**Agenda Item: 7.7**
**Prepared by: JWJohnston/KBenton/MHester**
**Meeting Date: October 2013**

**Consideration of Request to begin an Alternative Discipline Pilot with Texas A & M Health Sciences Center Rural and Community Health Institute**

**Summary of Request:**

Consider implementing the Knowledge, Skills, Training Assessment and Research (KSTAR) pilot for nurses, as an alternative form of discipline with Texas A & M Health Sciences Center Rural and Community Health Institute (RCHI). Partnering with RCHI to evaluate the effectiveness of this type of evidence-based program may inform nursing regulation and future public policy in Texas.

**Historical Perspective:**

The Texas Board of Nursing (TBON) has authority under the Texas Occupations Code Sections 301.453(b) to require a nurse who violates the Nursing Practice Act (NPA) to complete a remedial program as a form of discipline. Additionally, the Board has authority under section 301.1605(a) to approve and adopt guidelines and rules regarding pilot programs for innovation in nurse regulation.

The Disciplinary Matrix adopted in Board Rule 213.33, discusses certain forms of discipline including those for violations related specifically to practice breakdowns. When practice breakdowns occur, a nurse's level of competency is questioned and the Board must attempt to ensure minimum competency. The sanctions that may be imposed usually include remedial education and monitoring under the supervision of another nurse for at least one year.

Nevertheless, The Board and Staff continue to explore regulatory options related to discipline that are consistent with Just Culture concepts and that rehabilitates or corrects the knowledge deficits that are seen when nursing practice breakdowns occur with less emphasis on being punitive. The Board's Deferred Discipline pilot and Corrective Action strategies are examples. Staff and RCHI, for the last few years, have engaged in discussions aimed at utilizing innovative alternatives to discipline that may remediate a nurse's practice and eliminate the on-going monitoring and supervisory requirement.

Texas A & M Health Sciences Center Rural and Community Health Institute (RCHI) has plans to develop a program called KSTAR for Nurses, which is a comprehensive program for nurses designed to perform a competency assessment and provide individualized remediation to ensure minimum nurse competency. KSTAR for Nurses is modeled after a similar program for physicians known by the same name. KSTAR for physicians is designed to assess a physician's knowledge base and level of expertise; and if deficits exist, develop an individualized education plan that includes a period of monitoring and follow-up. The Texas Medical Board and sixteen other State Boards of Medicine currently order physicians into KSTAR following practice violations. In addition, physicians who desire to re-enter practice after an extended period of time or who believe a practice deficit exists may also enter the KSTAR program. RCHI and Staff believe the application of the KSTAR program to nursing may also have similar success.

Partnering with RCHI creates an opportunity for the TBON to someday design a non-punitive alternative to discipline for nurses with practice related errors. A more individualized approach to education and demonstration of competency may enhance the TBON's ability to reassure the public that a nurse's practice can be remediated.

**Pilot Project Implementation:**

The KSTAR program for nurses would be approved as a two-year pilot. Because of the innovative nature of KSTAR, the pilot would be limited until more evidence based information concerning its ongoing feasibility and success are shown. It would be limited to the lower tier sanction of Warning or below. Those violations considered appropriate for sanction of revocation, reprimand or suspension would not be eligible for the pilot. Violations involving sexual misconduct, criminal conduct, intentional acts, falsification, deception, chemical dependency, or substance abuse would not be eligible for resolution through the KSTAR pilot. The program would include assessment and remediation for minimum competency in nursing ethics and jurisprudence.

Licensed vocational nurses (LVNs) and registered nurses (RNs) found to have engaged in a practice breakdown listed in the Board's Disciplinary Matrix that result in an issuance of a disciplinary action or a deferred disciplinary action at the level of a Warning, a Warning with Stipulations, a Warning with Stipulations and a Fine, a Warning with a Fine, Remedial Education, Remedial Education with a Fine, or a Fine would be eligible for an agreed order to participate in the KSTAR pilot for nurses. Participation in KSTAR would be voluntary and through an agreed order. For example, rather than the traditional Warning with Stipulations, the Agreed Order would be a Warning with the stipulation that the nurse successfully complete KSTAR for Nurses. Each nurse would be responsible for their own costs associated with participation including travel to the KSTAR facility. RCHI estimates the cost to be $2,750.00. This fee includes all the testing and teaching materials and resources and a report to the Board upon completion of the pilot. The report will inform the Board as to whether the nurse successfully completed the pilot project, thus verifying a minimum level of competency, or will make recommendations for further action by the Board.

Similar to the Texas Peer Assistance Program for Nurses (TPAPN), nurses who fail to complete the KSTAR for Nurses pilot will be reported back to the Board by RCHI for traditional or additional disciplinary action. The Board would maintain some level of ongoing oversight of the pilot in part by approving the agreed orders to KSTAR as they would all Warning with Stipulations. Like traditional Warning orders, the KSTAR agreed orders would be public orders, become a part of the nurse's permanent record and reported to the National Practitioner Data Bank (NPDB). Because of the nature of KSTAR's individualized assessment, education and demonstration of competency, the program may also provide an opportunity to reeducate those individuals seeking to reenter nursing practice after an extended absence from nursing practice. This reeducation may assure the Board a nurse has demonstrated minimum competency before relicensure.

In order to demonstrate successful remediation, RCHI with its academic affiliation to Texas A & M Health Sciences Center has designed a research study for the two-year pilot project and is seeking funding from the National Council of State Boards of Nursing (NCSBN) Center for Regulatory Excellence (CRE). A grant proposal was submitted on October 4, 2013 and if awarded, would begin early in 2014.

**Pros and Cons:**

**Pros:**

The KSTAR for nurses pilot is an innovation in nursing regulation and creates an opportunity for the Board to have input into the design and evaluation of an alternative discipline for nurses with practice-related errors. The remediation may prove less burdensome on the nurses than traditional disciplinary stipulations. The nurse may have better opportunity to reenter into practice with fewer employment

barriers, yet still provide evidence-based assurance to the public of their competency. A more individualized approach to education and demonstration of competency may enhance the Board's ability to reassure the public that a nurse's practice has been remediated. A KSTAR approach may lead to a more non-punitive approach to discipline and may increase the likelihood that a nurse who has been remediated remains in the workforce. A KSTAR for nurses pilot may assist individuals who choose to re-enter nursing practice after an extended absence of four or more years. The knowledge gained from this type of evidence-based program will inform nursing regulation and future public policy.

**Cons:**

The cost of the program or travel requirements may prohibit some nurses with disciplinary action from participating in the pilot. There may be a perceived or real unfairness between treating nurses with similar violations differently by not having the same opportunities equally available for nurses under a Board order.

**Staff Recommendation:**

Consistent with the Board's authority under the Texas Occupations Code (Nursing Practice Act) Sections 301.453(b) and 301.1605(a), move to approve a two-year pilot with Texas A & M Health Sciences Center Rural and Community Health Institute to offer the KSTAR program for nurses with practice violations that result in a disciplinary sanction of a warning and below. Staff will develop guidelines and rules as necessary to implement the pilot.

Texas A&M Health Science Center College of Medicine

# PHYSICIAN ASSESSMENT AND TRAINING

Today's doctors face more demands than ever — increased workloads, higher public and patient expectations, new technology requirements, explicit clinical standards, greater emphasis on training and more!

With these demands comes the potential for medical errors or poor performance. Poor physician performance or perception of poor performance can be devastating for the patient, family, health care provider and the physician.

KSTAR is a program designed to help physicians who want to re-enter practice, have a perceived practice issue or are under a medical board order. The program uses assessment paired with education and training to determine a physician's competence and ability to practice medicine. KSTAR reviews physician expertise to determine if problems are systematic or specific to a physician's individual performance or knowledge base. This assessment provides the physician with an opportunity to demonstrate competence while improving the safety and quality of medical care. As a result, KSTAR provides appropriate resolutions to benefit the doctor, the health care system and the patient.

Each assessment plan is tailored to individual provider needs. A unique aspect of the KSTAR program is the ability for continual monitoring after a physician completes the program. Retraining is also available through a physician peer review program.

**rchitexas.org/KSTAR • (979) 436-0390**

KStar Program

**Unique highlights:**

- Individually tailored assessment
- Medical records review
- Opportunity for "mini-residency"
- Ongoing monitoring
- Medical records documentation course

**KSTAR highlights:**

KSTAR is compatible with The Joint Commission (TJC) Focused Professional Practice Evaluation (FPPE) requirements and works collaboratively with the national Coalition for Physician Enhancement and state medical boards.

KSTAR PROGRAM

*Knowledge, Skills, Training, Assessment and Research.*

## PHYSICIAN ASSESSMENT AND TRAINING

KSTAR is a program designed to help physicians who want to re-enter practice, have a perceived practice issue or are under a medical board order. For more information about our program contact us at **rchitexas.org/KSTAR** or **(979)436-0390**.

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TEXAS A&M HEALTH SCIENCE CENTER

KSTAR Program
8441 State Highway 47
Clinical Building 1, Suite 3200
Bryan, Texas 77807-3260

**CRE Grant Proposal Application Form**
NCSBN Center for Regulatory Excellence

Send your completed application to:

NCSBN Center for Regulatory Excellence
111 E. Wacker Drive, Suite 2900
Chicago, IL 60601-4277
Attention: B. Radtke
or
Submit as an attached word document to CRE@ncsbn.org
Subject: CRE Grant Proposal

**PLEASE TYPE – USE ONLY THE SPACE PROVIDED BELOW**

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**Organization Type:** (Check one)

___ Non-profit ___ Public/Government ___ Individual _X_ Other, please describe State Un

**Organization Information:**
Legal Name according to the IRS (for U.S.) or IRS-equivalent (non-domestic):
Tax ID Number:

**Does the organization have 501(c)(3) status?**

___ Yes ___ No

**Organization's Scope of Work:** The Texas A&M Health Science Center (TAMHSC) within Texas A&M University is a premier assembly of colleges, centers, and institutes devoted to educating health professionals and researchers of extraordinary competence and integrity. The mission of the TAMHSC is to dedicate the full measure of its resources and abilities to advancing the knowledge and technologies of its professions and to bring Texans the finest in health education, promotion and care. Because of the work of its dedicated faculty, administrators and staff, people's lives are changed – across the state, around the nation and throughout the world.

The College of Nursing (CON) is the most recent addition to the Texas A&M Health Science Center family with campuses in College Station and Round Rock, Texas. The TAMHSC College of Nursing is fully accredited by American Association of Colleges of Nursing Commission on Collegiate Nursing Education (CCNE) and offers three tracks for a Bachelor of Science in Nursing (BSN) degrees with future plans to include both Master and Doctoral programs. The CON strives to contribute to the improvement of nursing education and practice through innovation, evaluation, and participation in local to global nursing education activities. The CON at Texas A&M Health Science Center offers a state-of-the-art simulation center with fully-equipped simulation rooms, fundamental skills rooms, and multiple clinical testing areas. Evaluations through the center can be performed using standardized patients (SP), Advanced Patient Simulators (APS) and Second Life Virtual Learning. The Texas A&M University System as a whole includes 11campuses in Texas with 8 campuses offering nursing curriculums.

In 2003, the Texas A&M Board of Regents gave the Texas A&M Health Science Center the authorization to create a powerful new resource to improve the quality and safety of the

healthcare in Texas. This resource is the Rural and Community Health Institute (RCHI). RCHI continues the over 85-year tradition of the Texas A&M System in offering extension services across our great state. As such, RCHI serves as a "health extension service" offering numerous services, education and training, research, and various other activities to foster improvement in healthcare delivery across Texas. RCHI provides these services through several programs including KSTAR Physician Assessment program, Rural Physician Peer Review (RPPR ®) program, Texas Safety Net, Nursing Quality and Safety Collaborative, and Healthcare Data Integration. RCHI is also designated as a Practice Based Research Network (PBRN) and a Patient Safety Organization (PSO). Since its inception, RCHI has grown into an organization which extends across the state of Texas with a present or past relationship in over 100 communities. RCHI programs provide services to health care facilities, providers, and nurses.

RCHI started the Nursing Quality and Safety Collaborative (NQSC) in 2010. The mission of the NQSC is to advance safe nursing practice through a multi-institutional collaborative that promotes patient safety and quality of care. The NQSC program offers a statewide quality improvement support structure to assist rural health systems and their nursing professionals in their patient safety and quality improvement initiatives. The program offers nurses education, support, and opportunities for case-based learning through nursing peer and quality reviews.

In 2007, RCHI developed the KSTAR Physician Assessment program to evaluate a medical provider's knowledge base and clinical skill competency. "KSTAR" is an acronym for "Knowledge," "Skills," "Training," "Assessment," and "Research." Although five other physician assessment programs operate in the U.S. and two in Canada, the KSTAR program remains unique and different from other assessment centers in two very important ways: (a)

optional training referred to as a "mini-residency" and (b) ongoing monitoring To date a total of 78 physician assessments have been conducted through the KSTAR Physician program. An analysis of data indicated that the program has a 93% success rate of returning physicians to practice. A summary of 72 practice evaluations and their respective outcomes resulted in nine (9) physicians returned to practice without restrictions, thirty-seven (37) returned to practice after completing a mini-residency, twelve (12) individuals returned to practice with restrictions, nine (9) were assessed with recommendations training stipulations prior to receiving full licensure and five (5) had recommendations to the Board that they no longer practice. The six individuals not included in this analysis were assessed after the study was complete. In all cases recommendations were sent to the respective medical board to make the final determination on licensure.

Currently, a comprehensive program to assess and re-educate nurses does not exist in the United States. We propose to adapt the physician assessment model to provide a comprehensive assessment for nurses that will be based on their own unique scope of practice. Our assessment will include a global assessment of their abilities resulting in an individualized re-education plan Assessment modalities include standardized testing, simulated patient experiences using standardized patients that incorporate psychomotor skills, simulated clinical scenarios, unfolding case studies, and clinical narrative analysis.

**How did you hear about the Center for Regulatory Excellence?** Professional discussion
**Previous Center for Regulatory Excellence Support:**
Has your organization received previous support from NCSBN?
____ Yes __X__ No
**If yes, please provide project number, if known.**_____

All funded research projects require IRB approval or exemption. Please indicate the date of Institutional Review Board (IRB) approval or if approval is pending, list "pending" with date of IRB submission.
**Date of IRB approval: ____5/21/2013**_____

**Project Overview:**

Historically, licensing boards have had two options related to healthcare provider competency concerns: probated licensure based on a Board Order or denial/revocation of licensure. The KSTAR Physician Assessment Program gives licensing boards a third option: multi-dimensional assessment and educational intervention as a means to retain licensure. Based on a desire to find evidence-based methodologies for assessing and enhancing nursing competencies, a collaborating consortium comprised of the Texas Board of Nursing (TBON), TAMHSC RCHI and the TAMHSC CON has been formed to explore best-practice methodologies related to nurse competency evaluation. The consortium proposes an innovative program designed for nurses facing possible disciplinary action from the TBON. The program provides an alternate approach to the adoption/restoration of safe practice through an educational intervention based on individual assessment results. After an initial comprehensive assessment to establish a baseline understanding of a nurse's knowledge-level, problem solving and clinical reasoning abilities and psychomotor skills, an individually-tailored education plan will be developed and implemented for the purpose of improving the safety and quality of an individual's practice. Following successful completion of the education plan, participants will be evaluated to ascertain any degree of change in demonstrated competency. Further validation of participants' nursing practice will be accomplished by continued monitoring for a period of one year following the completion of the program. Improving competency at an individual level has the potential to impact the individual's practice leading to improved quality of care and continued employment in nursing. By conserving the rich and potentially rare resource of the individual nurse through dedicated re-education efforts, a workforce facing projected severe shortages may also be strengthened (American Association of Colleges of Nursing [AACN], 2013).

## Problem Conceptualization

**Background:** Protecting the public from licensed practitioners engaging in unsafe and dangerous practice is a primary responsibility of the Texas Board of Nursing (Texas Board of Nursing [TBON], n. d.). "Our mission is to protect and promote the welfare of the people of Texas by ensuring that each person holding a license as a nurse in the State of Texas is competent to practice safely" (TBON, n.d). Regrettably, studies show a nationwide increase in the number and percentage of nurses demonstrating unsafe practice requiring sanctioning by boards of nursing (National Council of State Boards of Nursing [NCSBN], 2009) deeming them, in some aspect, incompetent licensed practitioners.

Historically, the approach used to deal with unsafe nurses has been to remove these nurses from practice while ordering some form of punishment and/or remediation prior to gaining eligibility to return to practice (Hudspeth, 2010). Until recently, many boards of nursing have avoided taking a "proactive" approach to public protection (George, 2009), relying instead on traditional "reactive" and punitive approaches based on "after the fact" reporting (Hudspeth, 2010). Recent attention has shifted the focus to establish an improved understanding of causes of nursing practice breakdown (Hudspeth, 2010). Nursing practice breakdown can be defined as the "disruption or absence of any aspect of good practice" (Benner, Malloch, & Sheets, 2010, p. 16; Hudspeth, 2010, p. 88); whereas, incompetence is defined as the "failure to perform at an expected level or not acting effectively" (Harding & Connolly, 2012, p. 49). The Taxonomy of Error Root Cause Analysis and Practice-responsibility (TERCAP) is a national nursing adverse event database designed to collect practice breakdown data from boards of nursing for use in identifying patterns of error, risk factors, and system issues (NCSBN, 2013). The TERCAP instrument provides identification of practice breakdown using eight categories: (a) Safe

medication administration; (b) Documentation; (c) Attentiveness-surveillance; (d) Clinical reasoning; (e) Prevention; (f) Intervention; (g) Interpretation of authorized providers orders; (h) Professional responsibility/Patient advocacy (NCSBN, 2013). Additionally, when evaluating practice breakdown it should be noted there is a difference between an individual's negligence and incompetent practice (Harding & Connolly, 2012). Uniform processes are needed to ascertain "human errors from willful negligence and intentional misconduct" (Page, 2004, p. 15). The TERCAP tool provides a framework to collect, analyze, and disseminate the factors that compromise and contribute to practice breakdown by accurately categorizing the behavior of nurses and others while shifting the focus from "shame and punishment to prevention, remediation, and correction" (Benner, Malloch, & Sheets, 2010, p. 2). There is no standardized or industry accepted tools to assess nursing competence or incompetence (Harding & Connolly, 2012); however, the TERCAP tool can aid in categorizing practice breakdowns as a first-step towards returning registered nurses to the expected levels of practice.

In 2004 when the State of North Carolina piloted the *Practitioner Remediation and Enhancement Partnership: Prep 4 Patient Safety (PREP)* program (2009). This program shifted the focus from "blame to understanding of cause" (George, 2009, p. 2). The pilot program found "if every minor violation or error that someone makes results with them leaving practice, we have not done a service for the public and we have not made practice any safer" (George, 2009, p. 2). As a profession, there is a need to look at "identifying, remediating, and monitoring people in a non-disciplinary action" (George, 2009, p. 2). Of the nurses reported to the PREP program over a four-year period, only two out of 200 nurses had a further complaint filed (George, 2009).

A second study in Texas examined the effects of remedial education on recidivism rates for nurses disciplined by the TBON. The results of this study suggested a positive correlation

between mandatory remedial education and a decrease in further reports of nursing practice violations to the TBON (Hester, Green, Thomas, & Benton, 2011). The study recommended preventing future practice violations by identifying factors leading to repetitive practice breakdowns and disciplinary actions (Hester et al., 2011). Hester et al. found further disciplinary issues could be prevented by teaching nurses to recognize behaviors leading to disciplinary action (Hester et al., 2011). The TBON is responsible for ensuring competency of licensed nurses (Hester et al., 2011; TBON, n.d.); and in 2010, the board received over 16,000 complaints against nurses (www.bon.texas.gov). Of these complaints, approximately 23-28% resulted in some type of disciplinary action (Thomas, 2012).

In 2009, NCSBN reported the results of a study analyzing characteristics of disciplined nurses and the influence of various environmental factors on remediation outcomes (NCSBN, 2009). Seven state boards of nursing provided data on 531 nurses who received probation for practice violations in 2001. Results revealed 26.6% of the nurses committed a new violation while on probation or after completing probation. Several factors were linked to undesirable remediation outcomes. Data revealed nurses with a prior legal history recidivated more often when compared to nurses without a legal history (56.4% vs. 32.9). Another factor affecting remediation outcomes involved changing employers during the probationary period. Nurses who changed employers during the probationary period had a higher rate of recidivism than nurses who remained with the same employer (41.5% vs. 14.5%). Having committed multiple violations was associated with objectionable remediation outcomes as well. Nurses who committed multiple violations were more likely to recidivate compared to those who committed a single violation (52.1% vs. 24.0%). Nurses younger than 40 years of age were more likely to

recidivate when compared to nurses who were older than 40 (36.7% vs. 22.3%). Lastly, there was a higher percentage of male nurses' recidivating over female nurses (36.5% vs. 24.7%).

Job growth for registered nurses in the U.S. is outpacing supply as it is estimated new nursing jobs accounts for one out of every five new jobs created in 2011 (AACN, 2012). In February of 2012 alone, an estimated 49,000 new nursing jobs were added (AACN, 2012). Nationwide, the U.S. has a registered nurse vacancy rate of 8.1% (AACN, 2012). In Texas, the vacancy rate is 11.1-23.8% (Texas Nurses Association [TNA], 2013). Due to projected changes in healthcare, the aging population, and aging nursing population, Texas is facing a potential nursing shortage of 71,000 by the year 2020 (TNA, 2013). The projected nursing shortage makes every nurse an invaluable resource.

Remediation offers "the potential of retaining nurses with improved knowledge, skills, and abilities while at the same time assuring the public that actions have been implemented to improve quality and safety" (Burhans, 2008, p. 1). Through a multi-dimensional assessment and a prescribed re-education plan, the primary goal of this innovative program is to return nurses demonstrating unsafe practice related to medication administration to the practice environment with increased competency and safe practice. Currently, there is limited evidence showing an association between board-mandated remediation and changes in practice deficiencies (Hester et al., 2011) creating a gap in the literature this research proposal seeks to impact. Further research is needed to support the use of an educational intervention consisting of multi-dimensional assessments and individualized re-education plans for clinical deficiencies for nurses reported to the TBON for practice violations and possible disciplinary action.

**Literature Review:** Medication errors are a leading cause of preventable adverse events in patients (Brady, Malone, & Fleming, 2009; Hinton, et al., 2012; IOM, 2006). Up to 78% of serious errors within the hospital setting are attributable to medication errors and 11% of those are potentially life threatening (Rothchild et al., 2005). The consequences of medication errors

are far reaching and include prolonged hospitalization, disability, increased healthcare costs, decrease quality of life, and death (Popescu, Currey, & Botti, 2011; Sherriff, Wallis, & Burston, 2011; Sulosaari, Suhonen, & Leino-Kilpi, 2010). The Institute of Medicine (2006), reports hospitalized patients are at risk of at least one medication error per day. The magnitude of medications errors is impossible to ascertain due to the number of errors that go unreported secondary to fear of retribution (Sheu, Wei, Chen, Yu, & Tang, 2008). Medication errors arise from a variety of sources including, but not limited to, errors in prescription, dispensing, labeling, communication, and administration (Choo, Hutchinson, & Bucknall, 2010). Despite measures to reduce the risk of medication errors, errors in medication administration continue to rank in the top three preventable adverse events in patient care (Ford et al., 2010). The National Coordinating Council for Medication Error Reporting and Prevention (2013) define of medication error as:

> "Any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use." p. 4.

This definition is also endorsed by the National Council of State Boards of Nursing (NCSBN).

Regardless of the source of the error, nurses play a key role in identification and mitigation of medication errors (Flynn, Liang, Dickson, Xie, & Shu, 2012; Hemingway, Baxter, Smith, Burgess-Dawson, & Dewhirst, 2011; Hester, 2010; McMullan, Jones, & Lea; 2010). Medication administration competence is complex. Communication, critical thinking, decision-making, knowledge in pharmacology, mathematics, and patient assessment are just a few of the skills needed to ensure patient safety (Sulosaari, Shuonen, Leino-Kilpi, 2010; Sulosaari, Kajander, Hupli, Huupponen, & Leino-Kilpi, 2012). Research conducted on a nurses' ability to perform drug calculations consistently demonstrates unacceptable results (Blais & Bath, 1992; La Pointe & Jollis, 2003; Jukes & Gilchrist, 2006,& Oldridge et al., 2004). While calculation testing is easily measurable, measuring competency in areas such as critical reasoning is not as simple.

Each year thousands of nurses are referred to their states boards of nursing for practice errors leading to disciplinary action; however, literature on the effectiveness of the prescribed disciplinary actions is limited (Clevette, Erbin-Roesemann, & Kelly, 2007; Hester, Green, Thomas, & Benton, 2011; Hudspeth, 2007; National Council of State Boards of Nursing [NCSBN], 2009a). Data suggests nurses who undergo remedial education after their second disciplinary action improve their practice as evidenced by reduced recidivism (Hester et al. 2011). Reduction in recidivism is important, but it does not validate competency of the nurse.

The National Council of State Boards of Nursing Practice Breakdown Advisory Panel (PBAP) studied nursing practice breakdown, developed common themes, and recommended strategies to correct unsafe conditions and practices (Benner et al. 2006). The goal is to adjust the "focus from blame and punishment to prevention, remediation, and correction" (Benner et al., 2006, p. 2). This change in focus represents a paradigm shift from the nurse to "prevention and implications for the healthcare system" (Benner et al., 2010, p. 2). The goal of PBAP effort is "to ensure that the health care teams deliver high-quality and safe patient care" (Benner et al., 2010, p. 1). Gonczi's (as cited in Fahy, 2011) describes competence as the ability to draw on

knowledge, skills, and abilities including professional judgment, attitude and values within the context of a particular situation.

The mission of the BON is to protect and promote the welfare of the people of Texas by ensuring each person holding a license as a nurse in the State of Texas is competent to practice safely" (n.d., para. 1). However, the IOM report *Crossing the Quality Chasm* (IOM, 2001) noted the following:

> Current licensure and scope-of-practice laws offer no assurance of continuing competency. In a field with a continually expanding knowledge base, there is no mechanism for ensuring practitioners remain up to date with current best practices. Responsibility for assessing competence is dispersed among multiple authorities. For example, a licensing board may question competence only if it receives a complaint, but does not routinely assess competency after initial licensure. A health care organization may assess competence when an individual applies for privileges or employment...There are no consistent methods for ensuring the continued competence of health professionals within current state licensing functions or other processes. (p. 217)

The report notes some research has recommended "licensure based on a professional's demonstrated ability to perform certain functions or on a certain level of practice" similar to professional pilots who are "recertified at regular intervals throughout their flying career" (IOM, 2001, p. 217).

TBON approved updated competency standards in the *Differential Essential Competencies* (DEC) in 2010 (Poster, Deges, Curl, & Sportsman, 2011). The DEC includes the addition of eleven essential competencies to the previous fourteen 2002 Differential Entry Level Competencies (DELC); used to guide the educational progress of nursing students and a guide of expected competencies as a nurse (Poster et al., 2010). Once a nurse is licensed, there is no continued evaluation of competency other than adhering to the requirement by the TBON for 20 hours of continuing education every two years (BON, 2011). While individual boards, nurses, and employers of nurses have an obligation to ensure continued competency of licensed nurses, there is no mechanism for periodic reassessment to determine competency of nurses to practice (Decker, Utterback, Thomas, Mitchell, & Sportsman, 2011). Requests for modification to the current system of competency assessment are influenced by the complex health care environment, changes in technology, greater potential for harm, societal demands, and patient safety.

Bruner (2006) describes critical elements of cognitive constructivism used to develop the educational intervention pertinent to this study as: (a) an individualized student-centered approach to testing and teaching, (b) teaching general principles through specifics using case studies, (c) active learning using case-based authentic simulations providing an environment conducive for situated cognition, and (d) intellectual mastery serving as a motivator for future learning. The educational intervention relies of the following assessment strategies and instructional methods to best support the theoretical framework of cognitive constructivism: (a) cause mapping, (b) standardized testing, (c) clinical narrative analysis, (d) unfolding case study, (e) simulation, and (f) individual remediation plans.

**Standardized Testing**

According to the NCSBN (2011), the NCLEX-RN ® exam is a measure of "the competencies needed to perform safely and effectively, as a newly licensed, entry-level nurse" (para. 1). The NCLEX-RN ® exam offers all boards of nursing a "defensible method of

assessing a candidate's competence" (O'Neill, Marks, & Reynolds, 2005, p 147). O'Neill et al. (2005) noted the passing standard is designed to be "high enough to protect the public by being a barrier to incompetent nurses, yet also be low enough that competent nurses are not denied a license" (p. 147). Standardized tests, such as the Advanced Technologies Institute's (ATI) comprehensive assessment test, can be used to assess if a nurse meets the minimal competencies needed to practice safely and effectively. Alameida et al. (2011) found "a significant relationship exists between the ATI predictive probability and first-time pass success" on the NCLEX-RN ® exam, and "no significant association was found between any of the demographic variables examined and first-time pass success" (p. 266).

**Simulation**

Simulation has been identified as a feasible avenue for assessing continued competency and documenting data in a reproducible manner (Beyea, 2004; Ziv, Wolpe, Small, & Glick, 2003). Simulation formats (which include standardized patients, anatomical models, advanced and human patient simulators, and virtual reality) have been discussed by the Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Medical Specialties (ABMS). According to these agencies, simulation is a viable and desirable option for determining competency. These agencies identified content validity and reliability when the simulation experience is designed by experts using real patient scenarios and evaluated by experts in the discipline who have been trained to use predefined scoring criteria (ACGME & ABMS; 2000). Simulation is defined as an artificially created situation designed to resemble an actual event and requiring the individual to make critical decisions (IOM, 2001; Rauen, 2001). Gaba (2004), a recognized authority in simulation, described simulation as an educational strategy to be used to support learning and evaluation in the context where elements of the real-world are appropriately integrated to achieve specific goals. The National Council of State Boards of Nursing (NCSBN) (2005) embraced the definition posed by Jeffries (2005a) that recognized simulation as an educational process where learning experiences are simulated to imitate the working environment and require the learner to demonstrate procedural techniques, decision-making, and critical thinking. The definition of simulation to be used in this project synthesizes the above definitions to state: Simulation as an educational strategy includes a case scenario experience designed to promote, improve, and validate psychomotor skills and critical and reflective thinking required to provide safe and competent patient care (Decker et al., 2011). The study will utilize both summative and formative assessments. Summative assessments are high stake assessments through which students are usually provided a pass or fail result (Puddy et al., 2008). Formative assessments provide students ongoing feedback and the opportunity to demonstrate improvement through repetitive evaluations (Puddy et al., 2008). The challenges and benefits for using simulation in competency validation were identified by Boulet and Swanson (2004). These challenges include: 1) the cost and time commitments of the endeavor, 2) the development of scoring methods, 3) the appropriate selection of simulated experiences, 4) the fact that simulation is unable to completely capture reality, and 5) the need to validate if proficiencies demonstrated in the simulated environment are in fact present in the patient care setting. The benefits of integrating simulation were identified as: 1) simulators can be programmed to respond in a consistent, physiologically and appropriate manner, 2) communication skills and team work can be evaluated, 3) the practitioner's critical reasoning in managing a patient can be critiqued, and 4) the practitioner can be videotaped allowing multiple evaluators to analyze the degree of proficiency demonstrated.

**Remediation**

Remediation is the act of remedying a problem or correcting a deficiency (Maize et al, 2010, p. 1). Maize et al. found "the most successful remediation programs are the ones that are tailored to the individual student" (2010, p. 9). Although limited information is available on the effectiveness of remediation, the study by Hester et al. suggested "mandated remediation may be effective in preventing nurses from returning to the BON for practice-related violations" (2011, p. 55). (NCSBN, 2009)

## Purpose of the Study

The purpose of the proposed study is to explore the effectiveness of an educational intervention plan by measuring learning outcomes of nurses referred for unsafe practice pre-test assessment measures, as a baseline, to determine if previously assessed gaps in knowledge are significantly modified, as determined by changes in post-test assessment measures. By developing an effective means for individualized assessment and remediation, nurses in Texas may benefit from having a viable alternative to traditional disciplinary action. The study seeks to determine if the proposed educational intervention approach is more effective in preparing nurses referred to the TBON for disciplinary action than the traditional board-sanctioned disciplinary action approach. The study generates two aims:

Aim 1: To investigate the relevance and usefulness of an individualized assessment and educational intervention for nurses reported to the board of nursing for medication errors.

Aim 2: To determine if nurses participating in the educational intervention demonstrate a change in knowledge that translates into fewer medication errors in the future as evidenced by decreased recidivism.

## Methodology

This quantitative study is an exploratory project encompassing two distinct phases. The first phase employs a one-group pretest-postest design (Shaidis, Cook, & Campbell, 2002). This phase of the research seeks to assess the question, "Is there a difference between pre-test and

post-test assessment scores of nurses using the *proposed educational intervention* approach determined by the Texas Board of Nursing Disciplinary Matrix?" The second research phase employs a static-group comparison design. This phase considers the question of, "Is there a difference between the 12- and 24-month recidivism rates, employment reentry rates, and number of employer complaints for participants using the *proposed educational intervention* approach as compared to nurses using the *traditional disciplinary action* approach determined by the Texas Board of Nursing Disciplinary Matrix?" The posited questions are articulated through the following hypotheses:

**$H_1$:** Nurses undergoing the proposed educational intervention will show significant improvement in mean CMS ATI scores.

**$H_2$:** Nurses using the proposed educational intervention approach will exhibit higher employer reentry rates compared to nurses using the traditional disciplinary action approach determined by the Texas Board of Nursing Disciplinary Matrix in the 12- and 24-month post-intervention assessment periods.

**$H_3$:** Nurses using the proposed educational intervention approach will demonstrate fewer employer complaints compared to nurses using the traditional disciplinary action approach determined by the Texas Board of Nursing Disciplinary Matrix in the 12- and 24-month post-intervention assessment periods.

**$H_4$:** Nurses using the proposed educational intervention approach will achieve lower recidivism rates compared to nurses using the traditional disciplinary action approach determined by the Texas Board of Nursing Disciplinary Matrix in the 12- and 24-month post-intervention assessment periods.

**Setting and Sample:** This proposed study will be conducted in the Texas A&M Health Science Center, Clinical Learning Resource Centers (simulation centers) located in Bryan, Texas and Round Rock, Texas. Both centers utilize high-fidelity simulation and simulation using standardized patients as teaching and assessment modalities supporting undergraduate nursing curricula. The environment of these clinical simulation centers is composed of multiple authentic healthcare settings. Both locations support data collection using video/audio evaluation of student performance in real time as well as capabilities to record evaluative simulations. Both locations support computer-based testing with proctored testing centers.

An a priori power analysis was conducted and determined that a minimum of 128 participants will be needed to address the first study hypothesis examining pre-post comparisons of CMS ATI scores using an alpha error rate of 0.05, power of 0.80, and $d = 0.25$ (Faul, Erdfelder, Buchner, & Lang, 2009). For hypotheses two, three and four comparing employment reentry rates, employer complaints, and recidivism rates across groups, power analysis indicated a minimum of 122 participants with an alpha error rate of 0.05, power of 0.8, and $w$ of 0.30. To account for possible attrition, researchers will increase the goal of recruiting by 10% from the highest minimum sample of 128 to 141 ($N = 141$).

**Study Population:** The population studied in this research effort include: (a) registered nurses (RN) and (b) licensed vocational nurses (LVN) licensed to practice in Texas. Participants will be limited to nurses with one of the following Board ordered sanctions: (a) remedial education, (b) remedial education with fine, and (c) warning with remedial education. The study excludes nurses disciplined for substance abuse or criminal violations regardless of a resulting medication error. The TBON will identify nurses eligible for the study and will actively recruit participants into the study who would otherwise be eligible for disciplinary action related to medication

administration errors. Participation in the study will be voluntary and TBON staff will inform a potential participant of all aspects of the study. A signed consent form and a letter of agreement, which signifies a participant agreement to abide by study requirements, will be mandatory.

**Protection of Human Subjects:** Institutional review board (IRB) approval will be obtained from all research participants. IRB approval for this research proposal was granted on May 21, 2013 from the Texas A & M Health Science Center. The principal investigator or designee will obtain an informed consent from all nurse participants with an understanding the participant has the right to withdraw at any time. This convenience sample ($N = 141$) will be obtained by referrals from the TBON and is comprised of RNs and LVNs meeting the above qualifications. Risks to the participants include the possibility of experiencing anxiety, feelings of inadequacy, personal distress, self-doubt, isolation, and insecurity related to the proposed educational intervention (Cleave-Hogg & Morgan, 2002). Anonymity during the study will not be possible primarily because of reporting requirements to the TBON during at the conclusion of each participant's participation as evidence for completion of board orders. Measures will be implemented to ensure confidentiality when possible. During reporting of all research data, each participant will be assigned a unique random number to be used as an identifier to provide confidentiality. Testing materials, videotapes, anecdotal notes, evaluation documents, and demographic forms will be kept locked in a file cabinet in the researcher's office. Only the researchers will have access to the project materials which will be destroyed after all analysis are complete.

**Withdrawal from the study:** If a participant chooses to end their participation in the study or RCHI or the TBON determine a participant is not abiding by the study requirements, participation in the study will be terminated. The TBON will be notified in writing if a participant voluntarily or involuntarily terminates their participation in the study. Traditional

disciplinary action will result. The principal investigator of the study will provide the TBON with periodic and detailed updates about the study. Upon completion of the study, RCHI will provide a written report and a verbal presentation about the study's findings and any recommendations for future public policy.

**Data Collection:** After signed informed consent, demographic data will be collected on each participant. Study data includes pre-intervention/post-intervention standardized test results for the proposed intervention group and 12- and 24-month employment reentry, employer complaints, and recidivism data for all study participants. In addition, participants in the educational intervention study arm will also have data collected from: (a) evaluative simulations; (b) cause mapping; (c) clinical narrative analysis, (d) didactic learning, and (e) unfolding case studies results as part of the multi-dimensional assessment and educational intervention.

**Group Assignment:** Nurses with Board Orders will be provided information about Study Arm 1 and Study Arm 2 by representatives of the TBON to determine if participation is desired. After agreeing to participate in the study, participants will self-select to either arm. Study Arm 1 will continue with the standard remediation stipulated in the TBON order. After pre-intervention standardized testing, cohorts in Arm 2 will participate in the individualized assessment and prescribed educational intervention as determined by the multi-dimensional assessment.

**Pre-intervention Testing:** Participants in Study Arm 2 will complete pre-intervention testing using the ATI® Pharmacology Assessment A – Proctored examination. ATI® will supply each participant with a content-specific text as a resource for study and test preparation.

**Study Arm 1 -** Participants randomly selected for Study Arm 1 will proceed through the Board Ordered Remediation plan. When the NPA, the Board's Rule 22 Texas Administrative Code (TAC) §217.11 (1) (C), or when the standards for medication administration are not met, a

medication administration remedial education course becomes a stipulated requirement of a Board Order. Typically, the didactic component of the medication administration course is 6 hours in length and the clinical component is 24 hours; however, depending on the type of medication administration error committed and the nurse's knowledge deficit, the number of didactic hours may be 64 with a clinical component of 48 hours, and the applicable didactic and clinical requirements are specified in the Board Order. The Board's website contains information about the medication administration courses that are approved to meet TBON stipulations.

The participant is responsible for selecting a medication administration course and contacting the private vendor to make arrangements to complete the course. The medication administration course must be completed by the participant within the first year of the Board Order. Once the participant has successfully completed the course, a certificate of completion must be submitted to a Board monitor. A monitor is a Board staff member that has been assigned to each participant and will oversee compliance with the stipulated requirements of the Board Order. After receiving the certificate of completion, the monitor will credit or note the stipulated requirement has been completed. If the medication administration course is not completed within the first year of the Board Order, a reminder letter is mailed to the participant. If the course is still not completed, a new investigation will occur that may result in another disciplinary action and participation in the study may terminate. When the participant completes the entire Board Order, the disciplinary action will be cleared from the Board's website and the participant's license will be unencumbered. The TBON will notify the National Council of State Boards of Nursing (NCSBN) of the participant's unencumbered licensure status. For purposes of the study, participants will complete ATI® Pharmacology Assessment B – Proctored

examination *after* completing the entire Board Order and *before* the disciplinary action is cleared from the Board's website and the participant's license is made unencumbered.

**Study Arm 2** - Participants randomly selected for Study Arm 2 will proceed through the TAMHSC assessment and educational intervention program. After exam completion, ATI® program provides feedback on specific content areas requiring remediation. These results will be one part of the multi-dimensional pre-intervention assessment from which an educational intervention plan will be developed using a cognitive constructivistic theoretical framework. The multi-dimensional assessment will include (a) a cause mapping exercise to explore system and practice breakdowns leading to the event(s) reported (b) a clinical narrative analysis exercise to evaluate the participant's clinical judgment and problem-solving abilities, as well as, the participant on the novice-to-expert continuum and (c) an evaluative patient care simulation.

The pre-testing and assessment results will be reviewed and analyzed by a Clinical Mentor and an individualized education intervention plan will be developed. The clinical mentors originate from CON faculty competent to teach and evaluate in simulation. The participant will be given one-on-one reiteration of the assessment data and pre-testing results along with a detailed explanation of the prescribed education intervention plan.

The TBON requires the didactic component of Medication Administration courses developed to meet Board ordered stipulations to include specific objectives and content areas. The individualized education plans created by a Clinical Mentors in Study Arm 2 will to meet or exceed the minimum content requirements of the TBON medication administration remedial education plan used in Study Arm 1 for RN and LVN participants. The learning resources for the didactic portion include: (a) online ATI® content-specific Pharmacology textbook (b) ATI® learning modules for medication calculation, (c) online practice pharmacy assessments, and (d)

dosage calculation assessments for adult med-surgical, children, maternal-newborn, mental health, and critical care, as appropriate. The analysis of unfolding case studies related to the general practice of medication administration by demonstrating the use of problem-solving and clinical reasoning in a dynamic and changing clinical situation.

Participants in Study Arm 2 will complete eight hours in the TAMHSC Clinical Learning Resource Center (simulation center) practicing psychomotor skills and enacting case study scenarios encompassing medication administration in a formative simulation milieu designed to promote problem-solving, clinical reasoning, and psychomotor skills in partnership with a Clinical Mentor. The scenarios used for the formative simulations will require the participant to use clinical reasoning and clinical skills to work through a patient care situation involving medication administration. A case study-based scenario will require the participant to demonstrate cognitive and psychomotor skills including: (a) correct dosage calculation, (b) knowledge of potential side effects, (c) specific assessments needed prior to administration, (d) demonstration of the 7 Rights of Medication Administration, (e) the ability to communicate with the patient and other professionals, and (f) identifying and rectifying a pre-programed situation embedded in the case study capable of leading to a medication error. The participants' clinical performance in simulation will be evaluated using the *Clinical Simulation Grading Rubric* (Clark, 2006). The rubric is based on Bloom's cognitive domain categories: knowledge, comprehension, application, analysis, and synthesis and incorporates Benner's level of nursing experience: novice, advanced beginner, competent, proficient, and expert. According to Kardong-Edgren, Adamson, and Fitzgerald (2010), this tool can be modified to fit any scenario. Although none exist for this rubric, "inter-rater reliability is easy to establish with this tool." (Kardong-Edgren, Adamson, & Fitzgerald, 2010, p. e27). Appropriate to note, there are few, if

any, developed simulation rubrics with reported reliability and validity (2010) available for use in this study. Each simulation will include a guided-reflection debriefing session to aid in self-identification of strengths and weaknesses. The participants' time spent learning in simulation reflects a 1:3 ratio between simulation hours and clinical hours and approximates the minimal number of clinical hours completed by participants in Study Arm 1. After completing the clinical hours in simulation, participants will take the post-test using ATI® Pharmacology Assessment B – Proctored examination.

**Post-intervention Testing:** Following completion of the intervention, the participant in Study Arm 2 will undergo post-intervention testing using the ATI® Pharmacology Assessment B – Proctored examination. The results of the pre-intervention and post-intervention test score will be analyze to determine if changes in knowledge, problem-solving, and clinical reasoning exist.

**Post Study Follow-up:** Participants in both arms will be followed in periodic increments to assess overall job performance including employer generated complaints or acts of recidivism. A performance assessment will be conducted one year following the conclusion of the educational intervention (Study Arm 1 or Study Arm 2). Post-intervention assessments will include the nurse's perception of his or her overall job performance with specific emphasis on medication administration and any occurrence of further medication errors. When further medication errors are reported, the following data will be collected: number, type, nature, and outcome of further errors, presence of remediation and/or discipline by employing facility, and further TBON reports. In addition, participants will undergo an interview to examine their perspectives surrounding the effectiveness of the re-education efforts in Study Arm 2 in preventing further practice breakdown, particularly medication errors. The interviews will be conducted six months following post-test assessment. Employment reentry rates, employer complaints, and recidivism

rates for participants in each arm of the study will be tracked for two years (at 12 and 24 months) following the conclusion of educational intervention.

**Instruments and Materials:** ATI® Nursing Education provides proctored online examinations for content specific areas designed to test nursing students during and at the conclusion of a nursing curriculum. The Content Mastery Series (CMS) of ATI® Nursing Education is designed to provide assessment data regarding a student's mastery of concepts within specific nursing content areas and a formative indication of developing NCLEX® readiness in these content areas. The fundamental question the CMS attempts to answer is, "How much proficiency has the student attained in this content area?" Separate ATI assessments are available for Registered Nurses and Licensed Vocational Nurses.

According to the NCSBN (2011), the NCLEX-RN ® exam is a measure of "the competencies needed to perform safely and effectively, as a newly licensed, entry-level nurse" (para. 1). The NCLEX-RN ® exam offers all boards of nursing a "defensible method of assessing a candidate's competence" (O'Neill, Marks, & Reynolds, 2005, p. 147). O'Neill et al. (2005) noted the passing standard is designed to be "high enough to protect the public by being a barrier to incompetent nurses, yet also be low enough that competent nurses are not denied a license" (p. 147). Standardized tests, such as the Advanced Technologies Institute's (ATI) comprehensive assessment test, can be used to assess if a nurse meets the minimal competencies needed to practice safely and effectively. Alameida, Prive, Davis, Landry, and Renwanz-Boyle (2011) found "a significant relationship exists between the ATI predictive probability and first-time pass success" on the NCLEX-RN ® exam, and "no significant association was found between any of the demographic variables examined and first-time pass success" (p. 266). Alameida et al. found the ATI® Comprehensive Predictor was (CI 1.03-1.05, $p < 0.000$)

positively and significantly predictive of performance on the NCLEX-RN® and first time pass-success. For first time pass success, the mean predictive probably score was 80.47 (*SD* = 22.75). Aligning with a previous study by Jacobs and Koehn (2006), this study also found the ATI® RN Comprehensive Predictor was a useful tool in identifying nurses as risk of poor performance on the NCLEX-RN® with a means predictive probably score of 36.25 (*SD* = 28.26) for pass-failure (Alameida, et al., 2011).

ATI® Nursing Education testing was chosen for the study because of the available data on predictive performance on the NCLEX-RN.® However, it is understood the ATI® Content Mastery exam for pharmacology used to measure pharmacology knowledge of practicing nurses was designed to measure pharmacology knowledge of nursing students. Based on the assumption that entry-level competency is a minimal measure of knowledge and safe performance expected of entry-level graduate nurses, the researchers will use this instrument to measure pharmacology knowledge of practicing nurses as an acceptable level of competency. This standardized examination is both norm-referenced and criterion-referenced, albeit, the data reflects nursing students' results and entry-level mastery. In addition, ATI supplies each participant with a content-specific textbook as a resource for study and test preparation.

**Method of Data Analysis:** Data will be entered and analyzed using IBM SPSS v. 22. The alpha level for all statistical tests is set at .05 (two-tailed). In educational research, an *alpha level* of .05 is generally considered sufficient to reject the null hypothesis and provides an acceptable trade-off between the probability of committing Type 1 (false positive) and Type 2 (false negative) errors (Gall, Gall, & Borg, 2010). The first study will be addressed using a repeated-measures t-test to compare potential mean differences on pre- and post-test scores from the ATI® Pharmacology Assessment A – Proctored. To examine the suitability of these data in meeting the

statistical assumptions for statistical testing, normality of data and homogeneity of variance will be assessed.

Hypotheses two, three, and four aim to compare the 12- and 24 month employment reentry rate, employer complaints, and recidivism rates of participants across both study conditions following the intervention period. Three individual likelihood ratio tests will be conducted to assess whether nurses across each study arm (a) experience higher or lower employment reentry rates; (b) have more or less employer complaints; and (c) experience increased or decreased recidivism rates following the interventions. The expected frequencies of occurrences for each of the dependent variables will be initially examined within the control group to establish a baseline model for comparisons across study arm two. The independence of participants within the outlined comparisons, and the appropriate allocation of expected frequencies across categories will be examined to meet the test assumptions associated with the planned likelihood ratio tests.

Descriptive statistics will be used to describe the characteristics of the study's population including: gender, age, ethnicity, number of years since initial licensure as a RN or LVN, number of years working on current nursing unit, type of basic nursing education, current educational level, domestic or foreign graduate, and certification. Data will also be collected to examine the frequency of TERCAP practice breakdown categories across participants in each study arm at the initial, 12-month post intervention, and 24-month post intervention periods.

**Design Limitations:** The primary limitation of the one-group pretest-posttest design is the potential threat to the internal validity of the experiment with the absence of a control group. The static-group comparison design has two primary limitation including non-random assignment,

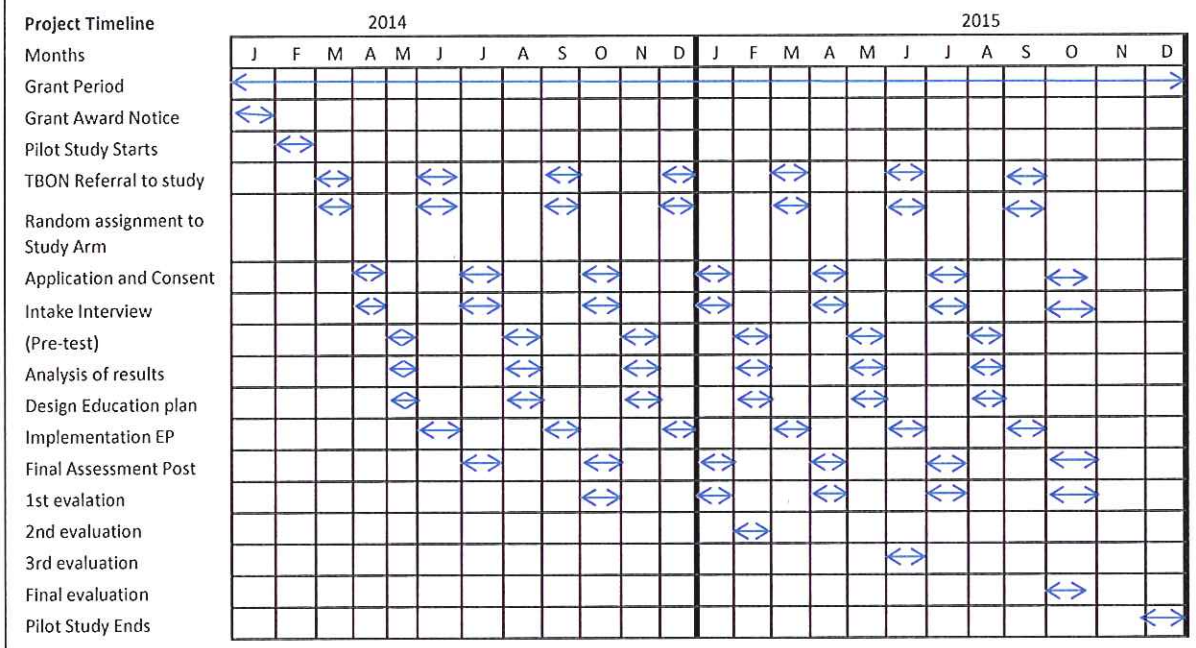
and the inability to account potential pre-existing differences when making post-test comparisons.

## Project Timetable:

Start Date: January 2, 2014

End Date: December 31, 2015

### Project Timeline



| **Collaborating Organizations:** Other organizations you are working with on the project and the role of each: |
|---|

| Organization Name | Role |
|---|---|
| 1. TAMHSC Rural and Community Health Institute | Principal Investigator, project management |
| 2. TAMHSC College of Nursing | Co-Investigator, clinical direction and oversight, evaluation |
| 3. The Texas Board of Nursing | Investigator, conduct arm 1 of the study |
| 4. | |
| 5. | |

| **Amount of Funding Request (USD):** $ 300,000 |
|---|

**Other Funding Sources:**

| Organization Name | Type of Support | Amount |
|---|---|---|
| 1. The Texas Board of Nursing | Collaborator – Dr. Melinda Hester (CV included) will oversee study Arm 1, traditional Board intervention | $15,000 (in-kind) |
| 2. Texas A&M Rural & Community Health Institute | Materials fee. Individuals in study Arm 1 can expect to pay from $550 to approximately $2K for their remediation. To be equitable in terms of cost, a fee of $550 will be charged to the individuals in study Arm 2. This fee ($27,500) will cover the $20K ($10K/year) necessary to cover all Arm 2 testing materials. The additional $7,5—will be utilized for clinical mentoring faculty. | $27,500 |

## BUDGET JUSTIFICATION

**Kathleen Mechler, MS, RN, CPHQ** - FTE 12% time grant funded. Ms. Mechler has been very successful with the completion of numerous grants and turning grants into sustainable programs. As the PI Ms. Mechler will be instrumental in guiding the team to ensure the successful completion of this grant effort and the ongoing sustainability of our research efforts when the grant is complete. To date Ms. Mechler has been involved in, as the PI or Key Staff, research and externally funded projects totaling over $10 million in the 10 years the Institute has been operational. Additionally she manages the Institute's fee for service contracts that are estimated at approximately a half a million dollars annually. Ms. Mechler was one of the two architects of the KSTAR Physician Assessment and Retraining program as well as the Institute's Physician Peer Review program. Additionally, she was one of the key developers of the Institute's Nursing Quality and Safety Collaborative which provides nursing peer review services to 17 rural Texas hospitals. This background and lessons learned will be very valuable to implementing and the success of this study.

**Virginia Ann Utterback, PhD, RN, MSN, MS, CNE** - FTE 25% time grant funded. As a Co-PI Dr. Utterback will utilize her expertise and skills in curricula design and implementation along with her research in innovative learning in the classroom and clinical settings to guide the educational and evaluation components of this study. Dr. Utterback's work in teaching and instructional design has been recognized by awarding her with numerous awards including the 2012 NOVA Southwestern Outstanding Instructional Design Award and the 2012 Presidential Award for Excellence in Education and Mentoring by the Texas A&M Health Science Center. She has also been recognized as a Best Lecturer by students. Dr. Utterback will lead our efforts to publish our findings and help generalize our study results into a sustainable assessment and training program for nurses.

**Gosselin, Kevin, PhD** - FTE 12% time grant funded. Dr. Gosselin serves as the Texas A&M Health Science Center College of Nursing Assistant Dean for Research and Evidence Based Medicine where he also serves as an associate professor. His background in educational psychology and statistics will be leveraged as he serves as our evaluator and statistician on the project.

**Janelle Martin, MHSA, BSN, RN** - FTE 30% time grant funded. As a key staff member on this study Ms. Martin will coordinate, orient and ensure each participant is consented to comply with Institutional Review Board requirements. Currently, Ms. Martin coordinates and facilitates the Institute's Nursing Quality and Safety Collaborative that includes conducting an innovative, virtual nursing peer review program. She will be engaged in gathering data for evaluation and conducting follow-up interviews. Ms. Martin is well suited for this role having served as faculty for both RN and LPN nursing programs.

Cli**nical Mentor** - FTE 9% time grant funded. The role of clinical mentor will be a master's prepared nurse or a nurse with more than 5 years of clinical experience. The clinical mentor role uses the framework of clinical expertise to model expert behaviors. Simulation and the clinical skills enhancements identified in the research proposal may be new to many of the study participants. Therefore, the role of the clinical mentor will provide ongoing direction and support to those involved in study arm 2.

**Melinda Hester, RN, DNP**. - FTE 10% time grant funded. The Texas Board of Nursing is contributing Dr. Hester's time in-kind. Dr. Hester is a collaborator on the grant and will be managing, collecting data and analyzing study Arm 1. Study Arm 1 is the traditional, current, Board remediation for medication error violations.

**Benefits**: Benefits are calculated at 19% of the yearly salary times the percent effort times 12 calendar months. The Health Insurance Benefit is $591/month for faculty/staff. Variation in the benefits paid per employee is based in part on numerous variables to include longevity, effort on the project, types of health insurance selected, etc...

**Travel**: Travel for this project will include traveling from the home campus of Bryan Texas to the simulation center in Round Rock Texas. This is approximately 186 miles round trip. At a state reimbursed rate of $0.56/mile (established Texas state rate) we anticipate our total budget for monthly trips to the simulation center to total approximately $1,440 over the two year grant period. The Institute and College of Nursing will provide the additional cost of approximately $1,059 as an in-kind contribution to the grant. There is no anticipated lodging that will be expensed to the grant.

**Materials and Supplies:** All participants (study arms A & B) will take the ATI pre-post test. At $350 per participant the total for the ATI testing materials is $35,000 or $17,500 per year. ATI materials have been tested for reliability and validity as discussed in the body of the proposal. Expenses are incurred in simulation to include but not limited to the rental of the simulation rooms, manikins (low and high fidelity), intravenous materials, medication packs and the cost of standardized patients. The total cost of these modalities for study arm 2 is approximately $650 per participant or a total of $32,500 or $16,250 per study year. We will ask for $23,750 per year, grant funding with the remaining costs to come from fees listed under other funding sources.

**Consultant**: Lolly Lockhart, PhD, RN will be utilized, as needed, to serve as a consultant specific to curricula and outcomes on this grant. Dr. Lockhart is a well known and sought after consultant in the state of Texas for work in nursing education. She has engaged in and consulted on the development of the 21st Century BSN curricula, program evaluations and outcomes. She was instrumental in the development and total evaluation plan for the innovative curriculum for new BSN program Texas State University where 98 percent of the first class (2012) passed the licensing examination and full program accreditation was received. She is currently consulting with three start-up BSN programs serving primarily rural areas in the state to prepare their applications to the Texas Board of Nursing. A total of 24 days (2 days per month) have been allocated to consulting time at $250/day.

**Computer/Software:** We have allocated $3,881 for the purchase of a computer and analytic software for the purpose of housing research data and testing scenarios in year 1.

**Indirect Costs:** The DHHS approved indirect rate for the Texas A&M System is 45.5% of modified total direct costs; however pursuant of the NCSBN guidelines, 0% of direct costs are budgeted. Therefore, Texas A&M System Health Science Center is providing $136,500 as an in-kind contribution.

**Attach Curriculum Vitae/resumes, and documentation of publications of the Principal Investigator, co-investigator and consultants. Evidence should be provided that at least one or more of these individuals has the knowledge and qualifications to complete the project.**