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A National Survey on Elements of Nursing Education

A NATIONAL SURVEY ON ELEMENTS OF NURSING EDUCATION

Fall 2004

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Mission Statement

The National Council of State Boards of Nursing, composed of member boards, provides leadership to advance regulatory excellence for public protection.

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ACKNOWLEDGMENTS

This study would not have been possible without the support provided by the participating educational programs and their graduates who expended time and energy to complete lengthy surveys. The information provided by the education programs and their graduates added to a growing body of knowledge on critical elements of nursing education in preparing nurses for safe and quality entry-level practice.

The authors acknowledge the contributions of Dr. June Smith, former associate director of research, for initiating the study and supervising its initial data collection. We would also like to thank Dr. Nancy Spector, director of education, for supervising part of the data collection during the transfer of primary investigators for the study. NCSBN's NCLEX® Examinations Department and the Practice, Regulation and Education (PR&E) Committee provided information invaluable to the creation of the study's survey instruments. The authors also gratefully acknowledge the assistance of Richard Smiley with the statistical analysis and the work of Lindsey Gross in preparation of the final report.

S.L., K.K.

EXECUTIVE SUMMARY

Background and Aims

The National Council of State Boards of Nursing (NCSBN) is responsible for assisting its members, the boards of nursing in the United States and five U.S. territories, in their mission of public protection through safe nursing practice. Research services aims to conduct and present studies that accurately address both the present and future needs of NCSBN and its members. Since most boards of nursing approve nursing programs, boards are interested in knowing the evidence-based nursing education elements that are essential to the adequate preparation of new nurses for safe entry-level practice.

In addition, the Institute of Medicine (IOM) (2003) recommended establishment of evidence-based teaching methods and curricula in health professions education to meet the needs of the changing health care system. In an attempt to provide evidence-based information for member boards to regulate nursing education programs, the elements study was designed to explore educational elements including clinical, didactic, faculty and others, and new nurse preparation for practice.

The specific aims were to:

1. Describe the elements of nursing education, perceived adequacy of preparation for practice, transition activities and practice characteristics of newly licensed nurse graduates.
2. Examine the relationship between perceived adequacy of preparation for practice and difficulty with client care assignments.
3. Identify the elements of nursing education that lead to better preparation of new nurse graduates.

Methodology

Design and Sample

The study employed a two-tiered survey process for collecting and combining data from programs of nursing education (Tier 1) and the graduates of those programs (Tier 2). Within the first tier, stratified random samples of 750 registered nurse (RN) and 500 licensed practical/vocational nurse (LPN/VN) educational programs were drawn. The RN program sample was stratified by state and type of educational program while the LPN/VN program sample was stratified by state. A return rate of 51% was achieved. Within the second tier, 15,000 surveys were mailed to RN graduates of the respondent RN programs and 6,000 to LPN/VN graduates of the respondent LPN/VN programs. The overall return rate was 45.4%. Using unique identification codes, data received from the programs and from the graduates were merged. After excluding cases with invalid addresses and programs with fewer than 5 respondent graduates, 410 surveys from the educational programs and 7,497 from the matching graduates remained in the analysis.

Data Collection Instruments

Separate questionnaires were developed and used for the education program survey and the nurse graduate survey. The program survey requested information on elements of nursing education including curriculum, faculty and program characteristics. The survey for nurse graduates included questions on the practice characteristics of nurse graduates, the adequacy of their educational preparation for practice, the characteristics of transition to practice activities and their perceived difficulty with client assignments.

Survey Procedures

A five-stage mailing procedure was used to engage nursing education programs in the study. This included a preletter announcing the study, a first survey mailing, two reminder postcards and a follow-up survey mailing. Each correspondence was addressed to the administrator of the nursing programs. A four-stage mailing was used to engage program graduates in the study. A survey and cover letter comprised the first mailing, two reminders postcards were sent and a second survey mailing was made to nonrespondents.

Results

Description of Respondents

Nursing Programs

Of the 410 education programs that participated, 41.9% were RN associate degrees, 19.1% baccalaureate and 27.9% LPN/VN certificates. The RN diploma, LPN/VN associate and other programs constituted a small percentage of the sample. Urban (40%), suburban (22.3%) and rural (37.8%) education programs were well represented in the sample. The majority of the respondents (84.1% RN programs and 83.7% LPN/VN programs) who completed the program surveys were heads or associate heads of the programs. On average, these administrators have been in their positions for about 6 years and have been in nursing education for about 21 years for RN programs and 16 years for LPN/VN programs.

Nurse Graduates

Of the 7,497 nurse graduates that participated, 75.5% were RNs and 23.5% were LPN/VNs. Of the education programs completed by the RN graduates, 64.0% were associate degree, 29.6% baccalaureate degree and 5.6% diploma programs. Almost 93% of the RN graduates and 91.5% of the LPN/VN graduates were female. About 78.1% of the RNs and 67.2% of the LPN/VNs graduates were White, 3.9% of RNs and 2.3% of LPN/VN were Asian, and 8.0% of RNs and 5.2% of LPN/VN were Hispanic. The percentage of graduates from an African American background was higher for the LPN/VNs (22.1%) than for the RNs (7.4%). The average age of RNs was 32 years while that of LPN/VNs was 34 years.

Practice Characteristics

Employing Facilities and Specialty Areas

The RN graduates were employed primarily in hospitals (87.9%), with 5.5% reporting employment in long-term care facilities and 5.3% in community or ambulatory care settings. The LPN/VN graduates were mostly employed in long-term care facilities (51.8%), with about a quarter employed in hospitals and 17.5% in community or ambulatory settings. Nearly 40% of the RN graduates worked in medical-surgical unit (39.4%), while 66.0% of the LPN/VN graduates reported working in long-term care facilities. It is interesting to note that about one-third of RN graduates worked in critical care units.

Length of Employment and Hours Worked.

After receiving licenses, the RN graduates were employed an average of 9.9 months (SD=7.8) and the LPN/VN graduates were employed 10.4 months (SD=6.5). The RN graduates worked an average of 36.1 regular hours a week (SD=6.8), while the LPN/VN graduates worked 35.2 hours (SD=9.3) per week. More than half of the RN (56.1%) and the LPN/VN (54.5%) graduates were scheduled to work nonmandatory overtime. A little less than one-tenth of the RN (8.8%) and LPN/VN (9.9%) graduates reported working mandatory overtime.

Shifts Worked

More than 68% of the RNs reported working 12-hour shifts and 63.4% of the LPN/VNs worked 8-hour shifts. The LPN/VN graduates were more likely than the RN graduates to work straight days (44% LPN/VN and 38% RN), while RN graduates were more likely to work straight nights (36% RN and 21% LPN/VN).

Outcome Measures

Adequacy of Educational Preparation

Most of the graduates felt their clinical education adequately prepared them to administer medications by common routes (81.5% of RNs and 82.3% of LPN/VNs), provide direct care to two clients (76.4% of RNs and 77.7% of LPN/VNs), work effectively within a health care team (66.0% of RNs and 74.2% of LPN/VNs), perform psychomotor skills (e.g., dressing changes, catheterizations, etc.) (64.0% of RNs and 71.3% of LPN/VNs), teach clients (63.9% of RNs and 61.5% of LPN/VNs), document a legally defensible account of care provided (56.1% of RNs and 63.6% of LPN/VNs), and make decisions about client care based on assessment and diagnostic testing data (55.9% of RNs and 49.7% of LPN/VNs). Similarly, between 50% to 69% of the graduates felt that their classroom education adequately prepared them to understand pathophysiology (68.8% of RNs and 64.0% of LPN/VNs), teach clients (62.7% of RNs and 62.9% of LPN/VNs), use information technology to enhance patient care (62.1% of RNs and 64.6% of LPN/VNs), recognize medication side effects (59.0% of RNs and 64.6% of LPN/VNs), meet clients' emotional needs (57.2% of RNs and 63.8% of LPN/VNs), analyze multiple types of data (54.3% of RNs and 53.2% of LPN/VNs), understand clients' cultural needs (52.4% of RNs and 59.2% of LPN/VNs), and utilize research findings (50.3% of RNs and 52.6% of LPN/VNs). However, some graduates felt inadequately prepared to administer medications to groups of patients (52% of RNs and 27.5% of LPN/VNs), delegating tasks to other personnel (22.3% of RNs and 28.2% of LPN/VNs), supervise care by others (24.5% of RNs and 26.5% of LPN/VNs), and know when and how to call a physician (21.7% of RNs and 20.4% of LPN/VNs).

Difficulty with Client Care Assignments

Approximately one-fifth of the RN (19.7%) and 17.7% of the LPN/VN graduates reported that their typical client care assignments were too challenging or difficult. The graduates who reported difficulty with current client care assignments rated overall preparation by education lower than the group who reported having no difficulty with assignments ($p<0.05$). Inadequate preparation of several nursing activities was predictive of difficulty with client care assignments. These activities include working effectively within the health care team [Odds Ratio (OR)=2.2], administering medications to groups of patients (OR=1.3), analyzing multiple types of data when making client-related decisions (OR=1.3), delegating tasks to others (OR=1.4) and understanding the pathophysiology underlying a client's conditions (OR=1.5).

Elements of Nursing Education and Their Relationships to the Outcomes

Curriculum Elements

Clinical Elements. On average the RN programs allocated 758 hours for clinical learning experience, while the LPN/VN programs allocated 640 hours. Specifically for direct care experience, the RN programs had 596 hours and the LPN/VN programs had 467 hours. In general, the RN programs had about 120 more hours for clinical and direct care experiences than the LPN/VN programs. Both types of programs allowed time for student learning by observation, simulation and practicing in skills labs. The nursing programs also reported that students spent about 80% of their direct care clinical experience caring for one or two clients while 20% were caring for more than two clients.

Most of the programs allowed students, while in practicum, to perform the majority of the measured clinical activities including documentation, catheterization, dressing change, etc. However, it is important to note that 44% of the RN programs did not allow students to call physicians and 15%

did not give the students opportunities to supervise care by others. Compared to the RN programs the LPN/VN programs were more restrictive in terms of allowing learning activities in clinical settings, which may be expected because of the differences in program goals.

Regarding types of settings in which clinical learning activities occurred, all programs utilized medical-surgical units for clinical learning experiences. The vast majority of the programs rotate students through specialty units including pediatric (95% RN programs and 84% LPN/VN programs) psychiatric (97% RN programs and 59% LPN/VN programs), and women's health/OB unit (99% RN programs and 98% LPN/VN programs). While more programs utilized hospitals rather than outpatient settings for student clinical learning experience, the LPN/VN programs used more long-term care setting compared to the RN programs.

Examining the involvement of faculty who teach didactic content in supervising student clinical experience, it was found that the majority of the RN (95.7%) and of the LPN/VN (93.0%) programs had most or all of their faculty teaching both didactic and clinical content of nursing curriculum. More than four-fifths of the RN programs (82.1%) and 50.8% of the LPN/VN programs used preceptors or clinical adjuncts to supervise students. Preceptors/clinical adjuncts taught about one-fifth of the clinical curriculum for programs that utilized these personnel. Student-faculty ratios varied across clinical settings and educational programs. The means of the ratios ranged from 6.3 to 9.4.

Didactic Elements. The educational programs also provided information about general and specialty-related didactic content taught in their programs. Of the programs that taught the measured general content, about 40% of the RN programs had pharmacology and management/leadership principles as independent courses while the majority of both RN and LPN/VN programs integrated critical thinking/decision making, use of information technology, and evidence-based practice throughout the curriculum. More than half of the programs taught didactic content related to the care of client populations as independent courses. It is interesting to note that 8.4% of RN programs did not teach the use of information technology and 11.7% did not teach evidence-based practice.

To identify the link between the didactic and clinical components of nursing curriculum, programs were asked how soon the clinical component was taught after didactic delivery. More than half of the RN (69.6%) and LPN/VN programs (52.7%) reported that the clinical experience closely followed the presentation of didactic content (usually within 7 to 14 days). A small percentage of programs (4.3% RN programs and 11.6% LPN/VN programs) taught clinical components beyond 30 days of the didactic delivery.

Interdisciplinary Activities. Working effectively within interdisciplinary teams is one of the five IOM competencies for health care professionals. Thus, it is important to understand how the programs teach students to work effectively within an interdisciplinary health care team. More than half of the RN (58.6%) and 60.0% of the LPN/VN programs scheduled interdisciplinary clinical activities with other health care professionals for their students. A little less than one-fourth of both RN and LPN/VN programs also scheduled nursing students to have didactic course work with other health care professionals. About one-third of both RN and LPN/VN programs did not have scheduled interdisciplinary learning activities.

Relationships Between Curriculum Elements and Outcomes. Using multiple regression models to link the curriculum elements and outcomes, it was found that the graduates were more likely to feel adequately prepared when their nursing program:

- Had a higher percentage of faculty members that taught both didactic content and clinical activities (β=0.34).

- Taught use of information technology (β=0.42) and evidence-based practice (β=0.44).
- Integrated pathophysiology (β=0.33) and critical thinking (β=0.34) throughout the curriculum.
- Taught content related to the care of specific client populations including care of medical-surgical clients (β=0.20), care of clients with psychiatric disorders (β=0.24) and women's health (β=0.41) as independent courses.

Characteristics of Faculty

For RN programs, an average of 13.3% of faculty were required to engage in clinical practice and 2.6% held joint appointments. LPN/VN programs required higher percentage of faculty (22.8%) to engage in clinical practice and had a higher percentage of faculty (9.1%) with joint appointments. On average 59.5% of the faculty from the RN programs had a master's degree in nursing and 13.9% of the faculty obtained their doctorate degrees. About one-fourth of the faculty from the LPN/VN programs (24.2%) obtained their master's degrees and 1% of them held doctorate degrees.

To assess the student-faculty interaction, graduates were asked to respond to a number of questions related to the faculty's availability to students and whether they were required to demonstrate skills prior to performing them on clients while in nursing education programs. Between one-half to three-fourths of the graduates indicated that faculty members or instructors of their nursing education programs were generally available to assist with classroom projects (55% RNs and 63.8% LPN/VNs), answer questions during clinical learning experience (74.1% RNs and 79.2% LPN/VNs), assist with clinical skills (75.1% RNs and 77.5% LPN/VNs), demonstrate skills in clinical learning experience (74.6% RNs and 78.1% LPN/VNs) and provide current information in classroom (67.0% RNs and 73.5% LPN/VNs). More than two-thirds of RN (69.8%) and 60.5% of the LPN/VN graduates indicated that faculty members or instructors always required them to demonstrate skills prior to performing them on clients. More RNs than LPN/VNs reported that they were "Always" required to demonstrate skills prior to performing them on clients while 2% of RNs and 12% of LPN/VNs were never required to do so.

Linking the characteristics of faculty to outcome measures, it was found that the graduates were more likely to feel adequately prepared if faculty were available to: demonstrate skills in clinical learning experience (β=1.15), assist with classroom projects (β=0.84), provide current information in classrooms (β=1.15), assist with clinical skills (β=0.67), require students to demonstrate skills (β=0.51), answer questions during clinical learning (β=0.73) and answer questions about content (β=0.33). The availability of faculty to assist with clinical skills is also predictive of difficulty with current care assignments (OR=1.44). The graduates who perceived that faculty were available to assist with clinical skills during clinical learning were 1.4 times more likely to report having no difficulty with current client care assignments.

Conclusion

In conclusion, based on the new nurse graduates' perceptions, education programs were successful in preparing the majority of new nurses to perform many nursing functions. However, some new nurses felt they needed to be better prepared in providing direct care and administering medications to groups of clients, delegating tasks to other personnel, supervising care by others, and knowing when and how to call a physician. We also conclude that to improve graduates' perceived adequacy of preparation, it is important to teach use of information technology and evidence-based practice, integrate pathophysiology and critical thinking throughout the curriculum, teach specialty knowledge as independent courses, use faculty who teach didactic courses to also teach clinical practicum, increase faculty availability to students and promote quality faculty-students interactions.

Strengths and Limitations

The current study gathered valuable information on what elements of nursing education lead to the best possible preparation of new nurses. It links the elements of nursing education to perceived preparedness of new graduates for nursing practice. The findings of this study are significant in broadening our understanding of the relationships between educational elements and preparation of new nurses for practice. Identification of evidenced-based elements of nursing education serves to direct boards of nursing and educational programs to choose appropriate interventions to improve the preparation of new nurses for practice.

It is important to note that our findings of significant components of preparation are consistent with IOM competencies for health care professionals. Both emphasize the importance of the use of information technology and evidence-based practice by health care professionals and call for more interdisciplinary opportunities to prepare students to work effectively within a health care team.

To apply the findings of the study to practice, it is important to consider the limitations. By design, this study was limited to new nurse graduates' perception of preparedness for practice. Although important, self-perception is only one aspect of assessing the adequacy of preparation of nursing students for practice. More research is needed to assess educational preparation from a variety of perspectives including that of nursing employers.

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BACKGROUND

NCSBN is responsible for assisting its members, the boards of nursing in the United States and five U.S. territories, in their mission of public protection through safe nursing practice. NCSBN's Research Department aims to conduct and present studies that accurately address both the present and future needs of NCSBN and its members. Since most boards of nursing approve nursing programs, boards are interested in knowing the evidence-based nursing education elements that are essential to the adequate preparation of new nurses for safe entry-level practice.

A series of previous NCSBN research studies have demonstrated that many nurses graduate from their initial education programs feeling inadequately prepared to perform certain functions necessary for safe and effective care (Smith & Crawford, 2002, Smith & Crawford, 2003). Inadequate preparation may lead to frustration and early burnout as graduates struggle to care for very ill clients while feeling confused, unhappy and poorly prepared. Preparation for the practice setting is a direct outcome of nursing education. The perceived lack of preparation of many new nurses for specific practice issues is an indication that some nursing education programs are less successful than others in preparing graduates for various aspects of practice.

In addition, according to the IOM (2003), current health professions education programs lack evidence-based curricula. Teaching is guided by personal beliefs and opinions, and is dominated by intuition and tradition instead of scholarly inquiry (IOM, 2003). Furthermore, IOM (2003) recommended establishing evidence-based teaching methods and curricula in health professions education to meet the needs of the changing health care system. In an attempt to provide evidence-based information for member boards to regulate nursing education programs, the elements study was designed to explore educational elements including clinical, didactic, faculty and others, and new nurse preparation for practice.

The specific aims were to:

1. Describe the elements of nursing education, perceived adequacy of preparation for practice, transition activities and practice characteristics of newly licensed nurse graduates.
2. Examine the relationship between perceived adequacy of preparation for practice and perceived difficulty with client care assignments.
3. Identify the elements of nursing education that leads to better preparation of new nurse graduates as perceived by those graduates.

THEORETICAL MODEL

A theoretical model was developed to guide this research (*see Figure 1*). According to this model, a number of factors directly or indirectly affect how nurse graduates felt about educational preparation and whether they were up to the challenges of real-world practice. Student attributes and the quality of nursing programs determine the quality of graduates for practice. Along with the type of transition program and practice characteristics the graduates experience, the quality of graduates in turn directly influences outcomes, which was measured by new nurse graduates' perceived adequacy of educational preparation and difficulty with client care assignments in this study. In addition, quality of nursing programs is determined by the interactions of the elements of the educational program including curriculum, faculty and program characteristics. Table 1 illustrates the indicators of each of the factors in the model. The elements and their indicators selected in this study were either often used as standards for nursing program approval by boards of nursing or were suggested by the literature including studies performed by NCSBN over the last few years. To determine the relationship between elements of education and preparation for practice, other factors in the model including student attributes, transition programs, and practice characteristics were measured and considered as confounding variables in this study. Data were analyzed to discover those educational elements most likely to produce competent entry-level nurses based on self-report.

Figure 1. Theoretical Model of the Elements Study

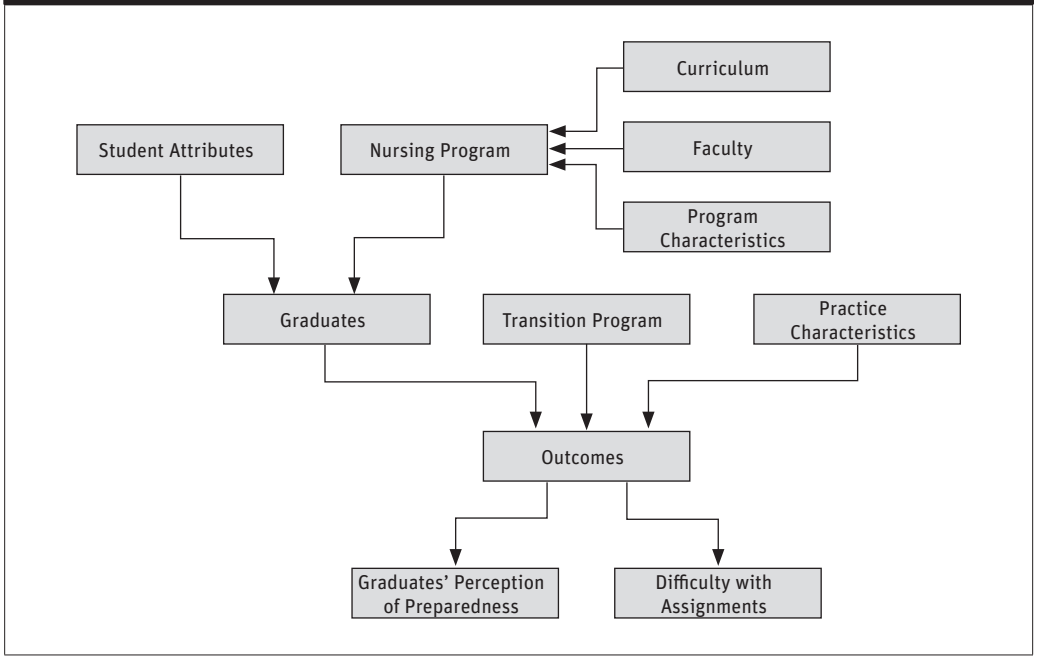


Table 1. Indicators of Constructs in the Theoretical Model

Construct	Indicators
Graduate attributes	Gender Age Ethnicity Type of education completed
Faculty	Education preparation of faculty Percentage of faculty in practice Percentage of faculty with joint appointments Faculty-student interaction Availability of faculty to students (graduate perception)
Curriculum	Clinical hours Direct care experience Clinical learning activities allowed Types of clinical sites used Student-faculty ratio for clinical teaching Percentage of faculty that teaches both didactic and clinical components of curriculum Use of preceptors and/or clinical adjuncts Didactic content taught Modes of delivery of didactic content Interdisciplinary opportunities Link between didactic and clinical elements Distance education
Program characteristics	Type of Program Geographic location Size of the program Faculty shortage Number of faculty
Characteristics of Practice	Employing facility Specialty areas Length of employment after receiving license Regular working hours in a week Nonmandatory overtime Mandatory overtime Types of shift
Transition program	Types Duration Timing Paid or pay for Preceptor/mentor involvement Focus of the transition program
Outcome measures	Perceived adequacy of preparation Perceived difficulty with client assignments

RESEARCH DESIGN AND METHODOLOGY

This section provides a description of the methodology used to conduct the Elements Study. Descriptions of the study design, sample selection and data collection procedures are provided as well as information about response rates, the data collection instruments, assurance of confidentiality and the degree to which the samples were representative of education programs and new nurse graduates.

Design

This study used a two-tiered survey design for collecting and combining data from programs of nursing education and the graduates of those programs. Within the first tier, data were collected from stratified randomly drawn samples of RN and LPN/VN nursing education programs. The second tier of data consisted of information collected from those program graduates about their educational preparation for a variety of practice activities. The NCLEX® code numbers for respondent programs were used to identify nurse graduates using those codes and passing NCLEX-RN® or NCLEX-PN® examinations within the previous 12 months. Thus all contacted nurse graduates were tied to a respondent program of nursing education. NCLEX® program codes were used to merge data from nursing education programs with data from the graduates of those programs to allow analysis of those educational factors most likely to result in well-prepared graduate nurses. The two-tiered survey design is one of the major strengths of the study because it allows the examination of the impact of elements of education on graduates by collecting data on education programs from program administrators and data on the program graduates' perceptions of preparation for practice.

Table 2. Study Participants

Tier 1 – Program Survey	Mailed	% Returned	Usable Surveys
RN	750	50.0	280
LPN/VN	500	52.4	130
Total	1250	51.0	410

Tier 2 – Graduate Survey	Mailed	% Returned	Usable Surveys
RN	15,000	46.7	5,735
LPN/VN	6,000	38.1	1,762
Total	21,000	45.4	7,497

Sample Selection and Data Collection Procedures

Within the first tier, stratified random samples of 750 RN and 500 LPN/VN educational programs were drawn. The RN sample was larger due to variability from different types of programs (i.e., BSN, ADN, diploma). The RN program sample was stratified by state and type of educational program while the LPN/VN program sample was stratified by state. A return rate of 51% was achieved (*see Table 2*). Within the second tier, 15,000 surveys were mailed to graduates of the respondent RN programs and 6,000 to graduates of the respondent LPN/VN programs. The overall return rate was 45.4% (*see Table 2*). Using NCLEX® program codes, data received from the programs and from the graduates were merged. After excluding cases with invalid addresses and programs with fewer than 5 respondent graduates, 410 surveys from the educational programs and 7,497 from the matching graduates remained in the analysis.

Table 3. Graduates Distribution by Programs

Number of Graduates	Number of Programs	Percentage
05-09	97	23.66
10-19	172	41.95
20-29	84	20.49
30-39	36	8.78
40-49	14	3.41
50-65	7	1.71
Mean=17.8; SD=10.9	Total=410	

Of the 410 educational programs, 280 were RN programs and 130 LPN/VN programs. On average, the programs had 17.8 graduates per program (the overall ranged from 5 to 65 graduates) participating in the study (*see Table 3*).

Data Collection Instruments

Separate questionnaires were developed and used for the education program survey and the nurse graduate survey.

Educational Program Questionnaire

The program survey, which contained three sections, was designed to elicit information on elements of nursing education including curriculum, faculty and program characteristics. The first section included questions related to the clinical aspects of the curriculum elements. Program administrators were asked to enumerate the total number of clinical hours provided by their program and the hours spent by students performing various types of activities during clinical hours such as direct care, observation, skills lab or care management. This section also included items related to the types of clinical sites used and the specific activities allowed in the program's contracted clinical setting(s) such as IV starts, delegation of tasks, calling physicians and teaching clients. The second section contained questions primarily related to the didactic aspect of curriculum including if and how general didactic content and content related to the care of specific client populations were taught in nursing programs. Questions on faculty and program characteristics were also included in section two. Section three contained questions related to respondent demographics addressing the role and experience of the respondent.

Nurse Graduate Questionnaire

The survey for nurse graduates included questions used in previous NCSBN Practice and Professional Issues surveys and a small number of additional questions devised specifically for this study. Adequacy of preparation was measured by a scale of 23 items containing clinical and classroom subscale components. The graduates of respondent educational programs were asked to rate how adequately they were prepared for practice on 12 activities related to clinical education (Cronbach's Alpha=0.87) and 11 activities related to classroom education (Cronbach's Alpha=0.89). The two subscales were combined to create the overall adequacy of preparation score by summing the ratings on each item after internal consistency analysis (Cronbach's Alpha of overall scale=0.91). The internal consistencies of each of the components and the combined score of preparation were adequate, ranging from 0.87 to 0.91, thus supporting the reliability of this outcome measure.

The 23 items of nursing activities were developed through a combination process. First, activities that were frequently performed by RNs and LPN/VNs were selected by panels of nurse experts nationwide. The assumption was that new nurses should be prepared in the most frequently performed functions. Second, opinions of experts from various NCSBN committees on essential areas of preparation for new nurses were solicited. Nursing activities that were not frequently performed but deemed essential were also included. Committees approved the final list of 23 activities. Although practice varies a great deal throughout the country, by region, by state and even within states, these 23 practice issues are almost universally understood by all new nurses—an important consideration when undertaking a national study. Thus the content validity of the

instrument was supported by the content experts within NCSBN (Smith, 2006). The direct relationship between perceived adequacy of preparation and difficulty with client care assignments found in this study also supports the concurrent validity of the instrument. In addition, the 23-item measure is parsimonious, which is paramount for large-scale studies.

A 3-point rating scale used on items for adequacy of preparation was "Yes, definitely," "Yes, somewhat" and "No." According to Smith (2004), this scale, commonly used by the well-known Picker Commonwealth Foundation in its patient satisfaction surveys, has been found to overcome the tendency toward falsely high scores associated with 5-point scales and provide more reliable data. The response of "Yes, definitely" indicates adequate preparation and "No" indicates inadequate preparation.

The graduates were also asked if current client care assignments were "Not challenging enough," "Just right" or "Too challenging or difficult." Those who responded "Not challenging enough" or "Just right" were considered as not having difficulty with current client care assignments.

The graduates also rated the quality of faculty-student interactions measured by a number of items on a scale of "Yes, definitely," "Yes, somewhat" or "No." An example of these items included "Were the faculty/instructors in your nursing education programs generally available to provide assistance or answer questions?" In addition, because some features of the practice setting may tend to make new graduates feel more or less prepared, such as overtime hours or shift worked, questions related to these practice characteristics were included on the graduate questionnaire so that their influence can be separated from that of the educational elements.

Mailing Procedures

A five-stage mailing procedure was used to engage nursing education programs in the study. This included a preletter announcing the study, an initial survey mailing, two reminder postcards and a follow-up survey mailing. All correspondence was addressed to the administrators of the nursing programs. A four-stage mailing was used to engage program graduates in the study. A survey and cover letter comprised the first mailing, two reminder postcards were sent and a second survey mailing was made to nonrespondents.

Assurance of Confidentiality

The cover letter explained the study to the nursing program administrators. They knew before agreeing to participate that all graduates of their programs for the past year would be contacted to complete a survey about their preparation for practice. The cover letter also explained that the data supplied by nursing programs and their graduates would be used to discover the educational elements most likely to prepare new graduates for the realities of practice. Nursing program administrators were promised confidentiality of the information supplied. They were specifically told that their boards of nursing were not to be informed of their answers to the questions.

The cover letter to the graduates of the programs informed them about the study and assured them of the confidentiality of their individual results. Only aggregate data would be published and no data could identify the responses of an individual graduate.

Data Analysis

Data for this study included information from nursing programs on the elements of education used to prepare graduates for nursing practice and information from the corresponding graduates of those programs on their preparation for practice and perceived difficulty with client care assignments. Outcome measures were nurse graduates' perception of adequacy of educational preparation for practice and perceived difficulty with client care assignments. Independent variables included elements of curriculum, faculty and program characteristics with confounding variables being student attributes, transition activities and practice characteristics. To examine the relationship between outcome measures and independent variables, multiple regression analyses were conducted when data on the dependant variables were continuous and logistic regression analyses performed when dependent variables were dichotomous.

RESULTS OF THE STUDY

This section contains the survey results on the elements of nursing education and their relationships to the nurse graduates' perception of adequacy of educational preparation and perceived difficulty with current client care assignments. The findings are presented in the following order: (1) description of respondents, (2) practice characteristics of the nurse graduates, (3) outcome measures, (4) elements of nursing curriculum, (5) characteristics of faculty and (6) transition to practice.

Description of Respondents

Nursing Programs

The majority of the respondents (84.1% of RNs and 83.7% of LPN/VNs) who completed the program surveys were heads or associate heads of nursing education programs. On average these administrators have been in their positions for about 6 years and have been in nursing education for about 21 years for the RN programs and 16 years for the LPN/VN programs (*see Table 4*).

The geographic location of nursing education programs is presented in Figure 2. Urban, suburban and rural education programs were well represented in the sample.

Of the 410 education programs, 41.9% were RN associated degrees, 19.1% baccalaureate and 27.9% LPN/VN certificates. The RN diploma, LPN/VN associate and other programs constituted a small percentage of the sample (*see Table 5*).

Nurse Graduates

Of the 7,497 nurse graduates that participated, 75.5% were RNs and 23.5% were LPN/VNs. Of the education programs completed by the RN graduates, 64.0% were associate degree, 29.6% baccalaureate degree and 5.6% diploma programs. As expected, 92.6% of the RN graduates and 91.5% of the LPN/VN graduates were female (*see Figure 3*). About 78.1% of the RNs and 67.2% of the LPN/VNs graduates were White, 3.9% of RNs and 2.3% of LPN/VNs were Asian, and 8.0% of RNs and 5.2% of LPN/VNs were Hispanic. The percentage of graduates from an African American background was higher for the LPN/VNs (22.1%) than for the RNs (7.4%) (*see Table 6*). The average age of RNs was 32 years and

Table 4. Respondents of the Program Survey

	RN Programs	LPN Programs
Respondent	**(N=280)**	**(N=130)**
Head or Associate head	84.1%	83.7%
Years in the position (Mean, SD)	5.9 (5.4)	6.2 (5.8)
Years in Nursing Ed. (Mean, SD)	20.7 (8.2)	15.8 (8.7)

Figure 2. Geographic Location of Nursing Education Programs

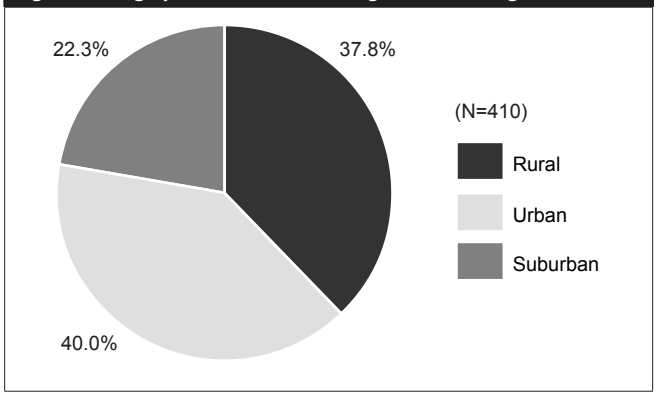


Table 5. Types of Education Programs

	Programs	Graduates
Nursing Education Programs	**% (N=410)**	**% (N=7,497)**
LPN Certificate	27.9	21.5
LPN Associate	2.2	2.0
RN Diploma	3.9	4.3
RN Associate	41.9	49.1
RN Baccalaureate	19.1	22.6
Other	4.9	0.5

LPN/VNs was 34 years (*see Figure 4*). Compared to the data reported in the 2000 HRSA State Health Workforce Profiles (HRSA, 2004) including all nurses in the workforce, the percentage of male nurses in this study is higher by 5.0% for RNs and 3.2% for LPN/VNs. The discrepancies suggest an increase of male nurses entering the workforce. The demographic distributions of the new nurse graduates in this study were reflective of those found in the *2003 Practice and Professional Issues Study* (Smith & Crawford, 2004).

Age, gender and ethnicity also define student attributes measured in this study. Since there are no significant correlations between these variables and outcome measures, student attributes as a construct are not discussed further.

Figure 3. Gender of Graduates

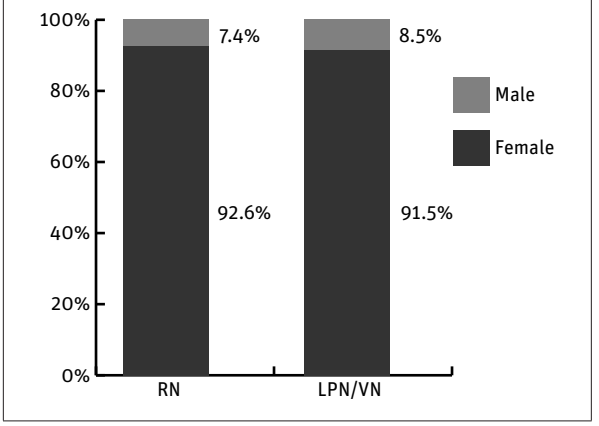
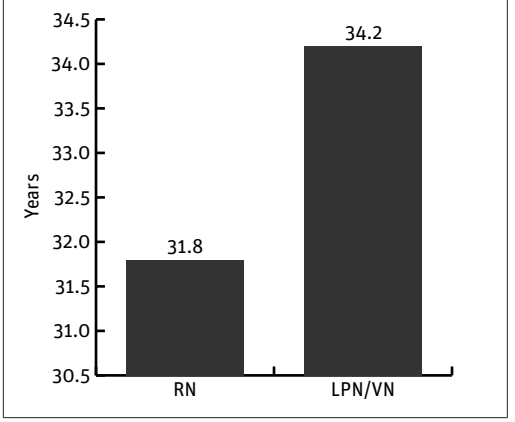


Figure 4. Age of Graduates



Sample Representativeness of Nurse Graduates

The samples of nurse graduates selected for this study were proportionally comparable to the populations from which the samples were drawn in terms of area of the country, subject ethnicity, subject gender and type of educational program.

Practice Characteristics of the Nursing Graduates

This section contains survey results related to a variety of nursing practice characteristics including employment facilities, specialty areas, length of employment after receiving license, regular working hours in a week, nonmandatory and mandatory overtime, and type of shifts. The practice characteristics were treated as confounding variables in the analysis of the elements of education and outcome measures. Although some variables had univariate relationships with the outcome measures, none exerted significant confounding effects during multivariate analysis.

Employing Facilities

The RN graduates were employed primarily in hospitals (87.9%), with 5.5% reporting employment in long-term care facilities and 5.3% reporting employment in community or ambulatory care settings. The LPN/VN graduates were mostly employed in long-term care facilities (51.8%), with about a quarter employed in hospitals and 17.5% in community or ambulatory settings (*see Table 7*). These results were very similar to those found in the previous NCSBN PPI studies (Smith & Crawford, 2002; Smith & Crawford, 2003).

Table 6. Ethnic/Racial Backgrounds of Graduates

Licensee	White	Black	Hispanic	Asian	Other
RN (%)	78.1	7.4	8	3.9	2.7
LPN/VN (%)	67.2	22.1	5.2	2.3	3.3

Specialty Areas

Nearly 40% of the RN graduates worked in medical-surgical units (39.4%), while 66.0% of the LPN/VN graduates reported working in long-term care facilities (*see Table 8*). It is interesting to note that about one-third of the RN graduates worked in critical care units.

Table 7. Employment Facilities

Employee facilities	RN %	LPN/VN %
Hospital	87.9	25.8
Long-term care	5.5	51.8
Community/ambulatory	5.3	17.5
Other	1.3	4.9

Length of Employment and Hours Worked

After receiving licenses the graduates were employed an average of 9.9 months (SD=7.8) for RNs and 10.4 months (SD=6.5) for LPN/VNS. The RN graduates worked an average of 36.1 regular hours a week (SD=6.8), while the LPN/VN graduates worked 35.2 hours (SD=9.3) per week. More than half of the RN (56.1%) and the LPN/VN (54.5%) graduates were scheduled to work nonmandatory overtime. Only 8.8% of the RN and 9.9% of LPN/VN graduates reported working mandatory overtime (*see Table 9*).

Table 8. Specialty Areas

Specialty areas	RN %	LPN/VN %
Clinical Care	34.5	3.1
Medical-surgical unit	39.4	17.3
Pediatrics or nursery	7.8	4.0
OB	7.5	1.5
Psychiatry	2.3	3.7
Operating room	3.8	0.6
Long-term care	8.7	66.0
Physician/dentist office	1.6	7.2
Home health	1.2	5.1
Other	9.5	8.0

Shifts Worked

More than 68% of the RNs (68.2%) reported working 12-hour shifts and 63.4% of the LPN/VNs reported working 8-hour shifts. The LPN/VN graduates were more likely than RN graduates to work straight days (44% LPN/VN and 38% RN) while RN graduates were more likely to work straight nights (21% LPN/VN and 36% RN) (*see Table 10*).

Table 9. Other Characteristics of Practice

	RNs	LPN/VNs
Number of months employed after receiving license (Mean)	9.9	10.4
Regular working hours in a week (Mean)	36.1	35.2
Working nonmandatory overtime	56.1%	54.5%
Working mandatory overtime	8.8%	9.9%
Types of Shifts		
12-hour	68.2%	29.7%
8-hour	28.7%	63.4%

Table 10. Time of Day of Shifts Usually Scheduled

	RN		LPN/VN	
	N	%	N	%
Day shift	1,990	37.7	676	43.6
Evening shift	535	10.1	345	22.2
Night shift	1,899	36.0	330	21.3
Day and evening	257	4.9	106	6.8
Day and night	433	8.2	25	1.6
Day, evening and night	90	1.7	25	1.6
Evening and night	74	1.4	44	2.8

Outcome Measures

This section describes the two outcomes measured in the study: graduates' perception of adequacy of preparation for practice and difficulty with current client care assignments. The interrelationships between the two outcome measures are also reported.

Adequacy of Educational Preparation

The graduates were asked if the clinical and classroom components of nursing education programs adequately prepared them to perform specified practice-setting tasks on a scale of "Yes, definitely," "Yes, somewhat" or "No." The "Yes, definitely" answers were summed to represent the percentage of graduates who felt adequately prepared to perform each of the activities listed in the survey, while the sum of the "No" answers represented the areas that were not adequately prepared. The responses were aggregated separately for the graduates of RN programs and LPN/VN programs to represent those types of education preparations (*see Tables 11 through 13*).

More than half of the graduates felt their clinical education adequately prepared them to "Administer medications by common routes," "Provide direct care to two clients," "Work effectively within a health care team," "Perform psychomotor skills (e.g., dressing changes, catheterizations, etc.)," "Teach clients," "Document a legally defensible account of care provided" and "Make decisions about client care based on assessment and diagnostic testing data" (*see Table 11*).

Similarly, more than half of the graduates felt that their classroom education adequately prepared them to "Understand pathophysiology," "Teach clients," "Use IT to enhance patient care," "Recognize medication side effects," "Meet clients' emotional needs," "Analyze multiple types of data," "Understand clients' cultural needs" and "Utilize research findings" (*see Table 12*).

The graduates felt least prepared to administer medications to groups of clients, provide direct care to six or more clients, supervise care provided by others, and know when and how to call a physician (*see Table 13*). Similar problems were reported in the previous PPI study (Smith & Crawford, 2003).

Table 11. Adequacy of Preparation by Clinical Education

Areas Adequately Prepared	RN %	LPN/VN %
Administer medications	81.5	82.3
Provide direct care to 2 clients	76.4	77.7
Work effectively within team	66.0	74.2
Perform psychomotor skills	64.0	71.3
Teach clients	63.9	61.5
Document legally defensible Account	56.1	63.6
Make data-based decisions	55.9	49.7

Table 12. Adequacy of Preparation by Classroom Education

Areas Adequately Prepared	RN %	LPN/VN %
Understand pathophysiology	68.8	64.0
Teach clients	62.7	62.9
Use IT to enhance patient care	62.1	64.6
Recognize medication side effects	59.0	64.6
Meet clients' emotional needs	57.2	63.8
Analyze multiple types of data	54.3	53.2
Understand clients' cultural needs	52.4	59.2
Utilize research findings	50.3	52.6

Table 13. Inadequacy of Preparation by Classroom and/or Clinical Education

Areas Not Adequately Prepared	RN %	LPN/VN %
Provide direct care to 6+ clients	53.8	35.3
Administer meds to large groups	52.1	27.5
Delegate tasks to others	22.3	28.2
Supervise care provided by others	24.5	26.5
Know when and how to call a physician	21.7	20.4

Perceived Difficulty with Current Client Care Assignments

Another outcome measure of this study was the nurse graduates' perceptions of difficulty with client assignments. Nearly one-fifth of the RNs (19.7%) and 17.7% of the LPN/VNs reported that their typical client care assignments were too challenging or difficult. To examine the difference in perceived preparation between the graduates with and without difficulty with assignments, a t-test was performed. It was found that the graduates who reported having difficulty with current client care assignments rated their overall preparation by education lower than the group who reported having no difficulty with assignments ($p<0.05$).

To further examine the relationship between perceived difficulty with current client care assignments and components of the 23-item scale measuring the adequacy of educational preparation, logistic regression analysis was performed. It was found that perceived inadequate preparation of several nursing activities were predictive of difficulty with client care assignments. These areas include "Working effectively within the health care team," "Administering medications to groups of patients," "Analyzing multiple types of data when making client-related decisions," "Delegating tasks to others" and "Understanding the pathophysiology underlying a client's conditions." Table 14 shows odds ratios and 95% confidence intervals for the odds ratios of the five predictors. The odds ratios indicate the strength of the relationship between predictors and the dependent variable. For example, if a graduate felt that he/she was not adequately prepared in the area of "Understanding the pathophysiology underlying a client's conditions" (OR=1.5), she/he would be 1.5 times more likely to feel that his/her client care assignments were too challenging or difficult.

Elements of Nursing Education and Their Relationships to the Outcomes

This section contains findings related to the different elements of nursing education such as curriculum elements, characteristics of faculty and program characteristics as well as their relationships to the outcome measures. Since the program characteristics, including the type and location of the programs, were described earlier and did not correlate with outcome measures during multivariate analysis, they are not discussed further in this section.

Curriculum Elements

Curriculum elements comprise clinical elements, didactic elements and interdisciplinary activities.

Clinical Elements

The 280 RN programs and 130 LPN/VN programs provided information on the following clinical elements of their curriculum: clinical hours, direct care experience, clinical learning activities, types of clinical sites used, student-faculty ratio for clinical teaching, use of preceptors and/or clinical adjuncts, and percentage of faculty that teach both didactic and clinical components of nursing curriculum.

Table 14. Relationship Between Perceived Adequacy of Education Preparation and Difficulty with Client Care Assignments

		95% C.I.	
Variables	**Odds Ratio**	**Lower**	**Upper**
Work effectively within the health care team	2.2	1.69	2.8
Understand the pathophysiology underlying a client's conditions	1.5	1.11	1.96
Delegate tasks to others	1.4	1.14	1.70
Analyze multiple types of data when making decisions	1.3	1.02	1.71
Administer medications to groups of patients	1.3	1.09	1.55

On average, RN programs allocated 758 hours for clinical learning experience and LPN/VN programs allocated 640 hours. Specifically for direct patient care experience, RN programs had 596 hours and LPN/VNs had 467 hours. The RN programs in general had about 120 more hours for clinical and direct care experiences than the LPN/VN programs. Both types of programs had time for student learning by observation, simulation and skills lab (*see Table 15*). The nursing programs also reported that students spent about 80% of their direct care clinical experience caring for one or two clients with 20% caring for more than two clients (*see Table 16*).

Nursing programs were also asked whether or not students were allowed to perform certain learning activities while in clinical practicum. Examples of the activities included calling a physician, delegating tasks, teaching clients and supervising care of assistant personnel.

It was found that the majority of the programs allowed students, while in practicum, to perform most of the clinical activities including documentation, catheterization, dressing change, etc. However, 44% of the RN programs did not allow students to call physicians and 15% did not give the students opportunities to supervise care by others. Compared to the RN programs the LPN/VN programs were more restrictive in terms of allowing learning activities in clinical setting, which may be expected because of the differences in program goals (*see Table 17*).

Regarding types of settings in which clinical learning activities occurred, all programs utilized medical-surgical units for clinical learning. As expected, the vast majority of the programs rotate students through specialty units including pediatric (95% of RN and 84% of LPN/VN), psychiatric (96.8% of RN and 58.7% of LPN/VN) and women's health/OB unit (99.3% of RN and 97.6% of LPN/VN). While more programs used hospitals than outpatient settings for student clinical experiences, the LPN/VN programs used more long-term care setting than the RN programs (*see Table 18*).

Table 15. Clinical Hours

	RN Programs		LPN/VN Programs	
Clinical Hours	**Mean**	**SD**	**Mean**	**SD**
Overall clinical	758	278.9	639.5	188.2
Direct care	595.9	305.4	467.4	233.7
Observation	37.7	39.8	48.2	56.1
Simulation	13.2	27.1	12.0	24.4
Skills lab	93.7	62.5	88.2	52.1

Table 16. Direct Care Experience

	RN Programs		LPN/VN Programs	
Direct Care Hours	**Mean**	**SD**	**Mean**	**SD**
One client	253.6	204.5	209.7	187.3
Two clients	220.6	207.5	192.6	183.6
More than 2 clients	131.4	142.1	89.4	138.8

Table 17. Learning Activities Allowed

	RN Programs	LPN/VN Programs
Activities Allowed in Clinical Setting	**%**	**%**
Call physicians	55.9	19.4
Delegate tasks	87.6	58.6
Electronic record	83.3	71.9
Paper record	98.6	100
Teach clients	99.3	97.7
Supervise care	85.0	62.5
Start IVs	78.9	43.0
Give IV meds	97.1	49.2
Insert NGs	91.3	68.2
Insert urinary catheters	100	100
Change dressings/wound care	99.6	100
Tube feeding	100	100

Examining the involvement of faculty who teach didactic content in supervising student clinical experience, it was found that the majority of the RN (95.7%) and the LPN/VN (93.0%) programs had most or all of their faculty teaching both didactic and clinical content of nursing curriculum (*see Figure 5*). Only a small percentage of programs had less than half of their faculty teaching both components of nursing curriculum.

Table 18. Clinical Sites Used

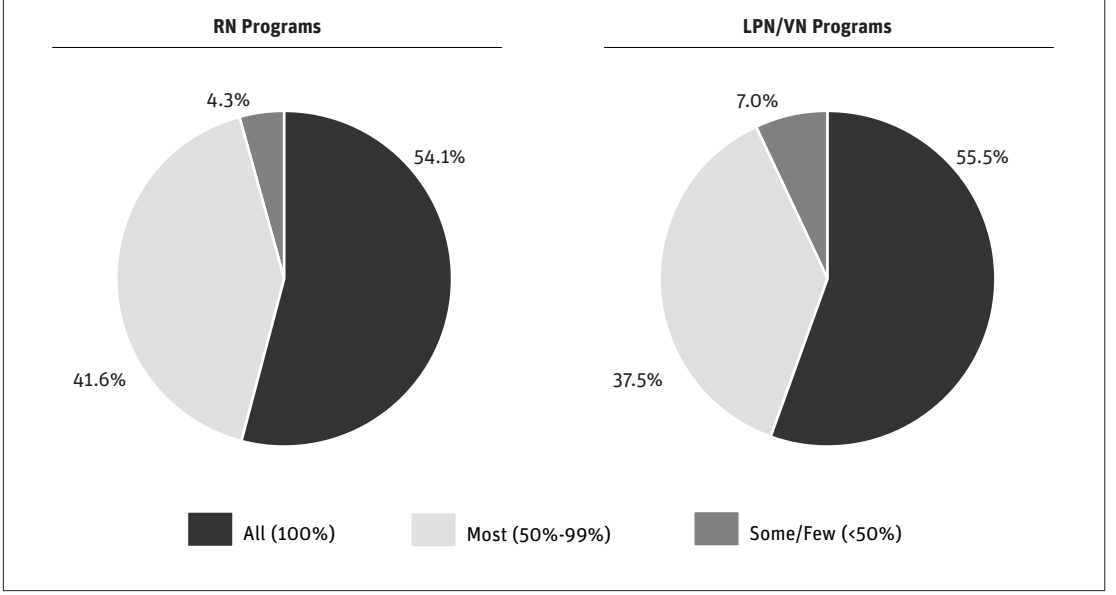
Types of Clinical Sites	RN Programs %	LPN/VN Programs %
Hospital		
Medical and/or surgical unit	100	100
Critical care unit	87.7	36.9
Pediatric unit	95.0	84.0
Psychiatric unit	96.8	58.7
Women's health/OB	99.3	97.6
Outpatient		
Well clinic	67.3	52.8
Psychiatric center	60.3	23.8
Physician or dental cffice	42.0	53.2
Surgi-center	44.3	35.8
Long-term care/nursing home	83.7	97.7
Community of public health	77.0	49.6

To understand the impact of using preceptors/clinical adjuncts in supervising clinical learning activities of students, NCSBN asked the programs if they were using these personnel for supervising student clinical experience and if they did, to what extent these personnel were used. More than 82% of the RN programs (82.1%) and 50.8% of the LPN/VN programs used preceptors/clinical adjuncts to supervise students. Preceptors/clinical adjuncts taught about one-fifth of the clinical curriculum for programs that utilized these personnel. The student-faculty ratio for clinical teaching is presented in Table 19. Student-faculty ratios varied across clinical settings and educational programs. The means of the ratios ranged from 6.3 to 9.4.

Didactic Elements

The educational programs also provided information about general and specialty-related didactic content taught in their programs. Tables 20 and 21 represent the percentage of programs that taught general content and content

Figure 5. Faculty Teaching Both Didactic and Clinical Components of Nursing Curriculum



related to the care of specific client population as independent courses. Of the programs that taught the measured general content, about 40% of the RN programs had pharmacology and management/leadership principles as independent courses while the majority of both RN and LPN/VN programs integrated critical-thinking/decision-making, use of information technology and evidence-based practice throughout the curriculum. More than half of the programs taught didactic content related to the care of specific client populations as independent courses. Given the fact that IOM emphasizes competencies in these areas, it is interesting to note that 8.4% of RN programs did not teach use of information technology and 11.7% did not teach evidence-based practice (*see Table 22*).

To identify the link between the didactic and clinical components of nursing curriculum, programs were asked how soon the clinical component was taught after didactic delivery. More than half of the RN (69.6%) and LPN/VN (52.7%) programs reported that the clinical component closely followed the presentation of didactic content (usually within 7 to 14 days). A small percentage of programs (4.3% RN and 11.6% LPN/VN) taught clinical components beyond 30 days of didactic delivery.

Interdisciplinary Activities

Working effectively within interdisciplinary teams is one of the five IOM competencies for health care professionals. Thus it is important

Table 19. Student-Faculty Ratios

	RN Programs		LPN/VN Programs	
Clinical Sites	**Mean**	**SD**	**Mean**	**SD**
Hospital				
Medical/surgical unit	8.9	1.4	9.4	1.8
Critical care unit	6.8	3.4	8.1	3.9
Pediatric unit	8.2	2.0	8.9	2.4
Psychiatric unit	8.6	1.7	8.3	2.2
Women's health/OB	8.4	1.8	8.5	2.7
Outpatient				
Well clinic	7.8	3.8	7.7	4.3
Psychiatric center	8.0	2.6	7.6	3.5
Physician or dental office	6.3	3.9	7.3	4.6
Surgi-center	6.9	3.4	7.8	5.0
Long-term care/nursing home	9.0	1.7	9.5	1.8
Community/public health	8.6	3.4	7.6	4.2

Table 20. General Didactic Content Taught as Independent Courses

Taught as Independent Courses	RN Programs %	LPN/VN Programs %
Pathophysiology	26.4	11.6
Pharmacology	40.1	44.6
Critical thinking/decision-making	2.9	2.3
Management/leadership principles	40.0	28.9
Care management/supervision	25.9	15.5
Use of information technology	4.4	7.8
Evidence-based practice	3.3	1.6

Table 21. Didactic Content Related to the Care of Specific Client Populations Taught as Independent Courses

Taught as Independent Courses	RN Programs %	LPN/VN Programs %
Pediatric	60.0	61.5
Women's health	57.6	57.4
Psychiatric/mental health	67.4	50.8
Critical care	38.2	2.3
Medical/surgical	55.2	68.2

Table 22. Didactic Content Not Taught

Content Not Taught	RN Programs %	LPN/VN Programs%
Care management/supervision	3.3	17.8
Use of information technology	8.4	12.4
Evidence-based practice	11.7	45.7
Critical care	9.1	53.9

to understand how nursing programs teach students to work effectively within an interdisciplinary health care team. Almost two-thirds of both the RN (58.6%) and the LPN/VN (60.0%) programs scheduled interdisciplinary clinical activities for students to work with other health care professionals. A little less than one-fourth of the RN and LPN/VN programs also scheduled students to have didactic course work with other health care professionals. It is important to note about one-third of the programs had no scheduled interdisciplinary learning activities (*see Table 23*).

The Relationships Between Curriculum Elements and Outcome Measures

Using multiple regression models to link the curriculum elements and outcomes, it was found that graduates were more likely to feel adequately prepared when their nursing program:

- Had a higher percentage of faculty that taught both didactic content and clinical activities (β=0.34).
- Taught use of information technology (β=0.42) and evidence-based practice (β=0.44).
- Integrated pathophysiology (β=0.33) and critical thinking (β=0.34) throughout the curriculum.
- Taught content related to the care of specific client populations including care of medical-surgical clients (β=0.20), care of clients with psychiatric disorders (β=0.24) and women's health (β=0.41) as independent courses.

Characteristics of Faculty

Characteristics of faculty were measured by percentage of faculty required to practice, percentage of faculty with joint appointments, faculty educational preparation and faculty-student interactions. For RN programs, an average of 13.3% of faculty were required to practice and 2.6% had joint appointments. LPN/VN programs required a higher percentage of faculty to practice (22.8%) and had a higher percentage of faculty with joint appointments (9.1%). On average 59.5% of the faculty from the RN programs had a master's degree in nursing and 13.9% obtained their doctorate degrees. About one-fourth of faculty from the LPN/VN programs (24.2%) obtained master's degrees and 1% held doctorate degrees (*see Table 24*).

To assess the student-faculty interaction, the graduates were asked to respond to a number of questions related to the availability of faculty and whether they were required to demonstrate skills prior to performing the skills on clients when in nursing education programs. More than one-half of the graduates indicated that the faculty or instructors of their nursing education programs were generally available to assist with classroom projects, answer questions during clinical, assist with clinical skills, demonstrate clinical skills and provide

Table 23. Scheduled Interdisciplinary Activities

	RN Programs %	LPN Programs %
Clinical activities with other HCPs*	58.6	60.0
Didactic course work with other HCPs	23.2	23.9
NOT available	32.5	30.8

**HCP: Health Care Professionals*

Table 24. Faculty Practice and Preparation

	RN Programs	LPN Programs
Mean Percentage of Faculty	**Mean %**	**Mean %**
Required to practice	13.3	22.8
With joint appointments	2.6	9.1
With MSN as highest degree	59.5	24.2
With Doctorate as highest degree	13.9	1.0

current information in classrooms (*see Table 25*). More than two-thirds of the RN (69.8%) and 60.5% of the LPN/VN graduates indicated that faculty or instructor "Always" required them to demonstrate skills prior to performing on clients. More RN than LPN/VN graduates reported that they were "Always" required to demonstrate skills prior to performing them on clients while 2% of RN and 12% of LPN/VN graduates were never required to do so (*see Figure 6*).

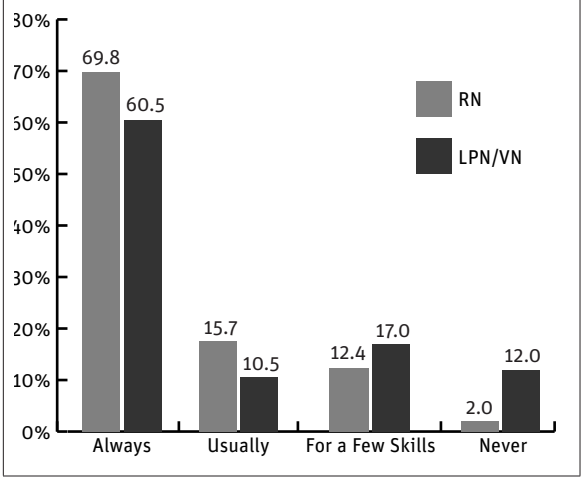
Table 25. Faculty-Student Interactions

	RN Programs	LPN/VN Programs
Faculty Available to:	%	%
Answer questions about content	73.3	77.4
Assist with classroom projects	55.0	63.8
Answer questions during clinical activities	74.1	79.2
Assist with clinical skills	75.3	77.5
Demonstrate skills in clinical activities	74.6	78.1
Provide current information in classroom	67.0	73.5

Linking the characteristics of faculty to outcome measures, it was found that the graduates were more likely to feel adequately prepared if faculty were available to: demonstrate clinical skills (β=1.15), assist with classroom projects (β=0.84), provide current information in classrooms (β=1.15), assist with clinical skills (β=0.67), require students to demonstrate skills (β=0.51), answer questions during clinical (β=0.73) and answer questions about content (β=0.33). The availability of faculty to assist with clinical skills is also predictive of difficulty with current care assignments (OR=1.44). The graduates who perceived that faculty were available to assist with clinical skills during clinical practicum were 1.4 times more likely to report having no difficulty with current client care assignments.

Examining the relationship between the student-faculty interaction and difficulty with client care assignments, it was found that availability of faculty to assist with clinical skills is the only characteristic of faculty that predicts nurses' perceived difficulty with client care assignments (OR=1.44). The graduates who perceived that faculty were available to assist with clinical skills during clinical practicum were 1.4 times more likely to report having no difficulty with current client care assignments.

Figure 6. Requirement of Demonstrating Skills



Transition to Practice and Its Relationships with Outcomes

As an important confounding variable to the study of elements of education to graduates' perception of preparedness for practice and difficulty with client care assignments, transition experiences of the graduates were measured and analyzed. The graduates were asked whether they had a routine orientation and/or any internship, externship, preceptorship or mentorship experience for transitioning to practice. While the routine orientation was defined as any types of skills lab or classroom work and/or supervised work with clients without an assigned mentor or preceptor, the "Ship" experience could be an internship, externship, preceptorship or mentorship either pre- or post-employment.

Overall, 3.0% of RN and 5.7% of LPN/VN graduates did not receive an orientation or an internship, externship, preceptorship or mentorship experi-

Figure 7. Types of Transition Programs

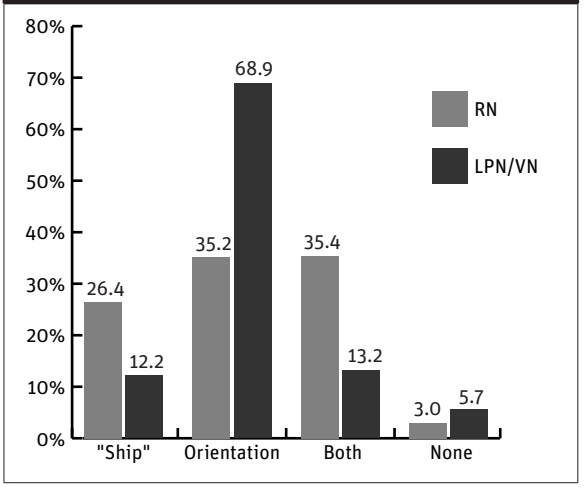
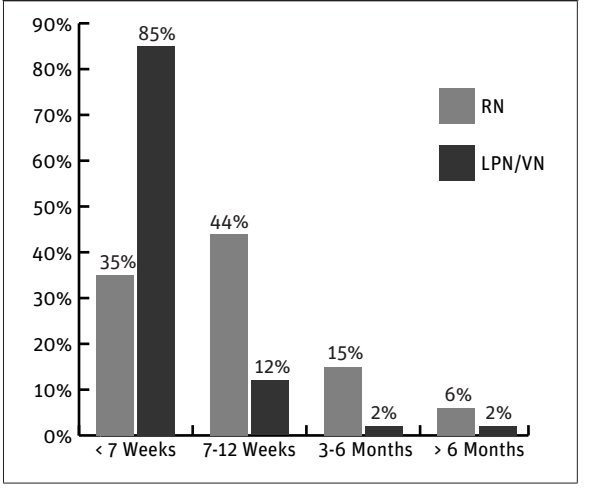


Figure 8. Duration of Transition Programs



ence. One-third of the RN and 68.9% of the LPN/VN graduates received routine orientations without any form of internship, externship, preceptorship or mentorship experiences. RN graduates (26.4%) were more likely than LPN/VN graduates (12.2%) to report having an internship, externship, preceptorship or mentorship experience (*see Figure 7*). The majority (85%) of the LPN/VN graduates had a transition less than 7 weeks, while about 65% RN graduates had a transition 7 weeks or longer (*see Figure 8*). On average, the LPN/VN graduates had about 5 weeks of transition time while the RN graduates had 11 weeks.

Of those who had internship, externship, preceptor-ship or mentorship experiences, one-half of the RN graduates and one-third of the LPN/VN graduates reported being assigned to a mentor/preceptor and worked the same schedule as the mentor/preceptor. About one-third of RNs and LPN/VNs had the experience before graduation and 77.1% of the RNs and 40.1% of LPN/VNs were paid while taking part in the experience (*see Table 26*). The focus of the transition program experienced by the graduates varied; 69.2% of the RN graduates reported that their transition programs focused on the improvement of general nursing knowledge, while about half reported that their programs addressed knowledge related to specialty areas.

After examining the relationships between the transition activities and outcomes, it was found that the focus of the program on specialty knowledge was a significant confounding variable to the elements of education and the outcomes. When specialty knowledge was addressed

Table 26. Other Characteristics of Transition Programs

	RNs (N=5,568)	LPN/VNs (N=1,734)
Transition Program	**%**	**%**
Timing:		
Before graduation	33.0	35.4
Before receiving license	43.1	33.6
Part of the orientation	68.9	51.5
Paid or Pay:		
Paid for work performed	77.1	40.1
Paid tuition while in program	12.2	16.1
Preceptor/Mentor:		
Assigned to same nurse	49.3	34.5
Worked same schedule	53.7	43.3
Focus of the program:		
General knowledge	69.2	55.0
Specialty knowledge	55.4	20.2

in transition, the graduates were more likely to feel adequately prepared (β=0.46) and had less difficulty with current client care assignments (OR=0.61).

Summary of Major Findings of the Study

1. The majority of the nurse graduates felt their educational program adequately prepared them to administer medications, provide care to two clients, understand pathophysiology underlying a client's condition, work effectively within a health care team, perform psychomotor skills (e.g., dressing changes, catheterizations, etc.), teach clients and document a legally defensible account of care provided, and make decisions about client care based on assessment and diagnostic testing data. However, at least 20% to 50% of the nurse graduates felt they were not adequately prepared in providing direct care to groups of patients, administering medication to groups of clients, delegating tasks to other nurses, supervising care by others, and knowing when and how to call a physician. In addition, about one-fifth of RNs and 18% of LPN/VNs found that current client care assignments were too challenging/difficult. The graduates reporting inadequate preparation were more likely to have difficulty with current client care assignments.
2. While most of the programs allowed students to perform the majority of the clinical activities (including documentation, catheterization, dressing change, etc.), some programs or clinical sites did not allow students to call a physician and/or supervise care of others while in clinical practicum. Some programs did not teach content related to use of information technology and evidence-based practice. At least one-third of the programs did not schedule interdisciplinary activities for student learning.
3. The graduates were more likely to feel adequately prepared when nursing programs: (1) taught use of information technology and evidence-based practice, (2) integrated pathophysiology and critical thinking throughout of curriculum, (3) taught content related to the care of specific client populations as independent courses and (4) had a higher percentage of faculty teaching both didactic and clinical components of the curriculum. The graduates were also more likely to feel adequately prepared when faculty were more available to provide assistance and answer questions and required students to demonstrate skills in clinical practice
4. Transition programs play an important role in the perception of adequate preparation and difficulty with assignments. Graduates were more likely to feel adequately prepared and had less difficulty with current client care assignments when their transition programs focused on specialty knowledge.

CONCLUSIONS

In conclusion, based on the new nurses' perceptions, the education programs were successful in preparing the majority of the new nurses to perform many nursing functions. However, some new nurses felt they needed to be better prepared in:

- Providing direct care and administering medications to groups of clients.
- Delegating tasks to other personnel.
- Supervising care by others.
- Knowing when and how to call a physician.

To improve graduates' perceived adequacy of preparation, it is important to teach use of information technology and evidence-based practice, integrate pathophysiology and critical thinking throughout the curriculum, teach specialty knowledge as independent courses, use faculty who teach didactic courses to also teach clinical, increase faculty availability to students and promote quality faculty-students interactions.

STRENGTHS AND LIMITATIONS

The current study gathered valuable information on what elements of nursing education lead to the best possible preparation of new nurses. It links the elements of nursing education to perceived preparedness of new graduates for nursing practice. The findings of this study are significant in broadening NCSBN's understanding of the relationships between educational elements and preparation of new nurses for practice. Identification of evidenced-based elements of nursing education serves to direct boards of nursing and educational programs to choose appropriate interventions to improve the preparation of new nurses for practice.

It is important to note that NCSBN's findings on significant components of preparation are consistent with IOM competencies for health care professionals. IOM and NCSBN emphasize the importance of the use of information technology and evidence-based practice by health care professionals. In addition, both call for more interdisciplinary opportunities to prepare students to work effectively within a health care team.

To apply the findings of the study to practice, it is important to consider the limitations of the study. By design this study was limited to new nurse graduates' perception of preparedness for practice. Although important, self-perception is only one aspect of assessing the adequacy of preparation of nursing students for practice. More research is needed to assess educational preparation from a variety of perspectives including that of nursing employers.

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APPENDIX A

Survey Tool for Programs

ELEMENTS OF NURSING EDUCATION STUDY – PROGRAM SURVEY

Fall 2004

Please read each of the following questions carefully and then follow directions for filling in your answers or selecting the most applicable response(s).
[**Note:** Nursing curriculum is defined, for the purposes of this study, as those courses within a nursing program that introduce nursing or practice-related content, and does not include pre-requisite courses.]

SECTION ONE: Clinical Elements

1. Does your nursing education program include clinical practice activities?
   - O 1 Yes—**Complete Section ONE according to how clinical activities are performed by the majority of students**
   - O 2 No—**Complete Section ONE by listing "0" hours, "No" or "Not Applicable (NA)" responses as pertinent**

2. The first column of the following table lists various categories of clinical activities that may be performed by nursing students. In the second column of the table, please provide your best estimate of the numbers of hours an average student would spend performing each category of clinical activity. Then make a check mark in **one** of the remaining columns indicating when each category of clinical activity occurs within your nursing curriculum.

		Timing of Experience (X ONE Column)			
Clinical Hours	# of Hours	First Half of Nursing Curriculum	Second Half of Nursing Curriculum	Throughout Curriculum or Integrated	Schedules Vary by Student
Total Clinical hours					
Provision of direct care hours					
Observation hours^					
Simulation hours@					
Skills lab hours!					

^*Observation includes any time a student spends watching work performed by others or performing only limited or minimal activities.*
@*Simulations are defined as including work with life-like client-care situations in a controlled environment.*
!*Skills lab includes practice of skills such as bed-making, IV medications, or handling of equipment, etc. outside the practice setting.*

3. The first column in the following table lists types of clinical assignments and management of care activities. In the second column please provide the approximate number of clinical hours during which students in your program perform each of the listed types of assignments or activities. If any of these types of assignments or activities are not performed by your students, place a zero in the second column for that assignment type. Then make a check mark in **one** of the remaining columns indicating when each applicable type of assignment occurs within your nursing curriculum.

		Timing of Experience (X ONE Column)			
Direct Care Assignments	# of hours	First Half of Nursing Curriculum	Second Half of Nursing Curriculum	Throughout Curriculum or Integrated	Schedules Vary by Student
Direct care of **one** client					
Direct care of **two** clients					
Direct care of **more than two clients**, specify # _____					
Management of Care Activities*					
Manage care provided by other students					
Manage care provided by staff members					
Number of Clients Managed					
2 - 4 clients					
5 - 10 clients					
More than 10					

**Management of care is defined as coordinating or supervising care provided to a group of clients by staff members or other students. This might include, but is not limited to, creating or updating client care plans, evaluating client data for decision-making, delegating or assigning tasks, and/or collaborating with members of the multi-disciplinary team.*

4. The first column of the following table contains activities that health care facilities may or may not allow student nurses to perform. In the second column please:

- circle **Y** if your students are allowed to perform the activity at any of your contracted clinical sites,
- circle **N** if none of your clinical sites allow your students to perform the activity,
- circle **SL** if the activity is performed only in skills lab or by simulation or
- circle **NA** if your nursing education program does not allow students to perform the listed task.

In the third column provide your best estimate of the percentage of total clinical time during which students are in clinical settings allowing, and providing opportunities to perform, the activity. Then make a check mark in **one** of the remaining columns indicating when each activity is performed by students within your nursing curriculum.

			Timing of Experience (X ONE Column)			
Activities Allowed in Clinical Settings	Allowed?	% of clinical time allowed and/or done	First Half of Nursing Curriculum	Second Half of Nursing Curriculum	Throughout Curriculum or Integrated	Schedules Vary by Student
Call physicians	**Y N SL NA**					
Delegate tasks	**Y N SL NA**					
Document						
Electronic Record	**Y N SL NA**					
Paper Record	**Y N SL NA**					
Teach clients	**Y N SL NA**					
Supervise care*	**Y N SL NA**					
Start IVs	**Y N SL NA**					
Give IV medications	**Y N SL NA**					
Insert NGs	**Y N SL NA**					
Insert urinary catheters	**Y N SL NA**					
Change dressings/wound care	**Y N SL NA**					
Tube feedings	**Y N SL NA**					

**Supervise care is defined as overseeing care provided to a group of clients by staff members or other students, delegating or assigning tasks, assuring the quality of care, etc.*

5. The first column of the following table contains types of settings in which clinical activities may occur. In the second column of the table circle the **Y** if your program uses that type of clinical setting and **N** if it does not. In the third column provide the approximate percentage of clinical time the average student would spend at that site. In the fourth column record the usual faculty student ratio when students are at that site. Then make a check mark in **one** of the remaining columns indicating when in your curriculum most students perform clinical at each site.

				Timing of Experience (X ONE Column)			
Types of Clinical Sites	Used?	% of clinical time at site	Faculty: Student Ratio	First Half of Nursing Curriculum	Second Half of Nursing Curriculum	Throughout Curriculum or Integrated	Schedules Vary by Student
Hospital							
Medical and/or Surgical Unit	**Y N**		___ : ___				
Critical Care Unit	**Y N**		___ : ___				
Pediatric Unit	**Y N**		___ : ___				
Psychiatric Unit	**Y N**		___ : ___				
Women's health/OB	**Y N**		___ : ___				
Outpatient							
Well Clinic	**Y N**		___ : ___				
Psychiatric Center	**Y N**		___ : ___				
Physician or Dental Office	**Y N**		___ : ___				
Surgi-center	**Y N**		___ : ___				
Long term care / Nursing Home	**Y N**		___ : ___				
Community or Public Health	**Y N**		___ : ___				

6a. Does your nursing education program use preceptors or clinical adjuncts to supervise some or all student nurse clinical activities?
(Preceptors or clinical adjuncts are nurses who oversee the work of students in the clinical area, but are not program faculty members. They may, however, be employed by facilities used as clinical settings.)
(Select only ONE answer)
- O 1 Yes
- O 2 No **–Skip to Question 7**
- O 3 Not applicable – program does not offer students clinical activities **– Skip to Question 7**

6b. What percentage of the average student's clinical activities are supervised by a preceptor or clinical adjunct?

_____% of clinical activities supervised by preceptors or clinical adjuncts

6c. For which of the following types of courses/clinical activities are students most likely to be supervised by preceptors or clinical adjuncts.
(Select only ONE answer)
- O 1 Beginning or fundamentals type clinical courses
- O 2 Higher-level clinical courses
- O 3 Preceptors or clinical adjuncts are used equally in both beginning and higher-level clinical courses

7. Which of the following interdisciplinary activities are scheduled for all, or most, of your students?
(Select ALL that apply)
- O 1 Clinical activities with members of other health care professions
- O 2 Didactic course work with members of other health care professions
- O 3 No interdisciplinary activities are scheduled

SECTION TWO: Didactic Components

1. The following table lists a few general types of content that may be included in a nursing curriculum.
In the second column please circle: **CO** if the content is taught as an entire course,
CL if it is taught in one or several classes,
IN if the content is integrated throughout all or most of the nursing curriculum or
NA if it is not taught in your nursing program.
Then make a check mark in **one** of the remaining columns indicating when in your curriculum each type of content is taught to most students.

		Timing of Content (X ONE Column)			
Didactic Content	Taught?	First Half of Nursing Curriculum	Second Half of Nursing Curriculum	Throughout Curriculum or Integrated	Schedules Vary by Student
Pathophysiology	**CO CL IN NA**				
Pharmacology	**CO CL IN NA**				
Critical Thinking/Clinical Decision-making	**CO CL IN NA**				
Management/Leadership Principles^	**CO CL IN NA**				
Care Management/Supervision*	**CO CL IN NA**				
Use of Information Technology	**CO CL IN NA**				
Evidenced-Based Practice[!]	**CO CL IN NA**				
Content related to the care of client populations					
Care of pediatric clients	**CO CL IN NA**				
Women's health content	**CO CL IN NA**				
Care of clients with psychiatric disorders	**CO CL IN NA**				
Critical Care	**CO CL IN NA**				
Care of medical/surgical clients	**CO CL IN NA**				

^*Management/Leadership Principles may include topics such as leadership theory, management styles, health care economics or employment law.*
**Care Management/Supervision content may include topics such as delegation, motivation, team work or communication skills.*
[!]*Evidenced-based Practice is defined as "integration of best research evidence with clinical expertise and patient values." (Sacket* et al*., 2000).*

2. How many of the faculty that teach the didactic content of your nursing curriculum also supervise student clinical experiences?
(Select ONLY ONE answer)
- O 1 All (100% of faculty)
- O 2 Most (50-99% of faculty)
- O 3 Some (25-49% of faculty)
- O 4 Few (1-24% of faculty)
- O 5 None of the faculty that teach didactic content also supervise clinical experiences
- O 6 Not Applicable – program does not offer students clinical activities

3. Which of the following statements best describes the link between most or all of the didactic and clinical components of your program?
(Select ONLY ONE answer)
- O 1 Clinical practice closely follows the presentation of classroom content (usually within 7 to 14 days)
- O 2 Clinical practice of classroom content usually occurs within 30 days
- O 3 Clinical practice and classroom content are on different schedules
- O 4 Not Applicable – program does not offer students clinical activities

4. The first column of the following table contains statements that may be descriptive of nursing faculty. In the second column of the table please indicate the approximate percentages of faculty in your program to whom each statement applies.

	% of Faculty
Faculty required to practice	
Faculty with joint appointments	
Faculty with BSN and/or MS/MA as highest degree	
Faculty with BSN or MS/MA working on MSN	
Faculty with MSN as highest degree	
Faculty with MSN working on Doctorate	
Faculty with Doctorate as highest degree	

SECTION THREE: Respondent Demographics

1. Which of the following best describes your nursing education program?
(Select ONLY ONE answer)
- O 1 LPN/VN – Diploma/Certificate
- O 2 LPN/VN - Associate degree
- O 3 RN -- Diploma
- O 4 RN – Associate Degree
- O 5 RN - Baccalaureate degree
- O 6 Other, please specify_____

2. Which of the following best describes the title you hold?
(Select ONLY ONE answer)
- O 1 Director or equivalent
- O 2 Associate Director or equivalent
- O 3 Dean or equivalent
- O 4 Associate Dean or equivalent
- O 5 Faculty member
- O 6 Other, Please specify_____

3. How many years have you held your current title?

_____Years at current title

4. How many total years have you worked in nursing education?

_____Years in nursing education

5. What is the highest educational degree you have attained?
(Select ONLY ONE answer)
- O 1 Baccalaureate in nursing
- O 2 Non-nursing masters degree
- O 3 Masters in nursing
- O 4 Doctorate – in nursing or other specialty
- O 5 Other, Please specify_____

6. Which of the following best describes the geographic location of your nursing program?
(Select ONLY ONE answer)
- O 1 Urban/Metropolitan area
- O 2 Suburban area
- O 3 Rural area

7. Approximately how many students are currently enrolled in your nursing courses?

_____Total students enrolled in nursing courses

8. Approximately how many approved full time equivalent (FTE) faculty positions does your nursing program currently have under recruitment?

_____Approved FTE faculty positions under recruitment

9. How many full time equivalent (FTE) faculty positions are currently filled?

_____ Filled FTE faculty positions

10. How many nurses currently fulfill the role of preceptor or clinical adjunct within your nursing program?

_____ Preceptors or clinical adjuncts

SECTION FOUR: ***Comments***

1. What components of your nursing education program do feel most effectively prepare your graduates for entry-level nursing practice?

2. Please use the space below to write any other comments you may have about this survey or nursing education in general.

Thank you for your participation in this important work!

APPENDIX B

Survey Tool for Graduates

ELEMENTS OF NURSING EDUCATION STUDY – GRADUATE SURVEY

March 2004

Please read each of the following questions carefully and then follow the directions for selecting one or all applicable responses. Darken the oval or check the box of the answer, or answers, that you select.

NOTE: As used in this questionnaire, the "client" can be an individual, individual plus family/significant other, an aggregate/group, or community/population. "Clients" are the same as "residents" or "patients".

SECTION ONE: Professional Employment

1. What type(s) of nursing license do you hold?
   (Mark ALL that apply)
   - O 1 LPN/VN
   - O 2 RN

2. Are you currently employed in nursing?

   - O 1 Yes
   - O 2 No; → **skip to SECTION FOUR**

3. How many months have you been employed as a **licensed nurse (RN or LPN/VN)** in your current position?

   _____Months

4. A. How many regular (non-overtime) hours are you **SCHEDULED** to work in **one** average **week**?
   *(Even if you are scheduled to work in 2-week periods, please give the average number of hours you work in **one week**.)*

   _____Hours (non-overtime) scheduled to work **per week**, on average

   B. How many hours of non-mandatory **OVERTIME** do you work in **one** average **week**?

   _____Hours of non-mandatory overtime worked **per week**, on average

   C. How many **OVERTIME** hours are **MANDATED** by your employer in an average **week**? (This means that your employer actually schedules you to work extra hours or extra shifts each week. This doesn't include the extra hours you work because your employer requires you to finish certain tasks before going home.)

   _____Hours of **employer-MANDATED** overtime

6. Which of the following choices **best** describes your **EMPLOYMENT SETTING/SPECIALTY AREA on the last day you worked**? If you worked mainly in one setting, mark the appropriate oval for that one setting. If you worked in more than one setting, mark the appropriate oval for all settings where you spent at least one-half of your time.
   (Select NO MORE THAN TWO answers)
   - O 1 Critical care (*e. g.:* ICU, CCU, step-down units, pediatric/neonatal intensive care, emergency department, post-anesthesia recovery unit, etc.)
   - O 2 Medical-surgical unit or any of its sub-specialties (*e. g.:* oncology, orthopedics, neurology, etc.)
   - O 3 Pediatrics or nursery
   - O 4 Labor and delivery
   - O 5 Postpartum unit
   - O 6 Psychiatry or any of its sub-specialties (*e. g.:* detox, etc.)
   - O 7 Operating room, including outpatient surgery and surgicenters
   - O 8 Nursing home, skilled or intermediate care
   - O 9 Other long term care (*e. g.:* residential care, developmental disability/mental retardation care, etc.)
   - O 10 Rehabilitation
   - O 11 Subacute unit
   - O 12 Transitional care unit
   - O 13 Physician's/dentist's office
   - O 14 Occupational health
   - O 15 Outpatient clinic
   - O 16 Home health, including visiting nurses' associations
   - O 17 Public health
   - O 18 Student/school health
   - O 19 Hospice care
   - O 20 Prison
   - O 21 Other, please specify: _____

7. Which of the following **best** describes the type of **FACILITY/ORGANIZATION** in which you work most of the time?
   (Mark ONLY ONE answer)
   - O 1 Hospital
   - O 2 Long term care facility
   - O 3 Community-based or ambulatory care facility/organization (including public health department, visiting nurses association, home health, physician's office, clinic, school, prison, etc.)
   - O 4 Other, please specify _____

8. Which of the following **best** describes the **LOCATION** of your employment setting?
   (Mark ONLY ONE answer)
   - O 1 Urban/Metropolitan area
   - O 2 Suburban area
   - O 3 Rural area

9. Which of the following most closely describes the **SHIFT(S)** you **usually work**?
   (Mark ONLY ONE answer for both A and B below)
   A. Approximately **how many hours are you scheduled to work in one shift**?
      - O (1) 12 hours
      - O (2) 10 hours
      - O (3) 8 hours
      - O (4) Less than 8 hours

   B. What **TIME OF DAY** are your shift(s) **usually** scheduled?
      - O (1) Day shift
      - O (2) Evening shift
      - O (3) Night shift
      - O (4) Day and evening rotating shifts
      - O (5) Day and night rotating shifts
      - O (6) Day, evening and night rotating shifts
      - O (7) Evening and night rotating shifts

10. A. There are many ways that individuals may be transitioned from nursing school to nursing practice. Some people have a routine orientation after being hired by a health care employer, and some participate in internships/externships, or preceptorships, or mentoring programs either before or after they start working in nursing. Which of the following best describes your transition to nursing practice? (note: A routine orientation usually includes some skills lab or classroom work and/or supervised work with clients without an assigned mentor or preceptor.)
    (Select only ONE answer)
    - O 1 I participated in an internship/externship, preceptorship, or mentoring program either before or after being hired into a nursing position**–Answer Question 10B**
    - O 2 I was given a routine orientation after being hired into a nursing position**----Skip to Question 11**
    - O 3 I participated in an internship/preceptorship/mentoring program and had a routine orientation**—Answer Question 10B**
    - O 4 I did not participate in an internship/preceptorship/mentoring program and I also did not have an orientation**—Skip to Section Two**

    B. Which of the following describe the internship/externship, preceptorship, or mentoring program in which you participated?
    (Select ALL that apply)
    - O 1 I participated in the program before I graduated from my nursing education program
    - O 2 I participated in the program before I received my license to practice nursing
    - O 3 The program was part of the orientation I received after being hired into a nursing position
    - O 4 I was paid for the work I performed in the program
    - O 5 I paid tuition while I was participating in the program
    - O 6 While in the program I was always assigned to the same nurse for help, educational support, advice, etc.
    - O 7 While in the program the nurse to whom I was assigned always worked the same schedule I worked
    - O 8 The program was designed to increase my general nursing knowledge and skills
    - O 9 The program was designed to prepare me for a certain nursing specialty such as critical care, pediatrics, obstetrics, etc.

11. How many total weeks did you spend in the internship/externship, preceptorship, mentoring program, or routine orientation described in question 10A?

    _____# of weeks spent in transition program described in question 10A

SECTION TWO: Preparation for the practice setting

12. Please answer the following questions about the **clinical component of your nursing education** by circling the appropriate number according to the following scale:

    1 = Yes, definitely
    2 = Yes, somewhat
    3 = No
    4 = Activity is not performed in my work setting

The clinical component of my nursing education program adequately prepared me to:				
Administer medications by common routes [PO, SQ, IM, IV (if applicable), etc.]	1	2	3	4
Administer medications to large groups of clients (10 or more)	1	2	3	4
Make decisions about client care based on assessment and diagnostic testing data	1	2	3	4
Perform psychomotor skills (e.g., dressing changes, catheterizations, etc.)	1	2	3	4
Provide direct care to two or more clients	1	2	3	4
Provide direct care to six or more clients	1	2	3	4
Supervise care provided by others (such as assistive personnel)	1	2	3	4
Delegate tasks to other nurses or assistive personnel	1	2	3	4
Know when and how to call a client's physician	1	2	3	4
Document a legally defensible account of care provided	1	2	3	4
Teach clients	1	2	3	4
Work effectively within a health care team	1	2	3	4

13. Please answer the following questions about the **classroom component of your nursing education** by circling the appropriate number according to the following scale:

    1 = Yes, definitely
    2 = Yes, somewhat
    3 = No
    4 = Activity is not performed in my work setting

The classroom component of my nursing education program adequately prepared me to:				
Meet clients' emotional/psychological needs	1	2	3	4
Understand clients' cultural needs	1	2	3	4
Meet clients' spiritual needs	1	2	3	4
Understand the pathophysiology underlying clients' conditions	1	2	3	4
Recognize the desired actions, side effects and interactions of medications	1	2	3	4
Analyze multiple types of data when making client-related decisions	1	2	3	4
Use information technology (books, journals, computers, videos, audio tapes, etc) to enhance care provided to clients	1	2	3	4
Supervise care provided by others (such as assistive personnel)	1	2	3	4
Delegate tasks to other nurses or assistive personnel	1	2	3	4
Teach clients	1	2	3	4
Appropriately utilize research findings in providing care	1	2	3	4

14. Were the faculty/instructors in your nursing education program generally available to provide assistance or answer questions? Please respond by circling the appropriate number according to the following scale:

    1 = Yes, definitely
    2 = Yes, somewhat
    3 = No
    4 = Not applicable to my nursing educational experience

The faculty or instructors of my nursing education program were generally available to:

Answer questions about content presented in the classroom	1	2	3	4
Assist with classroom projects or papers	1	2	3	4
Answer questions during clinical activities	1	2	3	4
Assist with clinical skills such as giving IV meds, doing wound care, etc.	1	2	3	4

15. Did the faculty/instructors in your nursing education program provide the most current information in the classroom?

    - Yes, definitely
    - Yes, somewhat
    - No

16. Did the faculty/instructors in your nursing education program demonstrate skill in clinical activities such as inserting urinary catheters, giving IV medications, documenting in client records or demonstrating therapeutic communication?

    - Yes, definitely
    - Yes, somewhat
    - No

17. Were you required to demonstrate skills such as, IV insertion, IV medication administration or nasogastric tube insertion, prior to performing the procedures on clients?

    - Always
    - Usually
    - For a few skills
    - Never

18. Listed below are some methods of education frequently referred to as "distance education." Please indicate the approximate proportion of your classroom and/or clinical nursing education completed through each of the following distance methodologies. Indicate the proportion by circling the numbers listed in the "classroom" and "clinical" columns - 0 indicates that none of your education was performed through that method and 100 indicates that all of your education was completed through that method.

	Method	Classroom Proportion	Clinical Proportion
1	Internet or web enhanced courses (the internet is used to post assignments or readings, or perform projects, but students meet together in a classroom)	0 10 20 30 40 50 60 70 80 90 100	0 10 20 30 40 50 60 70 80 90 100
2	Full internet courses (students interact on the internet or by posting messages by email and never or seldom meet in a classroom)	0 10 20 30 40 50 60 70 80 90 100	0 10 20 30 40 50 60 70 80 90 100
3	Linked or distributed classrooms (students in classrooms at different sites receive the same course from the same instructor(s) through the use of video or audio conferencing)	0 10 20 30 40 50 60 70 80 90 100	0 10 20 30 40 50 60 70 80 90 100
4	Correspondence courses (materials are mailed to and from the student and the institution. Students never or seldom meet in a classroom)	0 10 20 30 40 50 60 70 80 90 100	0 10 20 30 40 50 60 70 80 90 100

SECTION THREE: Practice Issues

1A. To how many clients are you **now typically assigned** to provide direct care?

_____# of clients in current typical assignment
O I see clients in an office, outpatient clinic, emergency department, etc. and do not have direct care client assignments

1B. To how many clients are **experienced nurses in your practice setting assigned** to provide direct care?

_____# of clients typically assigned to experienced nurses
O I see clients in an office, outpatient clinic, emergency department, etc. - no direct care client assignments are made

2. In your opinion, are your **current** typical client care assignments:
   - O 1 Not challenging enough
   - O 2 Just right
   - O 3 Too challenging or difficult
   - O 4 This question is not applicable to my work situation

3. Since starting your current position have you been involved in any errors? We are defining errors as incidents or occurrences that resulted in harm to clients or had the potential to place a client at risk for harm. You may have been involved as the one making the error, the supervisor of others making errors, or as the one discovering errors made by others.
   - O 1 Yes, I have made errors or been involved in some way in errors made by others
   - O 2 No, I have no knowledge of errors made at my institution **---SKIP to Question 5**

4. If you have been involved in errors, which of the following types of errors/incidents or occurrences have taken place?
   (Select ALL that apply)
   - O 1 Medication errors
   - O 2 Client falls
   - O 3 Delays in treatment
   - O 4 Avoidable client death (including client suicides)
   - O 5 Client elopement (unauthorized departure of client from facility)
   - O 6 Care provided by impaired professional (health care provider abusing alcohol or controlled substances)
   - O 7 Other, please specify_____

5. In your opinion, which of the following factors tend to contribute to the errors made in your institution?
   (Select ALL that apply)
   - O 1 Inadequate orientation (too short or not thorough)
   - O 2 Inadequate preparation for practice by nursing education
   - O 3 Inadequate staffing
   - O 4 Inappropriate use of assistive personnel such as nursing assistants or medication aides
   - O 5 Lack of adequate communication among health care staff
   - O 6 Lack of adequate reference materials for looking up new medications or procedures
   - O 7 Lack of continuing education classes
   - O 8 Lack of supplies or equipment
   - O 9 Lack of support from other departments such as pharmacy or food service
   - O 10 Long work hours
   - O 11 Poorly understood policies and procedures
   - O 12 Other, please specify_____

SECTION FOUR: Demographic Data

1. Gender:
   - O 1 Male
   - O 2 Female

2. Age in years _____**YEARS**

3. Select below the answer **most descriptive** of your racial/ethnic background
   (Select ONE answer)
   - O American Indian/Alaska Native
   - O Asian Indian
   - O Asian – Other (e.g., Filipino, Japanese, Chinese, etc.)
   - O Black/African American
   - O White Hispanic or Latino
   - O Non-white Hispanic or Latino
   - O Native Hawaiian/Other Pacific Islander
   - O White
   - O Multi-ethnic or racial background

4. Is English the first language you learned to speak?
   - O 1 Yes
   - O 2 No

5.A. Did you work as a nursing assistant/aide, etc. prior to becoming a licensed nurse (RN or LPN/VN)?

   - O 1 Yes
   - O 2 No**-------Skip to Question #6**

5.B. If **YES**, for how many years did you work as a nursing assistant/aide?

_____Years as nursing assistant/aide

5.C. If **YES**, did you work as a nursing assistant/aide in the same facility in which you are currently employed as a licensed nurse?

   - O 1 Yes
   - O 2 No

6. A. If you are a RN, did you work as a LPN/VN prior to becoming a RN?

- O 1 Yes
- O 2 No**-------Skip to Question #7**

6.B. If **YES**, for how many years did you work as a LPN/VN?

_____Years as LPN/VN

6.C. If **YES**, did you work as a LPN/VN in the same facility in which you are currently employed as a RN?

- O 1 Yes
- O 2 No

7. Type of **basic** nursing education program most recently completed:
(Mark ONLY ONE answer)

- O 1 LPN/VN - Diploma/Certificate
- O 2 LPN/VN - Associate Degree
- O 3 RN - Diploma
- O 4 RN - Associate Degree
- O 5 RN - Baccalaureate Degree
- O 6 RN - Generic Master's Degree
- O 7 RN - Generic Doctorate in U.S. (*e. g.:* ND)

SECTION FIVE: Comments

Now that you are a practicing nurse, what, if anything, would you change about your nursing education program to better prepare future graduates?

Please write any other comments you may have in the space below.

Thank you for your participation in this important work.