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## **A New Curriculum Model for Licensed Vocational Nursing (LVN) Education**

October 2008

Texas Higher Education Coordinating Board



## Texas Higher Education Coordinating Board

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### Philosophy of the Coordinating Board

The Texas Higher Education Coordinating Board will promote access to quality higher education across the state with the conviction that access without quality is mediocrity and that quality without access is unacceptable. The Board will be open, ethical, responsive, and committed to public service. The Board will approach its work with a sense of purpose and responsibility to the people of Texas and is committed to the best use of public monies. The Coordinating Board will engage in actions that add value to Texas and to higher education. The agency will avoid efforts that do not add value or that are duplicated by other entities.

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## Executive Summary

SB 139, 80th Texas Legislature, requires the Texas Higher Education Coordinating Board (THECB), in consultation with the Board of Nursing (TBON), to conduct a study regarding nursing program curricula improvement, with methods to improve instruction on providing safe, high-quality nursing care to patients. The focus of this report is on Licensed Vocational Nursing (LVN) education. A separate report has been prepared in RN Education.

There are no perceived deficiencies in Texas LVN programs, but nationally the trend is to engage in a critical assessment of patient safety and quality improvement to enhance patient outcomes, and of collaboration between nursing programs and health care facilities to find solutions to the nursing shortage. National leaders recognize that most nursing curricula need revision to enhance curriculum content for safety and to increase mobility between educational levels. Increasing mobility between educational levels is essential to increasing the number of nurses who obtain master's and doctoral degrees and qualify to become nursing faculty. Without more nursing faculty, the nursing shortage cannot be met.

This report summarizes THECB's effort to design a "curriculum framework" as Phase 1 in a plan to develop a common curriculum models for the state's LVN and RN programs. The framework identifies the broad conceptual components of nursing education which incorporates the latest safety science information.<sup>1</sup> A convergence of opposing forces has brought opportunities to look at nursing education in a different light (Benner et. al., 2007). Since 1999 when the Institute of Medicine (IOM) first published the "Quality Chasm" series, the emphasis on patient safety and quality has increased first in healthcare organizations, and in the last few years, in health professions education. However, as noted in the *Course Sharing Report* of the THECB in 2008, challenges to nursing education include shortages of qualified faculty, shortages of clinical sites, program enrollment capacity, and high program costs. Additional challenges include a lack of consistency in LVN educational requirements, including admission criteria, prerequisite courses, and program length.

In an effort to construct the conceptual framework, THECB posted a request for proposal for external consultants to work with a Taskforce on LVN Education. The taskforce members represent public and private LVN programs, long-term care and acute care facilities, and state agencies. All geographical regions of the state are represented.

The THECB proposes a plan to develop the framework as a common curriculum model that could be implemented at the state's 91 LVN programs.

### **Key Findings**

- A review of current literature and efforts by other states in curriculum reform reveals use of the Institute of Medicine's (IOM) five core competencies as the conceptual framework for curriculum, stressing patient safety as a form of quality.

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<sup>1</sup> While this report will refer to a single model, more than one curriculum model may actually be developed.

- The Quality and Safety Education for Nurses (QSEN) project further melds the IOM core competencies for nursing and proposed targets for the knowledge, skills, and attitudes to be developed in pre-licensure nursing programs for each competency.
- The Oregon Consortium for Nursing Education (OCNE) model stresses the partnership philosophy to realign curricula and promote a seamless curriculum across levels of nursing education.
- Findings from the survey of LVN programs in Texas revealed that while there were some variations in course titles, names, or order, most LVN programs follow a similar curriculum using courses from the THECB's *Workforce Education Course Manual* (WECM).
- Texas LVN educational programs must have a minimum of 1,398 clock hours: 558 hours for classroom instruction and 840 hours for clinical practice. Most programs are full time taking approximately 12 months to complete, but there are other programs available for part time and evening attendance options. Another type of program is known as the Multiple Entry and Exit Program (MEEP), which allows students to stop out at certain exit points, for example, after meeting qualifications to take the certified nurse aid examination, or licensure examination for LVNs. Composition of Texas LVN programs includes state and private institutions, both with and without companion RN programs.
- Texas can use the IOM competencies and best practices of the state's nursing programs to develop a new curriculum model that could respond to the state's challenges for nursing education.
- If the Texas Legislature chooses to pursue a new curriculum model for LVN educational programs, THECB proposes dividing the process of curriculum development and implementation into three additional phases. Phase 2 (lasting approximately 12 months) would expand the framework into a new curriculum model or models with standard prerequisite courses, individual course descriptions, a recommended sequence of courses, and recommended teaching methodologies. It would require an assessment of instructional "best practices" of shared faculty and technology resources among nursing programs in the state's 10 higher education regional councils. Phase 3 (approximately 2-4 months) would be the preparation of a final report on the common curriculum model with an implementation plan for each region. Phase 4 would pilot the new curriculum model at nursing programs in at least six of those 10 regions.
- Nursing curriculum redesign will require a significant commitment of time and money to be most effective. The State of Oregon has led the nation in its initial stages of curriculum reform and implementation of a statewide curriculum. It implemented a model for 13 initial licensure (RN) programs at a cost of approximately \$10 million. The major costs associated with the Oregon model were for curriculum development, clinical education redesign, faculty development, preceptor training, and clinical simulation.

## **Conclusions**

The Institute of Medicine’s core competencies have been selected as the conceptual framework for development of a seamless curriculum model for Texas because they encompass all aspects of quality and safety in healthcare delivery today. The model delineates five core competency areas: patient-centered care, evidence-based care, interdisciplinary care, quality improvement, and informatics or information technology. They are all aimed at improving quality of care and enhancing patient safety. Aspects of the IOM competencies, QSEN model and partnership model from the Oregon Consortium for Nursing Education would be used for development of a standardized curriculum in Texas for the state’s 91 LVN educational programs.

## **Recommendations**

As a result of this initial study, THECB recommends the following four strategies for the successful implementation of a new curriculum model:

<b>STRATEGIES</b>	<b>ACTION TO BE TAKEN BY . . . .</b>					
	Legislature	THECB	Educational Institutions	TX Board of Nursing	Health Care Facilities	Community Affiliates
<b>Seamless Curriculum</b>						
1. Direct THECB to develop the proposed curriculum framework into a new curriculum model for Licensed Vocational Nursing education programs as outlined in proposed Phases 2 through 4.	X					
2. Provide funding for consultant services and development and piloting of a new curriculum model. The anticipated cost is \$12 million, including funding faculty development and equipment to support new instructional methodologies and pilot projects in at least six regions of the state.	X					
3. Beginning in 2009, assess local “best practices,” current and future partnerships, and the potential for faculty sharing and instructional technology as part of the process of implementing pilot proposals in proposed Phase 4.	X	X	X	X		
4. Develop and expand partnerships between nursing education programs and clinical and community affiliates through state and local initiatives.	X	X	X		X	X

## **Acknowledgements**

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## **Background**

SB 139, 80th Texas Legislature, requires the Texas Higher Education Coordinating Board (THECB), in consultation with the Board of Nursing (TBON), to conduct a study regarding nursing program curricula improvement, with methods to improve instruction on providing safe, high-quality nursing care to patients. (The text of SB 139 is found in Appendix A.)

Licensed Vocational Nursing (LVN) Educational Programs are defined by the Board of Nursing Texas Administrative Code (RULE 214.2)(41) as "a unit or entity within an educational setting which provides a program of study preparing graduates who are competent to practice safely and who are eligible to take the NCLEX-PN™ examination." The majority of LVN programs in Texas are offered by community colleges, but some are offered at hospitals, universities, and career schools (formerly called proprietary institutions). The Board of Nursing reported that as of September 1, 2008, there were 91 LVN programs in the state of Texas.

### **Licensed Vocational Nursing Programs in Texas (2008)**

Program Type	Number of Programs
Community Colleges	70
University Based	2
University and Community College Partnerships	1
Career Schools and Colleges	12
Hospital Based Programs	5
Military Practical Nursing Program	1
Total	91

SOURCE: Texas Board of Nursing

## **Scope and Design of Study**

In defining the scope of the charge, THECB established several assumptions that would form the basis of its work:

1. An aging society is creating an increased need for LVNs to care for residents who have greater acuity levels in long-term care facilities.
2. LVNs working in long-term care are more autonomous, and they need critical thinking skills and more knowledge of safety science.
3. Collaboration between nursing education and healthcare delivery systems will be vital to the success of the recommendations in this report.

4. The proposed curriculum framework is not intended to limit the leadership and innovation in the state's nursing education programs but is aimed at better use of resources for greater student mobility and success.
5. The Texas Legislature will expect a return on investment (e.g. increased capacity, student success, and greater educational mobility for LVNs in Texas) in resources provided to support the implementation of a new curricular model.

From those assumptions, THECB outlined four proposed phases in a plan to develop a curriculum framework and then, a common curriculum model for LVN programs in Texas.

Phase 1 involved developing a curriculum framework as a broad outline of core content areas of nursing education which focus on safety and high quality nursing care. In this effort to construct the framework, THECB hired external consultants to scan the national and state curriculum redesign efforts. That work ended in September 2008, and results are presented in this report.

### **Methodology for Phase 1: Determining the New Curriculum Framework**

In completing Phase 1, THECB and the external consultants reviewed (1) challenges affecting LVN education in Texas; (2) Texas innovations in nursing education; (3) efforts of other states; and (4) current framework models. Phase 1 also provided opportunities for expert review and public comment for this report.

### **Challenges Affecting LVN Education in Texas**

Challenges were determined by examinations of the literature, from data collected by the Texas Center for Nursing Workforce Studies (TCNWS), and by gaining information from meetings with the Taskforce on LVN Education. They found:

- **Differences in LVN Educational Program Requirements:** Although there is some variation in course titles or sequence, most LVN programs in Texas follow a similar curriculum outline. This is mainly due to the THECB's *Workforce Education Course Manual* (WECM), which requires common course numbers, titles, and course descriptions for workforce courses taught at public community and technical colleges in Texas. However, there are significant differences in terms of admission criteria, prerequisite courses, course structure, program length, and total number of contact hours. These program variations make seamless transition from one level of nursing education to the next very time consuming and expensive for students.
- **Lack of Patient Safety Emphasis in Nursing Curricula to Support the Emphasis on Safety in Health Care Facilities:** The current national focus on patient safety and increased need for higher quality of care began in the late 1990s with the Institute of Medicine's first look at health care in America: *To Err is Human*. This report was the first glimpse of the complexities of a health care system that provided opportunities for individual errors. As a result of this evaluation, health care

facilities began putting safety measures into place that would prevent system errors and ultimately save lives and improve the quality of health care. As this movement continued, health care education programs have made little progress in integrating this important concept into their curricula. Weaving this patient safety focus into the curricula of all nursing education programs would positively affect all health care delivery environments from hospitals to long term care facilities and community health systems.

- **Scarcity of Clinical Sites:** The lack of clinical sites for LVN students to provide direct patient care and to practice what is learned in theory continues to be a factor that has limited increasing nursing program enrollment. If there are not sufficient and adequate clinical sites for students to practice, then student capacity cannot be increased. Also, competition with RN programs for clinical sites has been another problem for LVN programs, as has competition with new nurse residency programs at hospitals. Schools that have access to high-fidelity clinical simulation equipment have been able to provide clinical experiences both in actual health care facilities and in the simulation laboratory, thus increasing the capacity of nursing programs. However, clinical simulation has been used primarily in RN educational programs.
- **Significant Disparity Between Academic and Clinical Practice Salaries:** In LVN programs, the challenge is that salaries are often less than those of associate or higher-degree programs, thus leading to an exodus of LVN faculty once they obtain a master's degree in nursing. For national accreditation, 50 percent of LVN faculty must be master's prepared (NLNAC, 2008), and all must have a baccalaureate degree in nursing. The Department of State Health Services in 2008 reported that the vacancy rate in LVN faculty has increased from 8.6 percent in 2006 to 9.0 percent in 2007. The turnover rate during this same period went from 17.4 percent to 26.5 percent (Department of State Health Services, 2008). In large part this attrition was due to low faculty salaries. The median annual salary in Texas for faculty/instructor, ranged from \$43,000 to \$52,000 (2006) (Department of State Health Services, 2008). This is in keeping with the national average yearly salary, which is currently \$49,150.
- **Lack of a Formal Transition for New Graduates to the Practice Setting:** At the spring 2008 Taskforce on LVN Education meeting in Austin, Texas, it was discussed that after graduation from an LVN program, a newly hired graduate can go through orientation for new employees at a health care facility in a timeframe that ranges from as little as two weeks to not more than six weeks. The transition is important to the retention of nurses, which in turn is essential to the enhancement of patient safety. Using the Benner model of "Novice to Expert" and the findings of the Carnegie Foundation Study (Benner, Sutphen, Leonard, & Day, 2007), patient safety increases as nurses gain more knowledge and skills; these, in turn, are affected by time in practice.
- **Lack of Seamless Transition from One Educational Level to the Next:** To build capacity by increasing the numbers of qualified faculty, actions must be taken to ensure that those qualified LVNs who want higher education can easily have career mobility. These actions must be broader than the current articulation models

and must build on the strengths of each level. Strategies must include having sufficient numbers of qualified faculty to enable students to access the next level of education without repeating instructional content.

- **Unique Texas Characteristics:** The population of Texas continues to increase, and this tends to exacerbate the need for more LVNs to maintain an adequate LVN-to-population ratio. In 2000, the ratio of LVNs per 100,000 population was 290.2; in 2007, the ratio was 274.9 LVNs per 100,000 population. The Texas Board of Nursing reported that in 2007 there were 65,230 active LVNs practicing in Texas. The mean age of LVNs in Texas is 45, whereas the mean age of RN in Texas is 47 (Texas Department of State Health Services, 2007). Other specific challenges center on the number of qualified LVN applicants that are being turned away. In 2007 there were 5,757 students (43.0 percent) turned away from Texas LVN schools. These numbers may include applicants who apply to more than one nursing school.

### **Texas Innovations in Nursing Education**

THECB and other nursing organizations and agencies have developed a number of initiatives to coordinate and enhance nursing education. They include:

#### **Workforce Education Course Manual (WECM)**

The THECB coordinated the development of the *Workforce Education Course Manual (WECM)*, which is an inventory of courses with common course numbers, titles, and course description for all workforce courses taught at public community and technical colleges in Texas. WECM nursing courses were developed by nursing faculty and are reviewed and updated on a three-year cycle. LVN and ADN programs offered at community colleges must use WECM courses in order for their institutions to be eligible for state funding for courses. Although the WECM provides some commonality in nursing courses, there are still significant differences in terms of program admission criteria, prerequisite courses, course structure, program length, and total number of contact hours. These program variations are one factor that makes seamless transition from one level of nursing education to the next very time consuming and expensive for students.

#### **Nursing Innovation Grant Program (NIGP)**

Since 2003, the THECB has awarded grants through the NIGP to promote innovation in nursing education. Although the grants have been awarded to RN programs, one of the recent grant awards to a state university was to develop a "fast track" LVN to RN transition program that exemplifies the partnership between local hospitals and nursing programs.

#### **Texas Differentiated Entry-Level Competencies (DELIC)**

The Texas Board of Nursing (TBON), in consultation with nursing educators, developed differentiated entry-level competencies for LVN, ADN, and BSN graduates into practice. These competencies are used by nursing programs to streamline articulation between educational levels, but they are in need of revision. Plans are underway by the TBON to begin a revision process with stakeholder input beginning in 2009.

## **Field of Study Curriculum for Nursing**

In an effort to enhance mobility, the THECB created a field of study curriculum for nursing (FOSCN). The FOSCN contains a listing of lower-division nursing courses taken at public community colleges in Texas which are guaranteed to transfer to universities or health science centers. Although the FOSCN is not intended for transfer of LVN courses and has not been evaluated on a statewide level, the concepts could be used to facilitate a curriculum model for LVN to RN educational mobility.

## **Efforts of Other States**

LVN education across the United States varies from one state to the next. There are no standard requirements for prerequisites, lengths of programs, qualifications of faculty, or requirements for clinical experiences. Uniformity for specifically required content does not exist. For example, some states may require 40 hours of didactic instruction in pediatric content, while other states require fewer if any hours on this subject. Role delineations also vary. Some states allow LVNs to initiate and manage intravenous therapy and even hang blood, while others do not. Curriculum program hours vary from as few as 700 to as many as 2,250 contact hours. Appendix B provides a list of state requirements for theory and clinical hours as reported to the National Council of State Boards of Nursing (NCSBN).

Many states are struggling with some of the same challenges that Texas has regarding both vocational and professional nursing programs. Massachusetts, California, Oregon, Washington, and others have been working to evaluate their nursing programs and recommend significant changes so that core competencies of new graduates can be agreed on by both employers and educators. Review of other states efforts provided a number of common themes. The concepts being used nationally include partnerships, the development of statewide models to transition into practice, and use of high tech simulation manikins for practice and educational partnerships.

## **State Models**

### **Oregon Consortium for Nursing Education**

The Oregon Consortium for Nursing Education (OCNE) is a partnership of eight community colleges and five campuses of the Oregon Health Science University Nursing programs. The Consortium was formed as part of the 2001 Strategic Plan of the Oregon Nursing Leadership Council (ONLC) in response to the critical nursing shortage. OCNE is one mechanism by which Oregon nursing programs can expand their capacity and enrollment, preparing graduates of these programs with the competencies to address the rapidly changing health care needs of Oregon's aging and ethnically diverse populations.

The Oregon model builds a curriculum model based upon the IOM core competencies and creates different partnerships across levels of nursing education. While the scale of the consortium's activities is much smaller than would be needed in Texas, there are a number of characteristics of the model that could address many of the challenges here. The partnerships include sharing faculty, standardized admission criteria, and evidence-based curricula. Although the model is newly implemented without a history of outcome data, anticipated results of these

partnerships include moving the nursing profession forward in seamless education and a more highly educated workforce.

The curriculum development included the development of course syllabi, modules, and course materials that are used as resources for faculty teaching courses throughout the curriculum. The course materials include case scenarios, simulation scenarios, and developing competency assessment tools to advance clinical decision-making. Clinical faculty, adjunct faculty, and preceptors complete new faculty orientations and training and have access to faculty leadership development materials. The consortium members can share instructional materials and curricula through a central learning object repository which helps to extend faculty. This, along with the use of clinical simulation, increases students' opportunities for practicing clinical skills and improves the quality and safety of care.

Although the Oregon model has yet to be evaluated and only involves RN education, several other states, including New York, North Carolina, Hawaii, California, Oklahoma, and the State of Washington are considering implementing a similar model for nursing education. Oregon's model to develop a common curriculum for 13 initial licensure programs has taken more than two years and cost approximately \$10 million. Those costs supported 1.5 full-time equivalent project staff, a consultant to assist in development of the curriculum, faculty development and training, and the development of a new clinical model. Most of the costs were not based on the number of the programs in the state, but on system-related development. Therefore, if Texas were to emulate this model, the costs would be more but not considerably more than what it may have cost Oregon to develop the model. Most of the costs were associated with the curriculum design, and faculty retraining and development.

### **Massachusetts Coordinating Board of Higher Education**

Since 2006, the Coordinating Board for Higher Education in Massachusetts has been successfully working with all levels of nursing education and all segments of nursing practice to develop a set of core competencies for future nurses. The competencies are based on current national standards to serve as a framework for the development of a new approach to nursing education curriculum.

Massachusetts has developed a set of 11 core nursing competencies, and each competency has a detailed set of defined knowledge, attitudes, and skills. The state is currently funding partnerships of nursing education programs and practice sites to conduct a gap analysis of the nursing curriculum. An additional element of this project involves the development of a statewide model for transition into practice using the same set of competencies. To enhance the development of new approaches, high-tech simulation manikins to be used by the educational-practice partnerships are being funded, along with the development of simulation scenarios based on the identified competencies.

### **Review of Framework Models**

A review of current literature was done to determine existing models in use throughout the country in nursing education. Although the majority of models in use are primarily focused for Registered Nurse (RN) education, their concepts are applicable for LVN education. The primary models evaluated included:

- Institute of Medicine (IOM) five core competency areas for health professionals;
- Quality and Safety Education for Nurses (QSEN); and
- State Models: Oregon Consortium for Nursing Education (OCNE) and Massachusetts Coordinating Board for Higher Education (see previous section for a description of these state models).

### **Institute of Medicine's Core Competencies**

The Institute of Medicine (IOM) of the National Academies is a non-profit organization created to set the national direction for healthcare on matters of biomedical science, medicine, and health. The IOM's five core competency areas (see next section for a brief description of each competency area) grew out of the work from President Clinton's Healthcare Quality Commission in 1997 that then directed the IOM to examine quality for the purpose of consumer protection. In 1999 the first "Quality Chasm" report was issued. The key reports after that were from "To Err is Human," "Crossing the Quality Chasm", "Keeping Patient Safe," and "Health Professions Education". The latter report stressed the need to incorporate these core competencies in all professions. All of these reports changed the face of healthcare delivery. Changes in curricula came more slowly. Recognition of adverse events, safety issues, and need for quality monitoring in the last decade is common on the delivery side of care. Only in the last two years have more medical and nursing schools begun to incorporate these competencies into curricula.

### **Quality and Safety Education for Nurses (QSEN)**

The Quality and Safety Education for Nurses (QSEN) project is the work of Dr. Linda Cronenwett and Dr. Gwen Sherwood. The long range of the QSEN project is to demonstrate how the five IOM core competencies can be integrated into nursing curricula. QSEN provides a framework for describing the knowledge, skills, and attitudes required to meet competencies focused on quality of care and patient safety.

### **Curriculum Framework**

The five IOM competency areas have been selected as the framework for a new curriculum model for LVN education in Texas because the competencies encompass all aspects of the healthcare delivery today. Further, they are used as the basis for funding for training and research grants. Following the "Quality Chasm" series begun by the IOM in 1999, the 2003 IOM report "Health Professions: A Bridge to Quality," delineated the following core competency areas: patient-centered care, evidence-based care, interdisciplinary care, quality improvement, and informatics or information technology. All five are aimed at improving the quality of care and enhancing patient safety.

The IOM competencies are:

- **Patient-Centered Care** focuses care and interventions on the patient and not on the disease or provider. The patients are considered partners in care and have a right to access their own patient information and engage in the planning and implementation of their care. Patients understand their current treatment and follow up that is recommended. Communication with patients is based on patient preference. Health

provider visits are timely and easy to obtain. Interdisciplinary teams that include the patient and family plan and implement care that is integrated, comprehensive, and coordinated. Patients have access to information about health providers, healthcare delivery systems, and all facets of their care. Patient evaluation of the care provided is actively sought and valued.

- **Evidence-Based Care** is the integration of current research findings, expert opinion or clinical reasoning, and patient preferences. This patient-centered approach is the primary guide to the nursing care, as opposed to approaches based on outdated health-related research or mere tradition (“this is the way we have always done it”).
- **Interdisciplinary Care** is the cooperation, coordination, and communication among team members to improve quality and enhance patient safety. The patient is part of this interdisciplinary team. The focus is on interprofessional teamwork and not each discipline concentrating on one aspect of care.
- **Quality Improvement** is the continuous measurement of quality from patient, individual team member, and systems perspectives with the goal of providing the highest level of care possible. Threaded in this competency is the concept of safety. Standardization of processes and conducting root cause analyses of problems are aimed at improving safety. The focus is on delivery of quality care and the identification of areas that need work or improvement for better patient outcomes.
- **Informatics or Information Technology** refers to the use of technology to manage knowledge, improve communication among team members and across systems, data mine, and support clinical decisions. The ultimate goals are to make health information easily accessible and coordinated to reduce errors and increase patient safety. This includes use of electronic medical records and physician order entry systems.

The advantages of using this model are that there is a better alignment between terminal program competencies and expectations for beginning nursing practice. Patient safety and quality are stressed.

The disadvantages are that the concepts are not well understood in nursing education and may be viewed as additional content with no place in an already fully developed program of study. Additionally, faculty development would be needed to assist faculty in incorporating new competencies into the nursing curricula, especially in regard to new safety and quality standards.

### **New Methodologies of Science Safety**

The new methodologies of science safety are based on the quality commission from President Clinton’s Healthcare Quality Commission and the IOM competencies. The methodologies are focused on putting patient safety at the forefront of care, protecting the consumer, and using a quality framework. This framework incorporates error disclosure and root-cause analysis into healthcare delivery. It focuses on the safety goals of the Joint Commission on Accreditation of

Healthcare Organizations (JCAHO) and of the Institute for Health Improvement (IHI) "Five Million Lives Campaign" that is aimed at patient safety.

The National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) is another example of safety science within the context of health care delivery. The emphasis is on the most common errors, such as medications given at nonstandard times, documentation or lack of medication administration, medication administration records not available, or partial drug administrations. Such monitoring issues and their implications for patient safety can be included in curricula to address what constitutes an error and how care is improved. These scientific principles are critical to improved patient outcomes and support for consumer protection. They require integration of the five IOM competencies.

### **Survey of Texas LVN Programs Use of IOM Competencies**

All LVN programs in the state were surveyed regarding their incorporation of the IOM competencies in their curricula in order to determine the current level of integration of the five IOM competencies. The survey instrument is found in Appendix C. The survey was conducted in May 2008 via e-mail to the deans and directors of these programs. Results of the survey are found in Appendix D.

A total of 29 schools out of 91 (32 percent response rate) responded to the survey. The results indicated that while there is some variation in course titles or sequencing, most LVN programs follow a common curriculum. The Texas Board of Nursing requires that the curriculum of LVN programs have a minimum of 1,398 clock hours: 558 hours for classroom instruction and 840 hours for clinical practice. Class hours include actual hours of classroom instruction in nursing and non-nursing courses; clinical practice includes actual hours of practice in clinical areas, clinical conferences, and/or simulated lab experiences. Most programs are full time and take approximately 12 months to complete, but there are a few part-time and evening programs available. Another type of program offers students multiple entry and exit points, often referred to as a Multiple Entry and Exit Program (MEEP). Upon completion of each exit point, students qualify for licensure through the TBON, and/or the Texas Department of Aging and Disability Services. Exit points can include eligibility for certified nurse aide (CNA), LVN, and/or registered nurse (RN).

Most respondents indicated that the incorporation of IOM competencies rated high to medium. Exceptions were in the competencies of quality improvement and informatics, which ranked from medium to low. However, in reviewing the examples with high to medium ratings regarding the competencies patient-centered care and interdisciplinary teams, responses indicate that respondents may not have a full understanding of the concepts. Application of the five core concepts, with case studies, as viewed by the consultants is found in Appendix E.

Additional survey findings were:

- Curriculum Design: The majority of courses were from the THECB WECM course inventory. (See Appendix F for typical course listings and descriptions.)

- Attrition rates: Ranged from 1 percent to 67 percent with an average of 24 percent. Reasons for attrition were generally centered on poor academic performance, finances, and family circumstances. Programs with multiple exit/entry options often had lower attrition.
- Student Enrollment: Enrollments ranged from 8 to 174, with one school stating there were not enough qualified applicants to fill slots.
- Faculty: The number of faculty ranged from 1 to 12 full-time equivalents (FTEs).

### **Later Phases for Curriculum Model Development and Implementation**

If the Legislature decides to pursue a new curriculum model for LVN education, THECB has outlined the later phases that would use this framework in order to develop a new and innovative curriculum model(s) for licensed vocational nursing programs.

The new curriculum model(s) would be expected to incorporate design elements that would:

- (1) Meet or exceed standards of national vocational/practical nursing accreditation bodies or clearly identify conflicts with those standards
- (2) Be completed by students in no more than 12 months or clearly describe rationale for longer or shorter programs
- (3) Emphasize the latest patient safety competencies
- (4) Use competency-based testing
- (5) Facilitate articulation between nursing programs and mobility among different levels of nursing including certified nurse aide (CNA), LVN, ADN, and BSN education
- (6) Promote student success and completion rates
- (7) Promote evidence-based practice
- (8) Maximize the use of existing and potential vocational nursing faculty at LVN programs and at their clinical affiliates
- (9) Propose a faculty-to-student ratio for clinical courses that is consistent with projected enrollment increases, likely faculty shortages, and availability of new learning technologies
- (10) Integrate didactic and clinical content with new instructional technology
- (11) Address any characteristics unique to Texas and vocational nursing instruction in Texas
- (12) Propose standardized prerequisite courses, if applicable
- (13) Propose any needed modification to the differentiations between LVN and AND and BSN instruction
- (14) Promote easy transition from student nurse to practice vocational nurse to minimize training needed after graduation
- (15) Provide a cost per graduate that is as low as possible

In Phase 2, THECB, working in consultation with Texas Board of Nursing and nurse educators, would develop a new curriculum model with standard pre-requisites, individual course descriptions, a recommended sequence of courses, and recommended methodologies. The proposed model would be discussed in a public forum to get feedback from LVN nurse

educators. LVN programs would also begin assessing best practices and resources available at the regional level. The curriculum design, peer review, and regional self-assessment phase would take approximately 12 months.

Beginning with the public forum in Phase 2 and continuing through Phase 3, THECB would solicit pilot proposals to implement the curriculum model within at least six of the THECB state's higher education regions.

During Phase 4 the new curriculum model would be piloted by at least 24 LVN programs in at least six regions of the state. The programs will be selected based upon the following criteria: regional representation, at least one stand-alone LVN program without a companion RN program, at least two LVN programs with bridge programs to associate degree nursing (ADN) programs, and at least one multiple entry/multiple exit program (MEEP). The regional pilots are intended to test the effectiveness of the new curriculum model, patient safety, content, and seamless transition among programs. The pilot phase would require two years in order to test a curriculum that would track students entering a licensed vocational nursing program through completion of an associate program (RN).

### **Resources Needed**

Establishing a new curriculum model for nursing would have several positive benefits for Texas. Realignment and development of a statewide model is very time-consuming and would need to involve several stakeholders.

### **Curriculum reform is costly and time-consuming, and legislative and other statewide support would be necessary.**

Legislative support would be vital for the success of the developed curriculum model. Legislative support for funding of Phase 4 (pilot testing) would be needed. The estimated cost for funding six regional pilots to implement the model curriculum is \$12 million, which is based on cost projections from the State of Oregon and prior NIGP grants awarded to Texas institutions.

### **Changing curriculum requires careful planning and institution-level support.**

In order for this statewide model to work, the groups in the development process must have consensus on the final curriculum content. Faculty release time would be necessary in the development stages, and professional development would be needed during the implementation phase. Local administrators and deans would have to support this release time and be committed to the development and adoption processes. Inclusion of new instructional strategies would make it necessary to purchase new equipment, technology, and simulation models. With the increase in student enrollment, other financial support would also be necessary to support the increase in education infrastructure.

### **Greater participation and cooperation among hospitals/employers would be needed.**

Active participation and cooperation among schools of nursing and employers of nurses would help ensure that the model curriculum addresses the preparation of students for the complexities of the 21<sup>st</sup> Century healthcare and provides the knowledge, skills, and attitudes to seamlessly transition into practice.

## Recommendations

1. Direct THECB to develop the proposed curriculum framework into a new curriculum model for Licensed Vocational Nursing education programs as outlined in proposed Phases 2 through 4
2. Provide funding for consultant services and the development and piloting of a new curriculum model. The anticipated cost is \$12 million, including funding faculty development and equipment to support new instructional methodologies and pilot projects in at least six regions of the state
3. Beginning in 2009, assess local "best practices," current and future partnerships, and the potential for faculty sharing and instructional technology as part of the process of implementing pilot proposals in proposed Phase 4
4. Develop and expand partnerships between nursing education programs and clinical and community affiliates through state and local initiatives

## Conclusions

The Institute of Medicine's core competencies have been selected as the conceptual framework for development of a model curriculum for Texas because they encompass all aspects of quality and safety in healthcare delivery today. The model delineates five core competency areas: patient-centered care, evidence-based care, interdisciplinary care, quality improvement, and informatics or information technology. They are all aimed at improving the quality of care and enhancing patient safety. Aspects from the Quality and Safety Education for Nurses (QSEN) model and partnership model from the Oregon Consortium for Nursing Education would also be used.

Based on the literature, there are several structural themes that should be incorporated in any model curriculum developed. These include:

- Development of common curricular concepts using the IOM core competencies
- Partnerships between nursing education programs, health care facilities, and community affiliates
- Seamless transition across all levels of nursing education and into practice

Developing and adopting a model curriculum would be complex, costly, and time-consuming and would require legislative, community, education, institutional, and health care industry support.

It is anticipated that the work in Texas could leverage the work from other states, but it would require a significant investment of time and money to achieve any appreciable results from such a process.

Statewide consensus among programs would be essential. Development of an evidenced-based model that could be adopted by schools across the state would be very time consuming. The

process would require multiple meetings of teams of representatives of nursing education and the healthcare delivery system and would need to be implemented in such a way that preserves faculty creativity and the ability of schools to innovate.

Institutional support at the nursing program level would be required. This support would encompass the following:

- Faculty development and release time to make the transition into the model curriculum
- New simulation equipment and other capital item purchases
- Possible need for further consulting services for actual implementation

Greater participation and cooperation among hospitals/employers would be needed. Active participation and cooperation among schools of nursing and employers of nurses would ensure that the model curriculum would address the preparation of students for the complexities of 21st Century healthcare and would provide the knowledge, skills, and attitudes to seamlessly transition into practice.

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## Appendices

### Appendix A

#### SB 139, 80th Texas Legislature

§ 61.0662. STUDY ON IMPROVING NURSING PROGRAM CURRICULA.

(a) In this section:

(1) "Professional nursing program" means an educational program for preparing students for initial licensure as registered nurses.

(2) "Vocational nursing program" means a school or program for preparing students for licensure as licensed vocational nurses.

(b) The board, in consultation with the Board of Nurse Examiners, shall conduct a study to identify methods to improve the curricula of professional and vocational nursing programs. The study must focus on methods to improve instruction on providing safe and high-quality nursing care to patients.

(c) Not later than December 31, 2008, the board shall complete the study required by Subsection (b) and submit to each institution of higher education or other entity that offers a professional or vocational nursing program in this state, the governor, and the legislature a report that includes specific, detailed recommendations concerning methods to improve the curricula of professional and vocational nursing programs, including instruction relating to patient care.

(d) This section expires January 1, 2009.

Added by Acts 2007, 80th Leg., R.S., Ch. [345](#), § 1, eff. June 15, 2007.

## Appendix B

### State Requirements for Theory and Clinical Hours Variations in LVN Programs\*

<b>State Responses</b>	<b>Theory</b>	<b>Clinical</b>	<b>Total</b>
Arkansas	560	768	1,328
California	576	954	1,530
Colorado	300	400	700
Connecticut	1,500	750	2,250
Florida	650	650	1,300
Louisiana	700	800	1,500
Massachusetts	540	540	1,080
Tennessee	550	430	980
<b>Texas</b>	<b>558</b>	<b>840</b>	<b>1,398</b>
West Virginia	650	650	1,300
<b>Median</b>	<b>568</b>	<b>700</b>	<b>1,314</b>

\*The National Council of State Boards of Nursing member services profiles.

## Appendix C

### Texas Licensed Vocational Nurse Curriculum Project Survey Survey Instrument<sup>1</sup>

Dear Dean/Director/Faculty Member:

Please allow us to introduce ourselves-

**Carole Kenner, DNS, RNC-NIC, FAAN**

Dean/Professor

University of Oklahoma College of Nursing

**Ruth Eckenstein, M.Ed, RN**

Program Specialist

Oklahoma Department of Career and Technology Education

Dr. Kenner is a member of the American Academy of Nursing's Committee on the Preparation of the Workforce and Ms. Eckenstein is a Program Specialist for the Oklahoma Department of Career and Technology Education. In her role as Program Specialist, she accredits all LPN programs in the state and work as a consultant to programs needing assistance. She is a nationally known consultant for nursing curriculum development.

We are honored to serve as consultants on the THECB LVN Curriculum project. We believe it holds great potential not only for positive change in the State of Texas, but as a model for other states as well. And as we begin this important work, your input is critical.

In order to gather information about each program with the state, please provide the following information:

1. One page curriculum plan ideally with credit hours/course descriptions.
2. List of prerequisites for each program.
3. Licensure pass rates for each program.
4. Attrition rates for each program.
5. Reasons for withdrawal of students.
6. Retention rates of faculty for each program.
7. Number of faculty and number of vacant slots.
8. Enrollment numbers for each program.
9. How many students/faculty are involved in work-study programs?

Since we anticipate using the IOM Competencies for the Health Professions as a beginning framework, please consider each competency below and first, tell us whether the emphasis in your current curriculum is low, medium, or high. Second, give us specific examples of how you develop these broad areas of competency in your students in both didactic and clinical, including simulated learning situations.

10. **Patient-Centered Care** – the focus of care/interventions is on the patient and not the disease or provider.  
Current Curricular Emphasis: High\_\_\_ Medium\_\_\_ Low \_\_\_  
Specific Didactic Examples of Competency Development  
Specific Clinical Examples of Competency Development
11. **Interdisciplinary Teams** –the focus is on interprofessional teamwork and not each discipline concentrating on one aspect of care but rather an integrated team approach to care.  
Current Curricular Emphasis: High\_\_\_ Medium\_\_\_ Low \_\_\_  
Specific Didactic Examples of Competency Development  
Specific Clinical Examples of Competency Development
12. **Evidence-Based Practice** – the integration of research findings or clinical expertise to support care within the role of the LVN.  
Current Curricular Emphasis: High\_\_\_ Medium\_\_\_ Low \_\_\_  
Specific Didactic Examples of Competency Development  
Specific Clinical Examples of Competency Development
13. **Quality Improvement** – the focus is on delivery of quality care and contributing to identifying areas that need improvement or work for better patient outcomes.  
Current Curricular Emphasis: High\_\_\_ Medium\_\_\_ Low \_\_\_  
Specific Didactic Examples of Competency Development  
Specific Clinical Examples of Competency Development

<sup>1</sup> Since this is a copy of the original survey, it has been maintained as presented with no changes.

**Appendix D**  
**Texas Licensed Vocational Nurse Curriculum Project Survey**  
**Results of Survey - Application of IOM Core Competencies<sup>2</sup>**

**Patient-Centered Care Competency**

1. Patient-centered care competency– the focus of care/interventions is on the patient and not the disease or provider.
2. Level of current curricular emphasis (number of institutions reporting):  
High (20) Medium (2) Low (1)
3. Specific Didactic Examples of Competency Development
  - VNSG 1400 Course Objective = Utilize the nursing process to develop nursing care plans for patients experiencing pain, disturbed mobility, infection, fear, grieving, injury potential, alterations of skin integrity, powerlessness, alteration in cardiac output/tissue perfusion, and alteration in hormonal balance and skin disorders. Learning objective = Discuss the step care therapy for the client with hypertension.
  - Our entire program is based on use of the Nursing Process to provide Patient-Centered, Individualized Care. Students are taught these aspects in all courses throughout the nursing program. They are taught growth and development aspects, socio-cultural/spiritual considerations, as well as communication skills. Competency is evaluated with application based test questions, development of teaching plans/case studies, and presentations.
  - Beginning with our Concepts course, students are imprinted with the idea of providing care for each client as an individual with emphasis on specific cultural issues. Methods of therapeutic communication are introduced. This is projected throughout the didactic curriculum.
  - All students must be able to differentiate “patient centered care” from “procedure centered care”
  - Holistic assessment is taught in the first semester course. Students are taught to assist in developing care plans for all aspects of a client’s care including health promotion and prevention.
  - Teach to the nursing process throughout the curriculum. Teach critical thinking skills throughout the curriculum.
  - All exam questions are focused on the patient not disease process. As we discuss disease processes we also look at how this disease influences other healthcare issues for the patient
  - Perform a head-to-toe physical assessment on another student and/or simulation mannequin in the lab setting. Correctly document the findings. Utilize structured

data collection tools and techniques of assessment of clients inclusive of interviewing. (DELC: POC, 1K, C)

- Complete the Virtual Clinical Excursion exercises related to physical assessment.

#### 4. Specific Clinical Examples of Competency Development

- Students display Patient-Centered Individualized care during every clinical assignment. Students are evaluated on this and many other Competency standards twice each semester. Students also develop Patient-Centered, Individualized Care plans for each clinical assignment.
- Monitor patient responses to medications, treatments, and procedures.
- Students are continuously encouraged to meet the client's needs based on priorities established by the client and/or family. An increasing focus on the psychosocial status of the patient is encouraged throughout the program.
- Certain areas of the clinical evaluation tool
- The overall objective of the VN Program is to prepare students to practice competently. Theory competency is measured through written examinations and skills competency is measured by simulated skill examinations. All students must be able to demonstrate appropriate communication at the level of the patient and must satisfactorily perform nursing care using safety measures at a level comfortable to the patient.
- Holistic assessments are done on clients throughout the three semesters of clinical. While students take care of clients with specific systems problems, all aspects of a client's care are included in the care plans developed. Patient teaching that includes health promotion and prevention is required.

### **Interdisciplinary Teams Competency**

1. Interdisciplinary teams competency –the focus is on inter-professional teamwork and not each discipline concentrating on one aspect of care but rather an integrated team approach to care.
2. Level of current curricular emphasis (number of institutions reporting):  
High (3) Medium (6) Low (2)
3. Specific Didactic Examples of Competency Development
  - Interdisciplinary team Collaboration and communication is ingrained into the Nursing process approach utilized throughout our program. Competency is evaluated with application based test questions, development of teaching plans/case studies, and presentations.
  - Initial class discussions center on the acute healthcare environment including all members involved in the care of the patient. Students are encouraged to familiarize themselves with available resources for future reference.

- Monthly staff meetings or more often if necessary to discuss urgent issues regarding curriculum and student clinical performance. Classroom/Clinical Evaluations.
- Each level includes objectives related to inter-disciplinary teams. Students are provided with case studies and discussions of various roles of health team members. Emphasis is given to collaboration.
- Teach the roles of each professional within the healthcare team and how the vocational nurse collaborates with each team member.
- Professional Development Course. Modules on team building and teamwork in healthcare practice. Guest speakers—experts in Respiratory Therapy, Physical Therapy, Emergency Medicine, wound care. Critical pathways—interdisciplinary care planning. Nursing process module
- Identify roles and legal, ethical, and professional responsibilities of a vocational nurse as a member of the interdisciplinary health care team in a variety of health care settings.
- Discuss role of other disciplines but do give some examples of how they help nursing in patient care as experts in their specialty.
- Interdisciplinary care is identified throughout the curriculum within course/unit objectives. In addition, interdisciplinary care is identified through the DELC; Member of a Profession and Coordinator of Care.

#### 4. Specific Clinical Examples of Competency Development

- Students display collaboration with Interdisciplinary team members during each clinical assignment and reflect this collaboration in the patient care plans they are required to develop for each assignment. Students are evaluated on Interdisciplinary team Collaboration, as well as other competencies, twice each semester.
- Students are encouraged to seek out and interact with other disciplines (dietary, respiratory therapy, PT, and OT) as they observe and follow through with various treatments and therapies.
- Students are assigned to work with different departments in the clinical setting to obtain different perspectives on patient care. While on the rehabilitation units, students actually participate with the interdisciplinary team as a plan of care is designed for this group.
- Attend team patient care meetings; spend a day with a case manager in clinical; discussion in post-conference regarding team approach to patient care in long-term care, acute care, rehabilitation settings, etc. What is the same and what is different in these clinical areas? How are forms and processes and charting done to achieve a team approach/communication?

## **Evidence-Based Practice Competency**

1. Evidence-based practice competency – the integration of research findings or clinical expertise to support care within the role of the LVN.
2. Level of current curricular emphasis (number of institutions reporting):  
High (10) Medium (8) Low (4)
3. Specific Didactic Examples of Competency Development
  - Using a research article in class to support the change in practice of NG tube placement. Showing the article to students and reading parts of the article to support the change in clinical practice.
  - Our program is based on Evidenced-Based practice. The text books we utilize are professional, peer reviewed texts based on Evidenced-Based practice. Students are taught the difference between professional and nonprofessional sources, and are required to present projects based on Evidenced-Based practice throughout the program in which they must cite professional resources.
  - Emphasis is placed on current references other than the text to provide latest research into the classroom. Students are expected to provide a peer-reviewed reference for most rationales.
  - The new textbooks contain more data on evidence-based practice and this will be included into the curriculum as the text is updated.
  - Discussion of scientific principles as a basis for our actions. Lifelong learning, reading scholarly journals and doing internet searches for current information. We cannot know everything, but must know how to find the information. Look up research on specific patient complications of illness (like mobility, infection, pain) and report in class on new advances. Compare research to currency of textbooks.
  - Faculty utilizes and incorporates nursing research with literature reviews prior to lecturing. Disease Control presentations from professional nursing journals VNSG 1115. Library assignments and Poster projects that incorporate evidence-based practice VNSG 1115, 1400. Evidence-based ethic projects utilizing library resources VNSG 1119. Textbooks incorporate evidence-based practice to plan patient care.
4. Specific Clinical Examples of Competency Development
  - Clinical Skills check off – Nasogastric Intubation – new ways of checking placement no longer using the “bubble” over the abdomen, but recommending checking pH of gastric contents as a standard based on evidence.

- Students must provide teaching and nursing interventions based on evidenced-based practice during their clinical assignments and on care plans for each clinical assignment.
- On-line searches; case studies; concept mapping; simulations.
- Reference documents used are no more than 5 years old when citing rationale for nursing care. All faculty ensure students conduct all patient care and practice using state of the art mannequins and equipment. Computerized simulation manikin used to demonstrate and reinforce critical thinking skills needed in providing patient care.
- Nursing journal article summaries to reflect nursing practice and research. Nursing student participation in pressure ulcer point prevalence study. Student participation in nasal swabbing cultures for MRSA studies. Participation in updated fall prevention protocols. Changes to wound care protocols based on patient outcomes.
- Patient care and clinical nursing skills are taught utilizing evidence practice, e.g. alcohol rub/foam appropriate hand hygiene. Students are required to support all clinical interventions in care plans with evidenced based nursing practices.

### **Quality Improvement Competency**

1. Quality improvement competency – the focus is on delivery of quality care and contributing to identifying areas that need improvement or work for better patient outcomes.
2. Level of current curricular emphasis (number of institutions reporting):  
High (9) Medium (9) Low (3)
3. Specific Didactic Examples of Competency Development
  - Quality Improvement is a crucial part of the nursing process. Students are taught that they must continuously review and evaluate their interventions and revise their plan of care for each individualized patient. Competency is evaluated with application style test questions, presentations, and case studies.
  - Our program stresses the importance of delivering high quality patient care, yet the contributions of students to actually precipitate improvements in the health care facilities is very limited. The important issue is that they are taught to recognize needs for improvement and take that information into their career.
  - Each level provides objectives related to resource utilization, quality care and systems improvement. Emphasis is given to look at systems problems and ways to improve them.
  - CQI begins in the Vocational Nursing Concepts and is woven in each subsequent course. Students are required to work on a CQI project as part of Professional

Development and work with a clinical site's CQI manager/team member on this project.

- Infection control QI modules, Critical thinking/problem solving in nursing process modules. Student evaluations of faculty and courses. Utilization of classroom assessment techniques. Curriculum committee/Evaluation Committee to assess and improve coursework and educational programs.
- Discuss what QI is and involvement on committees. How can the LVN make a difference?
- National Safety Goals emphasis since initiation and updated yearly. Core measures are taught with medical and nursing diagnosis and integrated in care plans. Evidence based practices and consumer feedback on patient care satisfaction recognized.
- In Professional Development, the VN students of WCJC are taught the importance of reporting physical safety issues (frayed electrical cords, rugs or carpets that may harbor infectious agents, malfunctioning equipment) to prevent patient injury and improve patient outcomes. They are also taught the importance of participating in Quality Improvement activities on the job.
- Emphasis is placed on improving delivery of quality care by having students practice role playing, complete case studies that are incorrect or lacking information.
- Role of nurse in quality improvement/quality assurance process is emphasized VNSG 1222, 1119, 1236.

#### 4. Specific Clinical Examples of Competency Development

- Students are encouraged to discuss in clinical conference areas or situations that need improvement. This facilitates their knowledge, which can later be utilized as an employee.
- Clinical faculty observations, coupled with Midterm evaluations and skills checklist issues assist in QI measurements.

### **Informatics Competency**

1. Informatics competency – utilization of information, gathering of data to support clinical care, manage data, and to reduce errors and increase patient safety. This includes use of electronic medical records and physician order entry systems,.
2. Level of current curricular emphasis (number of institutions reporting):  
High (7) Medium (7) Low (3)
3. Specific Didactic Examples of Competency Development

- Students are instructed on the various methods to gather clinical information throughout the program. They are exposed to electronic media, as well as

standardized patient charts, physician orders, etc. Competency is evaluated during skills check offs, tests, and presentations.

- We are in a rural area that has not gone to computerized charting, etc.
- The student is instructed on the various care delivery methods for LVNs and on the differences among the various providers of nursing care.
- Content related to nursing informatics is included in curriculum.
- Our clinical facilities are somewhat behind in the use of electronic medical records although they are all hoping to be "live" by the end of this year or the middle of next. Therefore, we have been behind in this use as well. Our facilities do use electronic MARs and students receive an orientation on this as well.
- Students are taught how to use the internet and the library to find information from credible sources about different diseases, research and medications. Students attend an extensive orientation from librarians during orientation and then have a follow-up within one month of starting school. Throughout the year, they are required to present their research about their assigned patients. This thoroughness protects patients from error.
- Students are given textbook instruction on electronic medical records.
- Internet assignments, Moodle –course management system online utilized by CTC.
- Teach 6 rights of medication administration. Teach nursing process. Teach different charting formats. Teach computerized documentation through simulation with a local hospital computer system.
- All of the following:
  - Blackboard access is provided for each student.
  - High use of Blackboard as an information resources is expected.
  - PowerPoint is used for classroom teaching.
  - Students use computerized ERI testing at the end of each semester and for their capstone exam.
  - Online review course is accessed by students at home and also provided in the classroom.
  - Students have access to computers at the campus.
  - Almost all students have internet access at home to supplement the classroom teaching.
  - Students use computerized charting and medication administration systems in the clinical settings.
  - Students are expected to develop a complete database in the nursing plan of care on assigned clients.
  - Students must receive report and give report on their assigned clients.
  - Students have access to computerized medication data.
  - Much of the equipment in the hospitals is computerized.
  - Students are taught communication skills that assist with data-gathering from the clients and or family members.

- Students are encouraged to utilize computers to research and write reports for the course. They are also required to take practice tests on line. One course requires that students review the BON's web site and answer questions related to what they find there.
- We utilize CAI's and computerized programs & practices for learning in the computer lab.
- HIPPA is a topic of curriculum in every course during the year. JCAHO is also included in curriculum. Both are tested on exams.
- The Institute For Safe Medication Practices (ISMP) is required for students to sign up for email updates. These updates are used throughout the year as enrichment topics.
- Software training for use of electronic medical records. Cyber awareness and privacy training requirements, Student training for use of electronic databases, Web enhanced courses, Simulation center training to improve skills and reduce errors, Instructor access to PDA for database, Utilization of smart classrooms for hardware support and internet access.
- Develop computer skills in the use of software related to medical – surgical simulations. Develop computer skills in the use of software related to selected pediatric simulations.
- Discuss why information is documented in particular ways leading to improved patient safety/reduction in errors. Discuss double checks in administering blood products and TPN for example. Discuss labeling of medications and safety precautions involved.
- Over the program 5 different internet projects are completed. Content on patient safety guidelines and the internet information available regarding updates is presented.
- Internet use for evidence based research practices is accessible. Electronic documentation is available and used in Pediatric and Obstetric patient care areas only. System will have full informatics in September of 2008. All students will be oriented and will utilize informatics system.
- The students are instructed in Basic Nursing Skills about the usage and availability of informatics systems for health care data. They are instructed in the safeguards necessary to protect electronic information. During Basic Nursing Skills, the VN students also utilize a software package to learn how to access electronic patient data to gain necessary information. This software package also gives each student a general idea of how to electronically enter orders and documentation.
- Students practice and learn how to use electronic records in our fundamentals class. They also complete all exams and NCLEX practice testing via computer.
- Internet access in the classroom for demonstration. Audio Tutorial Lab with internet access on all computers.

#### 4. Specific Clinical Examples of Competency Development

- VNSG 1361: Utilize current technology to enhance patient care.
- Develop Plans of Care for each individual patient. Utilize current technology to administer and document patient medications.
- Students must display their competency with informatics with each clinical assignment; they must gather the patient's information, physician orders, medication profile, labs, etc. They are evaluated on their ability to obtain and record information at least twice each semester.
- Students are encouraged and required to utilize all available data in providing care. This includes utilization of all diagnostic and lab results, especially when delivering medications. At this time our students do not have electronic access to data, nor does our primary facility utilize a physician order entry system. Medication orders are faxed to the pharmacy and processes to prevent errors are directly observed by the student.
- We are in a rural area that has not gone to computerized charting, etc.
- Students use technology at various clinical sites as available. Computerized charting by the students is utilized at Good Shepherd-Marshall.
- Students are oriented to electronic MARs. Plans are underway for faculty training when clinical sites go live, which will lead to student training. Current required research before students can participate in patient care includes research current diagnosis, pertinent medical history, complications and/or secondary diagnoses, medications and diagnostic data.
- Due to the hospital regulations in this area the students are not allowed to participate in the electronic medical records or electronic medication dispensation.
- Simulation, Virtual Clinical excursions. Students are oriented to PIXUS (medication administration system), electronic charting, Review of JCAHO safety standards, Students carry SAFETY PRACTICES card, Current CPR for all students.
- Specific medication administration days at clinical for each student. Students are allowed to document via computer under instructor supervision when allowed at hospital. Weekly paperwork with documentation of the nursing process is required.
- All of the following:
  - Almost all students have internet access at home to supplement the classroom teaching.
  - Students use computerized charting and medication administration systems in the clinical settings.
  - Students are expected to develop a complete database in the nursing plan of care on assigned clients.
  - Students must receive report and give report on their assigned clients.
  - Students have access to computerized medication data.
  - Much of the equipment in the hospitals is computerized.

- Students are taught communication skills that assist with data-gathering from the clients and or family members.
- Most students utilize the computer to submit patient care plans and basic research papers. All students must learn to utilize clinical computing systems in various clinical sites.
- We have just obtained a "Nursing Anne VitalSim Advanced" to do simulations in the lab. One of the hospitals we rotate through has computerized charting. Most hospitals utilize some form of computerized data management or entry systems that our students may observe or learn to use.
- HIPPA, JCAHO and ISMP are all subjects for post-conferences during the year. Students are many times allowed to participate in agency activities for JCAHO reviews.
- Utilization of EMR systems for charting and medication administration, Access of patient information and lab results for patient care planning, Utilization of web based radiology studies.
- Use of electronic and paper systems that happen to be at each clinical site.
- Students demonstrate clinical knowledge/judgments through case studies and a formal Leadership/Management paper and by direct instructor supervision by utilizing a variety of means of collecting data including the use of the internet, Microsoft word program and computerized charting and medication dispensing.
- Using an electronic medication dispensing system is part of the end of the last semester. Assigned to input orders under nursing supervision on two occasions.
- Data collection of patient diagnostic reports for development of nursing care plan.
- The VN students of WCJC administer medications by accessing a computerized medication storage system at the clinical hospitals. The student must be proficient in computer usage and patient data to utilize the system. The students access patient data via the hospital's information system to obtain current laboratory values, ordered tests, current diet, and current medications. The VN students utilize various software packages to simulate nursing care in a specialty area within the hospital setting.
- Several hospitals we use are electronic. The students use computers at the bedside to give medication and chart assessment information and notations of any changes in health status.
- Computer charting and orientation provided by hospital and long-term care facilities VNSG 1160, 1661, 2662, 2663. Internet access in the hospitals and long term care facilities VNSG 1160, 1661, 2662, 2663. Supplies and medications obtained through the PYXIS VNSG 1160, 1661, 2662, 2663. Physicians orders online VNSG 1160, 1661, 2662, 2663. Students utilize current technology to enhance direct client care VNSG 1160.

<sup>2</sup> Since these are comments from the respondents to the survey, they have been maintained as presented with few changes.

## **Appendix E**

### **Application of IOM Core Competencies with Case Studies**

#### **Patient Centered Care Competency**

Major Curricular Concepts:

1. Basic Clinical Competence
  - a. Assessment
  - b. Psychomotor skills
  - c. Research-based practice
  - d. Safety science-quality and safety within IOM framework
  
2. Cultural/Social Care
  - a. Understanding of impact of culture, psychosocial issues, and spirituality on health
  - b. Alternative medicine
  - c. Diversity, language skills
  
3. Communication
  - a. Personal insight and maturity
  - b. Therapeutic communication skills
    - i. Listening
    - ii. Observation
  - c. Communication styles
  - d. Conflict management/resolution
  - e. Crisis management
  - f. Assertiveness skills
  - g. Language mastery- in oral and written formats
  - h. Negotiation skills
  - i. Presentation skills
  - j. Empathy
  - k. Advocacy
  - l. Intra-disciplinary consultation
  
4. Ethics
  - a. Principles/models
  - b. Social justice
  - c. Ethical decision making
  - d. Resource allocation
  - e. Self determination
  - f. Advocacy
  - g. Cultural considerations
  
5. Teaching and Learning
  - a. Learning styles of self and others
  - b. Domains of learning
  - c. Learning theory
  - d. Outcome evaluation of learning

- e. Inclusion of family in health education
  - f. Creating learning environment
  - g. Identifying teaching moments
  - h. Material development
  - i. Community education
  - j. Workplace education
  - k. Adaptation
  - l. Presentation skills (one-on-one and in groups)
  - m. Being a lifelong learner
6. Resource management
- a. Assessing patient and environment
  - b. Fiscal responsibility
  - c. Impact of staff turnover on care (staffing effectiveness)
  - d. Ingenuity
    - i. New product development
    - ii. New care methods/modalities
  - e. Benchmarking (hrs/pt/day)
    - i. Ability to analyze
    - ii. Evaluation of effect of resource management
  - f. Resource allocation
    - i. Material
    - ii. Human
7. Critical thinking/decision making
- a. Critical component of basic clinical competence
  - b. Theory-critical thinking and decision making
  - c. Application of process to all clinical situation
  - d. Methodology of critical thinking
  - e. Observation skill

### **Interdisciplinary Care Competency**

#### Major Curricular Concepts:

1. Collaboration
- a. Mutual respect/responsibility
  - b. Mutual disagreement
  - c. Valuing differences
  - d. Consensus building
    - i. Listening
    - ii. Dialogue
    - iii. Facilitation
    - iv. Assertiveness
    - v. Negotiation
  - e. Teamwork Consultation
  - f. Role theory
  - g. Conflict management

- h. Gathering information to provide to the team about self and group assessment
      - i. Professional socialization
      - ii. Tools of data gathering
- 2. Communication
  - a. Language proficiency: nonverbal/verbal/ written
  - b. Modalities of communication
    - i. Public
    - ii. Media
    - iii. Political
    - iv. Technology
      - 1. PDA
      - 2. Internet
      - 3. Tele-health
  - c. Implementation of the crisis communication plan
  - d. Groups (patients/families/ colleagues/ organizations)
  - e. Professional culture
- 3. Clinical management/leadership
  - a. Decision making science
  - b. Incorporation of the strategic plan
  - c. Delegation/accountability
  - d. Team membership techniques and following leadership theories
  - e. Reinforcing mentoring
  - f. Care delivery models/ staffing
  - g. Collaboration
  - h. Evaluation of patient care
  - i. Team participation
  - j. Working with multidiscipline teams
  - k. Research based decisions
- 4. Coordination & integration of care
  - a. Health systems
  - b. Payer systems
  - c. Cultural/social systems
  - d. Resource procurement
  - e. Referral systems
  - f. Core competencies of all disciplines
  - f. Regulation and scopes of practice
  - g. Labor law
- 5. Professional socialization
  - a. Professional image / behavior
  - b. Professional responsibility
  - c. Self care
  - d. Continued competence
  - e. Code of ethics
  - f. Communication

- i. Interdisciplinary
- ii. Peer
- g. Interdisciplinary Residency

### **Evidence-Based Care Competency**

Major Curricular Concepts:

1. Theory from nursing and other disciplines
  - Overall understanding of theory
  - Understanding abstract thinking and how to think conceptually
  - Value of other disciplines theory to nursing and health care
2. Research
  - Clinical and health services research
  - Methodology
  - Statistics
  - Data collection
  - Critique and evaluation of research findings
  - Implications for practice
  - Dissemination

### **Quality Improvement Competency**

Major Curricular Concepts:

1. Decisions based on continuous feedback loop
2. Structure–Process–Outcomes
  - a. Health
  - b. Cost effectiveness
  - c. Satisfaction
3. Best practices/delivery models
4. Benchmarking
5. Systems focus
6. Strategic management/ planning
7. Outcome reporting
8. Regulation and health policy
9. Employer of choice designation/ workplace excellence

### **Use of Information Technology Competency**

Major Curricular Concepts:

1. Computer competence
  - a. Spreadsheets
  - b. Field specific technology
2. Ethics and confidentiality of information management

- a. Entry
- b. Information sharing
4. Distance intervention/telehealth
5. PDA/ Computerized entry
6. Data driven decision making

### **Examples of How to Apply the Competencies**

Application of the concept of **Patient Centered Care** is as follows:

Ms. F. is a 40 year old African-American female. She comes to the Breast Care Center with a complaint of pain in her right breast. She states that on self-examination she feels a small round, hard nodule in the outer aspect of her right breast. She states this has just appeared in last 60 days. She and the interdisciplinary clinic team discuss the use of a mammogram. She also reveals a positive history of breast cancer in her mother (diagnosis age 42). Together they decide that the mammogram will be done that day. Later in the afternoon, the mammogram is read; and Nurse Smith calls Ms. F. at home as the patient requested. Ms. F. asks if they found anything on examination. The nurse indicates the test has at least two suspicious areas in the right breast and one in the left breast. Nurse Smith gives her the opportunity to come back to the clinic tomorrow to discuss with Dr. Tufts the results and options. Ms. F. agrees and they make an appointment. Nurse Smith asks if Ms. F. has email or Internet access. She states that she has both. Nurse Smith then gives the email address of both the physician and herself if Ms. F. would like to send any questions.

The next day further tests were conducted including an ultrasound and biopsy. The results were back within 48 hours. Dr. Tufts called Ms. F., asking her to come to clinic the next day. Nurse Smith is also informed of the results. She notes that the biopsy results have been checked for accuracy and they are identified by the lab with the patient identifier. (patient safety and quality monitoring). Ms. F. requests results over the phone. Dr. Tufts is aware that she lives alone and has no family in the immediate area. But he does as the patient wishes and tells her she has bilateral cancer that appears to be non-invasive and early. She agrees to come in the next day to discuss options.

The next day, Dr. Tufts gives Ms. F. all the options including conservative treatment to the other extreme of a bilateral mastectomy. She selects the latter due to her family history (her mother had a mastectomy). While the physician does not believe this course is absolutely necessary he gives her all the information she requests and tells her that the decision is hers. He asks that she think it over but tentatively schedules the surgery in three weeks as Ms. F. indicates the office is very busy for the next two weeks and time off is not possible. He asks about reconstruction and she indicates she would like to pursue it. This surgery is scheduled for shortly after the initial surgery. He reassures her that her medical record will follow her from outpatient to inpatient and back. He shows her the current record on the computer screen and offers a printout if she would like. She declines. He also tells her that Nurse Smith will arrange a case manager to coordinate follow up and rehabilitation care.

The key elements of this case are:

1. Appointments and surgeries are scheduled based on the patient's needs.
2. Access to care is according to patient's request.

3. Information is given to the patient in the manner in which she requests.
4. Care coordination is done between the nurse and physician; outpatient and inpatient settings.
5. Care is integrated and transparent.
6. Patient safety and quality are important aspects of the care.
7. Patient empowerment is achieved.
8. Procedure is followed to ensure that the patient understands what the procedure will be and is monitored to ensure no infection (quality and safety).
9. Use of case manager and nursing together are examples of attempts to ensure clear communication and decrease errors.

Application of the concept of **Interdisciplinary Teamwork** is as follows:

Ms. F. from the previous case is assigned to the LVN, Nurse Wiley, who obtains information on her primary care physician and determines if she is on any medications. She also asks if Ms. F. is seeing any other physicians. Ms. F. states that Dr. Jones is her primary care physician who is treating her for hypertension. In addition she is going to an OB-GYN doctor who is treating her with hormonal therapy for irregular menstrual periods. Nurse Riley conveys this important information to the RN care coordinator, oncologist and surgeon. The LVN and RN ask what other medications Ms. F. is taking to ensure there are no medication interactions. This information is conveyed to a pharmacist and physician to ensure patient safety and to decrease the likelihood of errors. Nurse Wiley confers with the care coordinator regarding a conference call with the primary care physician, the OB-GYN, and the oncologist. The patient is given an opportunity to participate but she declines. They discuss the care and the patient's wishes for treatment. They discuss how best to manage the hypertension and what to do about the hormonal therapy. The LVN contributes to the integrated patient centered plan of care that is formed by the interdisciplinary team.

The key elements of this case are:

1. The RN will conduct a conference call to coordinate the care.
2. Patient is afforded the opportunity to participate in the call as a member of the team.
3. Information is given to the patient in the manner in which she requests.
4. The RN coordinates care, and the LVN assists the nurse and the physicians in both outpatient and inpatient settings. Implementing appropriate delegated nursing competencies.
5. Care is integrated and transparent.
6. Patient Safety and Quality are important aspects of the care.
7. Patient empowerment is achieved.
8. Sharing patient information among team members increases communication and promotes care coordination and decreases chances of errors.

Application of the concept of **Evidence Based Practice** is as follows:

Ms. F. is called by RN who suggests that she set up a conference call with the oncologist and the surgeon who specializes in breast cancer to make sure Ms F's decision for bilateral mastectomy is what she still wants. They also want to describe the follow up care that will be needed once the surgery is done. Ms. F. is agreeable. On the call the next day, Ms. F. is told about the new research to support minimal invasive surgery as well given further information

about the option of bilateral mastectomy due to her positive genetic/family history. She is told in lay terms what the current research states about each option and what is considered to be state of the science care (best practices) to promote quality care. She is encouraged to voice her opinions, ask questions and with their guidance make decisions about her care. The team tells her they support her decision for the bilateral mastectomy and go over the chemotherapy and follow up care that is needed. They also address her current hormonal therapy and what adjustments may be needed due to evidence to support safe use of some hormones with a history of breast cancer. Patient teaching is done to promote safe use of the hormones.

The key elements of this case are:

1. Availability of multiple experts.
2. Application of the latest research.
3. Explanation of best practices.
4. Clinical decision support.
5. Evidence to support clinical decision-making shared among team decreases chances of errors and complications (patient safety and quality).

Application of the concept of **Quality Improvement** is as follows:

Following the care coordination call with Ms. F., the care team awaited Ms. F.'s decision about her surgery and treatment. Ms. F. was relieved that she had been empowered to really ask questions, weigh options with the help of health professionals that were all communicating with each other to ensure high quality care. She never felt the team was trying to dissuade her from sticking to her decision about a bilateral mastectomy. She was assured that what the team offered her was scientifically based and considered the best treatment options, based on quality indicators. She also sensed that the team cared about advocating for the best quality possible for her immediate care and ultimately her life. They reassured her that they would keep her informed if new options came available throughout her treatment and afterwards debriefed on their collaborative work, identifying areas for further improvement.

The key elements of this case are:

1. The use of quality processes for ensuring high quality care.
2. The use of quality indicators.
3. Quality review.
4. The nurse is part of the quality improvement team and she acts as part of the quality monitoring. She will use data about Ms. F. and her treatment, follow up from the database to monitor outcomes and any adverse events.

**Application of the concept of Informatics is as follows:**

Ms. F.'s total history and treatment plan was kept as part of an accessible electronic medical record. The accessibility to this information allowed the interdisciplinary team to have total access at all times to her healthcare information. All team members could base their decisions on accurate and comprehensive information and awareness of all aspects of Ms. F.'s plan of care. Ms. F. was informed that she could have access to this information as well (Patient Centered Care). Ms. F. had surgery as planned. When her hospital discharge day came, she was given a written instruction sheet with phone numbers to call if she had any questions. Her follow up appointment was scheduled with the surgeon with a promise of an email reminder

two days before the scheduled visit. Again, she was provided information about her surgery, the early findings and when the biopsy results of surrounding tissue would be back. She was also told if she could not reach her surgeon that she could call any team member to ensure a prompt call back as they would all have access to all her health information.

The key elements in this case included:

1. The use of information systems and technology.
2. Electronic health records.
3. The nurse's role in safety is to check Ms. F.'s identification (ID) for surgery, ensure that she is marked for bilateral mastectomy; documented in the chart and on patient as part of quality improvement and monitoring. The nurse also checks the physician order entry system to ensure better identification of any "red flags" in treatment plan, medications, or interventions in order to prevent errors.

In summary, the case of Ms. F. supports the five IOM competencies: Patient Centered Care, Interdisciplinary Teamwork, Evidence Based Practice, Quality Improvement, and Informatics. Threaded throughout these competencies and this case is the ultimate goal of patient safety. The IOM suggests that by employing these five core competencies that there will be a reduction in errors by care coordination, communication among health care providers, and use of evidence to support care decisions versus traditional practices that may or may not be grounded in science. The emphasis of patient empowerment is also a key element in this case and in the IOM's drive towards patient safety and quality improvement. Use of an information system to manage knowledge assists in supporting patient safety and quality. Development of the IOM core competencies facilitates communication, empowers the patient, and leads to improved quality of care and care coordination and thus ultimately the best possible patient outcomes, given the circumstances of the patient's health status. The nurse's central role is surveillance and quality improvement monitoring to ensure patient safety.

## Appendix F

### Texas Licensed Vocational Nurse Curriculum Project Survey Results of Survey – Most Frequent Courses Used

The most commonly used courses reported in the survey are from the Workforce Education Course Manual (WECM), an inventory of workforce courses for Texas public institutions of higher education to use for lower-division certificates and Associate of Applied Science degrees. The courses are listed below with their WECM rubric, numbers, and titles. A brief summary of the content of each course as provided by the institutions is below the title and number of each course. Content that varies from the official course descriptions and learning outcomes has been enclosed in parenthesis. The official course descriptions and learning outcomes can be found at [http://www.theccb.state.tx.us/AAR/UndergraduateEd/WorkforceEd/wecm2000/search\\_pub/FindCourse.cfm?RequestTimeout=500](http://www.theccb.state.tx.us/AAR/UndergraduateEd/WorkforceEd/wecm2000/search_pub/FindCourse.cfm?RequestTimeout=500).

<b>WECM Course Rubric, Numbers, and Titles</b> Summary of content as provided by institutions
<b><i>VNSG 2331 Advanced Nursing Skills</i></b> Advanced level nursing skills and competencies in a variety of settings using nursing process.
<b><i>VNSG 1420 Anatomy and Physiology for Allied Health</i></b> Introduction to normal structure & function and body systems homeostasis.
<b><i>VNSG 1323 Basic Nursing Skills</i></b> Entry-level skills and competencies. Nursing process.
<b><i>VNSG 1360 Clinical-Licensed Vocational Nursing (LVN)</i></b> <i>Training I:</i> Application of specialized occupational theory, skills, & concepts. Direct supervision.
<b><i>VNSG 1361 Clinical-Licensed Vocational Nursing (LVN)</i></b> <i>Training II:</i> Application of specialized occupational theory, skills, & concepts. Direct supervision.
<b><i>VNSG 1362 Clinical-Licensed Vocational Nursing (LVN)</i></b> <i>Training III:</i> Application of specialized occupational theory, skills, & concepts. Direct supervision.
<b><i>VNSG 1460 Clinical-Licensed Vocational Nursing (LVN)</i></b> <i>Training IV:</i> Application of specialized occupational theory, skills, & concepts. Direct supervision.
<b><i>VNSG 1227 Essentials of Medication Administration</i></b> General principles, (computer exercises for math and medication calculation skills).
<b><i>VNSG 1119 Leadership &amp; Professional Development</i></b> Importance of professional growth. Role of LVN, professional organizations, and continuing education.
<b><i>VNSG 1330 Maternal-Neonatal Nursing</i></b> Assessment and management of childbearing family using nursing process. (Nutrition included.)
<b><i>VNSG 1429 Medical-Surgical Nursing I</i></b> Application of nursing process to adults with medical-surgical problems (including nutrition).
<b><i>VNSG 1432 Medical-Surgical Nursing II</i></b> Application of nursing process to adults with medical-surgical problems (including nutrition).

**WECM Course Rubric, Numbers, and Titles**

Summary of content as provided by institutions

***VNSG 1238 Mental Illness***

Study of human behavior, emphasis on emotional and mental abnormalities and treatment using nursing process.

***VNSG 1334 Pediatrics***

Childhood diseases and childcare infancy through adolescence. Well and ill child. (Nutrition.)

***VNSG 1231 Pharmacology***

Fundamentals of medications, nursing process used.

***VNSG 1222 Vocational Nursing Concepts***

Legal, ethical issues, physical emotional, psychosocial self-care of learner. (Nutrition, Therapeutic communication.)

## Appendix G

### Glossary

**Apprenticeship**—is used by Dr. Patricia Benner in the Carnegie Report to illustrate a complex, situated, embodied experiential learning that is needed by health professionals (Benner & Sutphen, 2007).

**Carnegie Report**—this report headed by Dr. Patricia Benner and funded by the Carnegie Foundation represents work like the Flexner and Goldmark reports in earlier times that transformed education. Dr. Benner focuses on nursing and its inability to bridge the gap between academia and practice or to meet the needs of graduates transitioning into the workplace. The term apprenticeship is used to suggest that there are three levels of apprenticeship or in-depth learning that must take place during nursing education. These are cognitive, skill or practice, and professional (socio-legal-ethical issues). These are integrated and not stepwise apprenticeships. The teaching is evidence-based and suggested and integrated, immersion form of teaching that supports extending faculty resources while promoting quality education.

**Differentiated Entry Level Competencies (DELIC)**—the expected educational outcomes to be demonstrated by nursing students at the time of graduation as published in *Differentiated Entry Level Competencies of Graduates of Texas Nursing Programs, Vocational (VN), Diploma/Associate Degree (Dip/ADN), Baccalaureate (BSN), September 2002*. (Texas Board of Nursing).

**Error**—according to the IOM report (1999) "*To Err is Human*" this is a failure of a planned action to be completed as intended; it can be the wrong plan to achieve a goal.

**Institute of Medicine (IOM)**—five core competencies aimed at increasing patient safety and providing quality care. These are patient-centered care, interdisciplinary teams, informatics, evidence-based practice, and quality improvement.

**Multiple Entry and Exit Programs (MEEP)**—Multiple Entry, Exit Program that offers mobility options for students. (Texas Board of Nursing).

**Oregon Consortium for Nursing Education (OCNE)**—a statewide effort to facilitate increasing the number of new nurses in the state of Oregon through a seamless articulation model.

**Quality Safety Education for Nurses—QSEN**—a project funded by Robert Wood Johnson Foundation (RWJF) spearheaded by Drs. Linda Cronenwett and Gwen Sherwood aimed at developing competencies in the areas of quality improvement and safety. This work is based on the Institute of Medicine (IOM) competencies and the emphasis on quality improvement and keeping patients safe.

**Residency**—According to the University HealthSystem Consortium and the American Association of Colleges of Nursing (AACN) (2008). A nurse residency program is one that is evidence based that eases the transition from school to practice. It consists of a clinical mentor

that guides the graduate through clinical experiences as well as didactic content that is aimed at increasing nurse satisfaction, retention of the new nurse in the workforce, and ultimately patient safety and high quality care. The programs are generally a year in length to promote a competent nurse.

**Safety**—According to the IOM "*To Err Is Human*" (1999) is freedom from accidental injury.