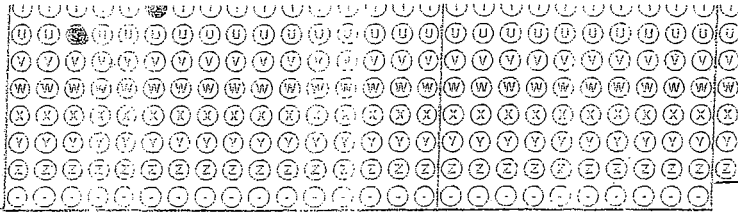
The consent for participation has been mailed with a stamped, addressed envelope. Please sign and return as soon as possible.

If you should have any questions concerning this study, you may contact me at 918-256-2818 or electronically by e-mail at ksigler@neok.com.

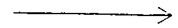
Sincerely,

Mary K. Sigler

Appendix K
Sample Answer Sheet



information



ANSWER SHEET

TNCC
TEST
FORM

1
2
3

ENPC
TEST
FORM

A
B
C

FOR INSTRUCTOR USE ONLY

Test Score: 90

Multiple Choice Exam: E

Psychomotor Skills: F

MARKING INSTRUCTIONS

CORRECT MARK:

INCORRECT MARKS:

- USE A NO. 2 PENCIL ONLY
- DARKEN THE CIRCLE COMPLETELY
- ERASE CLEANLY ANY MARKS YOU WISH TO CHANGE
- DO NOT MAKE ANY STRAY MARKS ON THIS FORM

1 B C D

2 B C D

3 B C D

4 A B C D

5 B C D

6 B C D

7 A B C D

8 B C D

9 A B C D

10 B C D

11 B C D

12 A B C D

13 A B C D

14 A B C D

15 B C D

16 A B C D

17 A B C D

18 A B C D

19 A B C D

20 A B C D

21 B C D

22 A B C D

23 A B C D

24 A B C D

25 A B C D

26 B C D

27 A B C D

28 B C D

29 B C D

30 A B C D

31 A B C D

32 B C D

33 A B C D

34 A B C D

35 B C D

36 B C D

37 A B C D

38 A B C D

39 A B C D

40 A B C D

41 A B C D

42 A B C D

43 A B C D

44 A B C D

45 B C D

46 B C D

47 A B C D

48 B C D

49 A B C D

50 A B C D

Appendix L
**Script for Data Related to ENPC Requirements for Registered
Nurse Employment in Emergency Department**

To: Director of Emergency Department
From: Mary K. Sigler
Date:
Topic: Emergency Nursing Pediatric Nursing Course

Hello, my name is Mary K. Sigler. I am an Emergency Nursing Pediatric Course Instructor from Oklahoma. I am currently a doctoral candidate at Oklahoma State University in Stillwater, Oklahoma, conducting a validity and reliability study of the Emergency Nurses Association Emergency Nursing Pediatric Course written examination.

I am contacting the Directors of Emergency Departments, or their designees, at several selected facilities in this state to collect data to include in this research study. I am requesting the information if completion of the ENPC is required for registered nurses employed in the emergency department.

Your response will be included in a summary of the validation and reliability study of the ENA ENPC. No other demographic information will be included in the study.

Thank you for your support and assistance.

Sincerely,

Mary K. Sigler

Appendix M

Nurse Expert Profile - Demographic Variables

VARIABLE	FREQUENCY	PERCENTAGE
<u>Age</u>		
31-40	2	20%
41-50	7	70%
51-over	1	10%
<u>Gender</u>		
Female	8	80%
Male	2	20%
<u>Years in Nursing</u>		
6-10	1	10%
16-20	3	30%
21 and over	6	60%
<u>Years in ER</u>		
6-10	1	10%
16-20	3	30%
21 and over	6	60%
<u>Basic Nursing Education</u>		
Diploma	4	40%
Associate	2	20%
Bachelors	4	40%
<u>Highest Education in Nursing</u>		
Diploma	3	30%
Associate	1	10%
Bachelor	1	10%
Master	5	50%
Advanced Practice	3	30%
<u>Highest Degree Non-Nursing</u>		
Bachelor	2	20%
Master	3	30%
Doctorate	1	10%
<u>Employment</u>		
Acute Care	9	90%
Emergency Department	9	90%
Academic	1	10%
<u>Number of Patient Beds</u>		
26-50	1	10%
101-200	1	10%
201-300	1	10%
301- and over	7	70%

VARIABLE	FREQUENCY	PERCENTAGE
<u>Member of ENA</u>		
Yes	10	100%
No	0	0%
<u>Number of Years ENA Member</u>		
< 1 year	1	10%
6-10 years	1	10%
11-15 years	6	60%
16-20 years	2	20%
<u>ENPC Instructor</u>		
Yes	10	100%
No	0	0%
<u>Years as ENPC Instructor</u>		
2-5	1	10%
6-10	7	70%
11-15	2	20%
<u>Number of ENPC Courses Per Year</u>		
1-5	9	90%
6-10	1	10%
<u>Number of Participants Per Course</u>		
1-10	1	10%
11-20	8	80%
21-30	1	10%
<u>Success Rate</u>		
100%	1	10%
99-90%	8	80%
79-70%	1	10%
<u>ENPC Required for Employment in ER</u>		
Yes	6	60%
No	4	40%
<u>3 Nurse Experts had Advanced Certifications</u>		
2 Nurse Practitioners	2	20%
1 Physician Assist.	1	10%
<u>1 Nurse Expert was Member of ENPC Task Force in 1991 and 1998</u>	1	10%

VITA

2

Mary Kathryn Sigler

Candidate for the Degree of

Doctor of Occupational and Adult Education

Thesis: A Validation and Reliability Study of the
Emergency Nurses Association Emergency Nursing
Pediatric Course Written Examinations.

Major Field: Education

Biographical:

Personal Data: Born in Ponca City, Oklahoma, the
Daughter of Billy B. and Mary Sue Carter.

Education: Graduated from Mater Dei High School,
Santa Ana, California in June, 1964; received
Associate Degree in Nursing from Cuesta College,
San Luis Obispo, California in 1981; received
Bachelor of Science in Nursing from St. Mary of
The Plains College, Dodge City Kansas in 1983 and
Master Degree in Nursing from Wichita State
University, Wichita, Kansas in August 1983.
Completed the requirements for the Doctor of
Education Degree with a major in
Occupational and Adult Education in December
2003.

Experience: Employed in business and industry until
1981. Worked as Registered Nurse and Nurse
Practitioner, 1981 to present.

Professional Memberships: American Nurses
Association, Oklahoma Emergency Nurses
Association, Emergency Nurses Association,
Oklahoma Nurses Association, American
Academy of Nurse Practitioners.