Transition to Practice National Study

Summary of Request:

Consider an invitation by the National Council of State Boards of Nursing (NCSBN) to participate in a national study of NCSBN's Transition to Practice regulatory model.

Historical Perspective:

Two recent national publications have called for the development of nurse residency programs. *Educating Nurses: A Call for Radical Transformation*[1], recommended "develop clinical residencies for all new graduates", saying:

> *Improving prelicensure nursing education is an important and necessary step in addressing the practice-education gap....we recommend that all graduates be required to complete a one-year residency program focused on one clinical area of specialization so that the graduate has the opportunity to develop in-depth knowledge in that area. During these residencies, mentors can teach local styles of practice and particular innovations characteristic of all health care settings.*

The Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine culminated in the recent release of *The Future of Nursing: Leading Change, Advancing Health*[2] In this report, recommendation three calls for "implementing residency programs", and "evaluating "…the effectiveness of residency programs in improving the retention of nurses, expanding competencies, and improving patient outcomes." Further the report recommends:

> *The identification of the key features of residencies that result in nurses acquiring confidence and competency at a reasonable cost; and*

> *Analysis of the possible unintended consequences of reallocating federal, state and/or facility budgets to support residencies and other nursing training opportunities.*

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[1]Benner, Patricia, et al. "Educating Nurses: A Call for Radical Transformation." (2010). Jossey-Bass/Wiley, San Francisco.

[2]IOM (Institute of Medicine). 2011. "The Future of Nursing: Leading Change, Advancing Health." Washington, DC: The National Academies Press.

Summary of the Invitation:

The Board has received an invitation from NCSBN to submit an application to participate in a national study of NCSBN's Transition to Practice regulatory model. The purpose of this study will be to collect evidence of the effectiveness of one such residency model developed by NCSBN. This will be a longitudinal, multi-site, randomized study of the effect of NCSBN's Transition to Practice model on safety and quality outcomes. Boards of Nursing are encouraged to collaborate with nurse leaders in their states to identify 25 hospitals that would be willing to be study sites for phase I of the study. Attached are: The cover letter to the Executive Officers of Boards of Nursing (**Attachment A**); Benefits for Participating Sites in the Study (**Attachment B**); Executive summary of the Transition to Practice study (**Attachment C**); and a Detailed Proposal for the Transition to Practice study (**Attachment D**). Staff have anticipated the invitation and spoken over the past year to employers about this potential opportunity.

Pros: Attachment B lists benefits to participating facilities. Two recent national reports recommend implementation of nurse residency programs. The Board would be supporting development of evidenced based regulation in the areas of nurse competency and patient safety.

Cons: Staff will devote resources to assisting NCSBN with identifying participating facilities.

Staff Recommendation:

I move to authorize staff to complete an application to participate in the NCSBN Transition to Practice Study.

October 7, 2010

Dear Executive Directors:

We are pleased to invite you to submit an application for participation in a national study of NCSBN's Transition to Practice (TTP) regulatory model. This longitudinal, multi-institutional, randomized study will evaluate the effect of the NCSBN's TTP model on patient safety and quality outcomes and will provide Boards of Nursing with evidence on whether a standardized model for transitioning new nurses to practice will improve patient safety.

Enclosed with this cover letter are the executive summary of the study, the application form, the study proposal which includes the details of the study, a sample letter of intent for hospital sites that are willing to participate, and a list of potential benefits for participation in the study. If you are interested in participating in this important study, we suggest that you discuss it with nurse leaders in your state/jurisdiction and collaborate with them in identifying 25 hospitals that are willing to be study sites for Phase I of the study. We are asking that the Chief Nursing Officer (CNO) of each hospital sign a letter of intent for participating in the study.

If your state/jurisdiction decides to apply for the study, please submit the completed page one of the application (Board of Nursing application). Additionally, please ask the 25 hospital sites that are willing to participate to complete page two of the application (Hospital Site application), along with the signed letter of intent. The application deadline is 5:00 pm, CST, **November 30, 2010,** and it should be sent to Nancy Spector at the address below. All completed applications will be reviewed by the Transition to Practice Research Advisory Panel, and the three study states/jurisdictions will be selected in December 2010.

If your state/jurisdiction decides to apply, we would want the support of the Board of Nursing. However, the study won't require any resources, personnel or time from the Board of Nursing.

If you have any questions about the study or the application, please feel free to contact Josephine Silvestre at jsilvestre@ncsbn.org or Nancy Spector at nspector@ncsbn.org.

Sincerely,

Nancy Spector, PhD, RN
Director, Regulatory Innovations

Josephine H. Silvestre, MSN, RN
Associate, Regulatory Innovations
Project Director of Transition to Practice study

The Transition to Practice study will provide the following benefits to participating facilities:

- Free access to the online new nurse and preceptor modules during the course of the study for the experimental study sites
- Free access to the modules up to one year after completion of the study for the control study sites
- Twenty continuing education contact hours for the new nurse for completing all transition modules
- Twenty continuing education contact hours for the preceptor for completing the preceptor training module
- $2,000 support for all experimental and control sites for designating a site coordinator to work with the state coordinator on study implementation
- Evidence of participation in nursing research for those sites who are applying for initial or re-designation Magnet status
- Full salary support for a designated state coordinator for each state
- Prestige associated with participation in a multi-site, randomized study of the NCSBN Transition to Practice model
- Potential to improve patient safety and quality outcomes
- Potential to improve nurse retention

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Executive Summary of Transition to Practice Study

This longitudinal, multi-institutional, randomized study will investigate the effect of the NCSBN's Transition to Practice (TTP) model on patient safety and quality outcomes, providing evidence for Boards of Nursing on whether or not to implement this regulatory model. The entire study will consist of two phases:

Phase I:
- will last 18 months, starting in July 2011.
- will be conducted with newly licensed registered nurses (RNs) in 25 hospitals in each of the 3 states.
- will involve randomization of ten hospitals to the experimental group and fifteen hospitals to the control group.

Phase II:
- will last 18 months and is projected to begin in April 2012 which will overlap with the end of Phase I.
- will be conducted with newly licensed practical nurses (LPNs) and vocational nurses (LVNs) in long-term care and other settings, as well as RNs in health care provider offices, schools, correctional facilities, and community facilities.
- will involve randomization of ten health care agencies to the experimental group and fifteen health care agencies to the control group.

Phase II sites will be selected with input of the state coordinator.

Study Groups	
Experimental Group	Control Group
• Preceptor will complete preceptor training module prior to enrollment of new nurses.	• New nurse will complete a baseline evaluation exam at the beginning of the study and a final evaluation exam at the end of the study.
• New nurse will complete a baseline evaluation exam at the beginning of the study and a final evaluation exam at the end of the study.	• New nurse will complete brief error log biweekly, via email, reporting any errors, near misses, or situations where there was a failure to recognize patient deterioration.
• New nurse will complete brief error log biweekly, via email, reporting any errors, near misses, or situations where there was a failure to recognize patient deterioration.	• New nurse will complete the hospital's/health care agency's existing orientation/transition program
• New nurse will complete the Transition modules within 3 months of his/her enrollment onto the study.	• New nurse will work with his/her preceptor (or manager if there is no established preceptor) according to the hospital's/health care agency's existing procedures.
• New nurse will work closely with his/her preceptor within first 6 months of the transition period.	• New nurse will complete survey instruments regarding their competencies, practice issues, and job satisfaction at 6, 9, and 12 months.
• New nurse will complete survey instruments regarding their competencies, practice issues, intent to leave, and job satisfaction at 6, 9, and 12 months.	• Preceptor (or manager if there is no established preceptor) will complete a survey instrument regarding newly licensed nurse competencies at 6, 9, and 12 months.
• Preceptor will complete a survey instrument regarding newly licensed nurse competencies at 6, 9, and 12 months.	• New nurse will complete a preceptor/manager evaluation survey at 6, 9, and 12 months. The preceptor/manager will complete a self evaluation at 6, 9, and 12 months.
• New nurse and the preceptor's manager will complete a preceptor evaluation survey at 6, 9, and 12 months. The preceptor will complete a self evaluation at 6, 9, and 12 months.	

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Outcome Variables
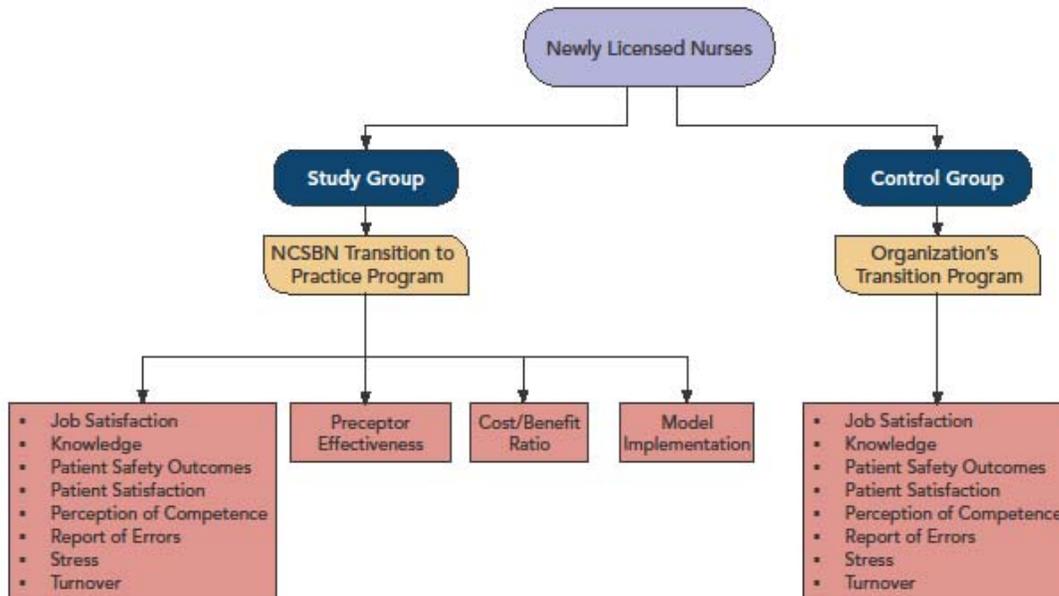
NCSBN will provide the following support for the study:

- Two thousand dollars to each study site so it can designate a site coordinator who will be instrumental in managing the study at his/her hospital

- Full salary support for a state coordinator who will manage the implementation of the study across the 25 sites in each phase

Prior to implementing Phase I and Phase II, three states representing various geographic areas will be selected to participate in this study. Those states that are interested in participating in this study will need to submit the following items to NCSBN in order to be considered for participation:

- Board of Nursing application (page 1 of application)
- Hospital Site application for each of the 25 hospitals (page 2 of application)
- Letter of Intent from the CNO of each of the 25 hospitals

Considerations for State Selection:

- Geographic diversity
- Minimum of 25 hospitals willing to participate from each state
- Diversity of nurses in each state

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The letter of intent from the CNO states that the hospital agrees to the following selection criteria:

- Expect to have a minimum of 10 new graduate nurses between July through September 2011.
- Are willing to be randomized to either the experimental group or the control group.
- Do not use either the Versant or UHC/AACN program.
- Will share the rates of adverse incidents related to nursing.
- Will share CMS core measure indicators, nursing sensitive quality indicators, patient safety indicators, patient satisfaction information, patient discharge data, and staffing data/turnover.
- Will allow new nurses at least twenty hours per month for 3 months during scheduled work hours to access the online Transition Modules.
- Will allow the preceptors at least ten hours total to access the online training modules during scheduled work hours.
- Will be able to identify an internal candidate to serve as study site Coordinator to manage IRB submission and organizational research efforts for this study.

NCSBN and the Transition Advisory Panel will begin review of all completed applications in December 2010.

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A Multi-Institutional, Randomized Study of the Transition to Practice (TTP) Model on Patient Safety and Quality Outcomes

10/7/2010

Principal Investigator and Research Team

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I.   Introduction

Health care is becoming increasingly complex, and there is a continued need for systems thinking. Our patient population is more diverse, sicker, and older, and patients are presenting with multiple conditions. Technology is growing exponentially, and nurses are working at a "staccato" pace (Wiggins, 2006). Patients are discharged so soon that they go home with complex medical, social, and economic issues. Concomitantly, there is a nursing shortage looming in the future, and a faculty shortage that is predicted to continue for many more years (Clarke & Cheung, 2008).

Furthermore, medical errors are a pervasive problem in all of health care today. The Institute of Medicine has released a number of reports on patient safety issues, reporting that medical errors are the eighth leading cause of death in this country. Approximately 7,000 people die every year from medication errors alone. An incredible 42% of the respondents in a national poll reported they had been affected by a medical error, either personally or through a friend or relative. Moreover, medical errors cost about $37.6 billion per year, with $17 billion of those costs being for preventable errors (Kohn, Corrigan & Donaldson, 1999; Medical errors, 2000), thus escalating the already high cost of health care. Medical errors don't just take place in hospitals; they also occur in physician's offices, nursing homes, pharmacies, urgent care centers, and home care. While there is not much data on the extent of the problem outside of hospitals, it is likely medical errors in these settings are common. For example, in an investigation of pharmacists, the Massachusetts State Board of Registration in Pharmacy estimated that 2.4 million prescriptions are filled improperly in that state alone (Medical errors, 2000).

Related to patient safety and healthcare outcomes, Orsolini-Hain and Malone (2007) propose, with convincing evidence, that we will be experiencing the "perfect storm" in nursing if we do not take action soon. They describe the "expertise gap" that we are facing and most likely will continue to face in the future. First, there will be increasing retirements among experienced nurses, with an increased ratio of newly graduated nurses to seasoned nurses. Dracup and Morris (2007) predict, from numbers of nurses reporting they will retire between 2011 and 2020, there will be a 50% turnover in the nursing profession in a little more than a decade. Berkow, Virkstis, Stewart & Conway (2008) report that currently 10% of a typical hospital is staffed by new graduates. This is significant since 89.2% of newly licensed RNs (NCSBN, 2009c) and 16.8% of newly licensed LPNs (NCSBN, 2010) work in hospitals. Concomitantly, there is a shortage of experienced nurse educators and insufficient research to determine best practices in nursing education. Orsolini and Hain (2007) assert this expertise gap has health policy and patient safety implications because these novice and inexperienced nurses are caring for more complex patients, under trying circumstances, as described above. According to del Bueno's studies (2005), 50% of inexperienced RNs would miss immediate life-threatening postoperative complications. Yet, late or nonexistent recognition of patient deterioration can significantly increase patient morbidity and mortality (Kohn et al., 1999). Statistics show that if new nurses fail to recognize changes in patient status, those patients can deteriorate quickly. When CPR is needed, for example, only 27 percent of adult patients and 18 percent of pediatric patients survive resuscitation efforts (Nadkarni et al., 2006). Therefore, our current situation presents grave implications for the future of health care (Orsolini-Hain & Malone, 2007).

Along with this increased complexity of health care, alarming number of medical errors, and the expertise gap we are predicting in the future of nursing, nurses, unlike other professions, have no standardized transition to practice programs to support them as they enter the profession. Transition and

orientation programs are variable throughout systems employing newly licensed graduates, and a few organizations have reported having no such programs. Therefore, NCSBN has developed a standardized, regulatory transition to practice model, based on existing evidence, with the potential for improving patient quality and safety outcomes and increasing new nurse retention. This study will pilot this model in a sample of newly licensed nurses (LPNs, ADNs, BSNs, and master's entry or doctoral entry nurses) who are working in various settings in three geographically distributed states.

II.   Literature Review

Safety and New Nurses

A variety of research reports link new nurses to patient safety issues, such as near misses, adverse events and practice errors (Berens, 2000; Bjørk & Kirkevold, 1999; Board of Registration in Nursing, 2007; del Bueno, 2005; Ebright, Urden, Patterson & Chalko, 2004; Johnstone & Kanitsaki, 2006; Johnstone & Kanitsaki, 2008; NCSBN, 2007; Orsolini-Hain & Malone, 2007). Berens (2000) reviewed three million state and federal computer records for safe nursing practice, citing several statistics related to patient deaths due to all nurses, not just novice nurses. However, specifically related to novice nurses, Berens (2000), after reviewing Illinois state disciplinary data, reported that temporary nurses (those filling in when nurses leave) were the increased focus of investigations; their reasons for errors were most often linked to lack of knowledge of hospital procedure and unfamiliarity with patients. Unfamiliarity with patients and units and first time experiences was also cited by the Massachusetts Board of Nursing (Board of Registration in Nursing, 2007) and Ebright et al. (2004) as reasons for near misses or errors. That is significant because novice nurses who do not take part in transition programs notoriously have a high turnover rate, and this will be discussed below. Therefore, when these nurses leave, they are often replaced by temporary nurses who tend to make more errors.

Others report newly licensed nurses have significant job stresses (Elfering, Semmer & Grebner, 2006; Fink, Krugman, Casey & Goode, 2008; NCSBN, 2007; Williams, Goode, Krsek, Bednash & Lynn, 2007), and this stress has been linked to patient errors (NCSBN, 2007; Elfering et al., 2006). Investigators in Sweden studied 23 novice nurses from 19 hospitals for 2 weeks and found job stressors and low job control to be risk factors for patient safety (Elfering et al, 2006). The most frequent safety issues, related to job stressors, were incorrect documentation, medication errors/near misses, delays in patient care delivery, and violence among patients or towards nurses. In another study, newly licensed nurses who reported higher stress ratings also reported making significantly more errors than new nurses reporting lower stress levels (NCSBN, 2007). Interestingly, in the NCSBN national study (2007) of newly licensed nurses, the stress levels of new nurses were highest at the 3-6 month period of practice. This is most likely the period when they are no longer in any kind of a transition or orientation program. In the study of the AACN/UHC yearlong residency program, stress gradually decreased over the year (Williams et al., 2007). These results indicate a comprehensive yearlong transition program may decrease stress, which in turn is related to safe patient care.

Two reports specifically cited disciplinary data (Board of Registration in Nursing, 2007; NCSBN, 2007) and one addressed incident reports (Johnstone & Kanitsaki, 2008). It makes sense that there isn't going to be increased discipline for novice nurses (0-12 months) versus those in practice for 10 years, for

example, because the latter group would have a much greater opportunity to make errors. New nurses are often given the benefit of the doubt when being reported for errors. Further, there is quite a leap between discipline and minor errors or near misses; the latter more often is seen with new nurses (Ebright et al., 2004; Board of Registration in Nursing, 2007). The NCSBN Nur*sys*® data on discipline in the boards of nursing (NCSBN, 2009a) found that 4.1 percent of the discipline was with novice nurses. For all nurses there was a trend of increased discipline from 1996-2006, thus supporting IOM reports of an increase in practice errors in health care. The Massachusetts's findings on discipline data from 77 nursing homes (Board of Registration in Nursing, 2007) had no novice RNs in the analysis. However, of 44 LPNs disciplined, seven were novices. In the Massachusetts study, the researchers concluded that errors with new nurses were linked to inexperience, lack of familiarity, and lack of consistent preceptors. They recommended more supervision and support for new nurses.

A study conducted in Australia (Johnstone & Kanitsaki, 2008) found that incident reporting increased during the novice nurse's first year in a supportive transition program because they were taught about the importance of reporting errors and near misses for root cause analyses. These nurses were able to integrate patient safety into the system within three to four months of this 12-month program. The key indicators they used to validate this integration included new graduates' familiarity with the following, and these tie into the above findings from Ebright et al. (2004) and the Board of Registration in Nursing (2007):

- Hospital layout
- Hospital policies regarding risk assessment tools
- Processes of evidence-based practice
- Incident reporting

New nurses often engage in concrete thinking and focus on technology (Benner, 2004; Orsolini-Hain & Malone, 2007), thereby missing the bigger picture, and this can be devastating during these complex times in health care (Benner, Sutphen, Leonard & Day., 2010; del Bueno, 2005; Ebright et al., 2004). With the increased ratio of novice nurses to seasoned nurses, as reported earlier, it is possible that novices are assisting each other, thus putting them in situations where errors in judgment are not corrected by colleagues (Ebright et al., 2004; Orsolini, 2007). Indeed, in a well-designed prospective study, Bjørk & Kirkevold (1999) found how patient safety can be compromised when there are no effective transition programs in place. They conducted a longitudinal study in Norway, videotaping nursing practice and conducting interviews with nurses and patients. Four nurses were followed for eight to 14 months as they performed dressing changes and ambulated new surgical patients. The nurses only had a short orientation to their units. While the nurses reported they had become efficient and rated themselves as better nurses over time, the analysis of their practice revealed that they made the same practice errors (such as contaminating wounds and unsafely removing wound drains) at the end of the study as they made at the beginning. According to Bjørk and Kirkvold (1999), the nurses were considered regular nurses, and it was assumed they knew what they were doing. There were no opportunities for feedback from expert nurses or opportunities to reflect on their practice, thus preventing them from learning from their mistakes.

Another study (Ebright et al., 2004) found that of 12 recruited new nurse participants, seven reported at least one near-miss event, while one nurse described two events. Some of the themes identified related to near-misses/adverse event cases include the following:

- Clinically focused critical thinking
- Seeking assistance from experienced nurses
- Knowledge of unit and workflow patterns
- First-time experiences
- Time constraints
- Hand-offs
- Influence of peer pressure and social norms
- Losing the big picture
- Novices assisting novices

Inexperienced nurses who aren't supported can also impact patient safety because of missed nursing care. Kalisch (2006), in a qualitative study, investigated missed nursing care, identifying nine themes, including lack of patient surveillance. Using focus groups, Kalisch (2006) also identified seven reasons for missed care, including poor use of existing staff resources and ineffective delegation. The focus group members reported there were too many inexperienced nurses with inadequate orientations. They also reported inconsistent assignments, meaning that novice nurses don't have the opportunity to get to know their patients well enough to recognize changes. When nursing care is omitted, patient outcomes could be adversely affected, thus promoting falls, failure to rescue, pressure ulcers, etc.

Similarly, Benner et al.'s recommendation for a yearlong transition program for new nurses was, in part, because students do not have the opportunity to follow-up with their patients in their nursing programs. Therefore, novice nurses are often weak in detecting subtle changes in patient conditions, and when nurses fail to recognize changes in patient status, those patients can deteriorate quickly. For example, Ashcraft (2004), in presenting three cases, discusses how crucial pattern recognition is when patients are in pre-arrest states. Novice nurses take longer to "put the pieces together" and would benefit from consulting with an experienced nurse in these critical situations. A supportive transition program would assist new nurses to identify subtle changes and avoid practice errors.

An NCSBN national study (NCSBN, 2007) found that when transition programs in hospitals addressed specialty care, new nurses reported making significantly fewer practice errors. Similarly, when nurses perceived they were more competent, they reported making significantly fewer practice errors, and this was especially true when they reported more competence in clinical reasoning abilities and communication and interpersonal relationships.

Johnstone and Kanitsaki (2006) and Johnstone and Kanitsaki (2008) studied integrating new nurses into clinical risk management systems in Australia. They stress the importance of not teaching new graduates deficit education. That is, do not assume the transition program needs to re-educate the new nurse. Instead, the nurse needs to learn, by experiential means and with support of qualified nurses, how to manage risks in practice. These researchers found when the new graduates were introduced to clinical risk management, none of them was involved in a preventable adverse event resulting in patient harm.

Unfortunately, they did not compare these findings to new nurses who were not introduced to clinical risk management.

Competence and New Nurses

Keller, Meekins & Summers (2006) provide insight as to why new nurses need continued support for the first year, even though they graduated from an approved nursing program and have passed the NCLEX®. She states that nursing education cannot prepare new graduates for acculturating into their workplace and for using a recently acquired new language. Keller goes on to assert that new graduates are expected to become skilled in a wide range of absolutely necessary skills and to gain a sense of the wider world of their organization and health care. She describes some of these necessary skills as being self-aware and learning about team dynamics, leading teams, coordinating care, managing conflict, understanding the psychological effects of change and transition, communication, evidence-based practice, systems thinking, and financial pressures. Neophyte nurses become overwhelmed and stressed with all of these expectations (Elfering et al., 2006; NCSBN, 2007; Williams et al., 2007), and, as above, stress in the first year of practice has been significantly related to practice errors (Elfering et al., 2006; NCSBN, 2007).

Employers report new graduates are not ready to practice. NCSBN studies found that fewer than 50% of employers reported "yes definitely" when asked if new graduates are ready to provide safe and effective care (NCSBN, 2002; NCSBN, 2004a). Similarly, Berkow et al. (2008), from the Nursing Executive Center, conducted a survey of more than 5,700 frontline nurse leaders, asking about employer perceptions of new graduates on 36 competencies. Improvement was needed across levels of education (ADN and BSN). For example, 53% of employers were satisfied with the top-rated competency (utilization of information technologies), while only 10% were satisfied with the last-rated competency (delegation of tasks). Berkow et al. (2008) noted that the bottom-rated competencies would be better taught in an experiential environment, such as a transition to practice program.

There is evidence; however, linking competence to the need for effective transition programs (Benner et al., 2010; Beyea, von Reyn & Slattery, 2007; Bjørk & Kirkevold, 1999; del Bueno, 2005; NCSBN, 2009b; NCSBN, 2007; Orsolini-Hain & Malone, 2007; Williams et al., 2007). NCSBN (2007) reported that new graduates were significantly more likely to self-report practice errors when they also reported decreased competence and increased stress. In this study, three to six months after hire was the vulnerable period where nurses reported more stress and less competence and therefore were at risk for practice breakdown. Other research has shown this "V-shaped" pattern, showing declines in novice nurse variables at mid-program, with subsequent gains (Halfer, Graf, & Sullivan, 2008; Williams et al., 2007), though in these studies the decline began at the sixth month level. This evidence supports the vulnerable period of new graduates as three to nine after employment.

In the Bjørk and Kirkevold (1999) study, as described above, there were no opportunities for feedback or reflective practice, which likely would have improved the competence of these nurses. This is excellent empirical data about what can happen when new nurses do not have supportive transition programs.

In the Dartmouth-Hitchcock transition program (Belyea et al., 2007), investigators measured confidence, competence, and readiness to practice, all of which significantly increased after their transition program. This program uses simulation vignettes that highlight high-risk and low-frequency events, as well as commonly occurring clinical situations. According to this study, this is a highly effective way of developing competency and confidence in new graduates.

Mississippi (2010) has a statewide transition program that is implemented by their Office of Nursing Workforce. They have implemented a six-month transition program, using an interesting outcome measure that is indirectly related to patient safety and competence; they measured patient satisfaction and found a 10% increase after completion of a formal six-month transition program.

One-Year Turnover in New Licensed Nurses

Some might argue whether job retention is a fair measure of quality and safety in patient care because, while nurses may leave one job during the first year, they generally move to another position. The first workplace, however, is challenged with recruiting and orienting a new nurse. Indeed, there are data linking high turnover to patient safety and adverse health outcomes (Berens, 2000; Board of Registration inNursing, 2007). Since job satisfaction is a predictor of anticipated turnover, it too is linked to healthcare outcomes (Beecroft, Hernandez & Reid, 2008).

Do these new graduates leave nursing altogether? Orsolini-Hain & Malone (2007) report that the 2004 National Sample Survey shows a trend of nurses leaving nursing altogether. In the late 1980s, Orsolini-Hain & Malone (2007) write, only 4.5% of nurses were employed outside of nursing, whereas in 2004 16.8% were employed elsewhere. However, this trend may not affect new nurses as Kovner & Djukic (2009) report that 98% of nurses who pass the NCLEX are working in nursing two years later.

The literature reports moderate to high turnover rates during new graduates' first year of practice. Turnover rates have been reported as high as between 35% to 60% for one year in practice (Advisory Board Company, 2006; Halfer et al., 2008; Pine & Tart, 2007; Williams et al., 2007), depending on the report. Turnover rates are not reported the same across studies, and Kovner & Djukic (2009) discuss some of the problems with turnover rate statistics for the newly licensed nurse. For example, some studies include turnover within the institution, while others report their rates after developing a comprehensive transition program. Kovner & Djukic (2009) report a 26% turnover rate in two years using unpublished raw data from the RN Work Project, though they don't report what part of that percentage belongs to year one. It is clear, however, that comprehensive transition programs are associated with significantly decreased turnover rates after the programs are implemented (Beecroft et al., 2001; Halfer et al., 2008; Pine & Tart, 2007; Williams et al., 2007). Some turnover will be expected in the first year of practice because of normal life situations; from reviewing the literature anything over 7-10% is most likely related to the job situation.

Turnover of newly licensed nurses is more often analyzed in acute care settings than in long-term care settings. In the third American Health Care Association (2008) study of vacancy and turnover in long-term care settings, while they did not specifically look at their novice nurse turnover rates, they reported high rates of turnover generally - 41% for staff RNs and 49.9% for LPNs. This certainly indicates the likeliness of high turnover rates for new graduates. Similar to NCSBN's beliefs about our

transition to practice model, these authors conclude that high quality care is dependent on a stable, well-trained workforce and that promoting sound fiscal policies designed to strengthen the workforce should be a top national priority.

As was stated earlier, data indicate that temporary nurses, who are often hired when a new nurse resigns, have an increased number of disciplinary complaints filed at boards of nursing (Berens, 2000) compared to nurses hired on a permanent basis. Similarly, errors made by novice LPNs in nursing homes (Board of Registration in Nursing, 2007) and near misses reported by RNs (Ebright et al., 2004) are linked to unfamiliarity with the workplace setting. Further, every study examined found that increased retention resulted from a formal transition program (Beecroft, Kunzman & Krozek, 2001; Halfer, 2007; Keller et al., 2006; Mississippi, 2010; NCSBN, 2007; Pine & Tart, 2007; VNIP, 2010; Williams et al., 2007).

One Solution: A Standardized Transition to Practice (TTP) Program

One solution toward improving patient safety and healthcare outcomes during these challenging times is to provide all nurses, across levels of education and throughout all settings, with a standardized, post-graduation TTP. There have been national calls for a standardized transition program for newly licensed nurses from: the Joint Commission (Joint Commission White Paper, 2002); the Carnegie study of nursing education report (Benner et al., 2010); a synthesis of national reports (Hofler, 2008); the American Association of Colleges of Nursing and the University HealthSystem Consortium (AACN/UHC) (Goode, Lynn, Krsek & Bednash, 2009); and in Orsolini-Hain and Malone's (2007) article cited above. The recommendation from the Carnegie study suggests lower entry-level salaries as a way to fund this residency program.

Status of International Transition Programs

The international community is interested in transition to practice as well. Portugal has developed a national, regulatory model, referred to as a Professional Development Program. The new graduate is given a provisional license and participates in a nine-month supervised practice. At the end of the nine months, the new nurse writes a "reflective report" and the supervisor writes a report. Both reports are reviewed by a body separate from the Board of Nursing, which makes a recommendation to the Board for permanent licensure. If the recommendation is not made for permanent licensure, the new nurse is given a second chance for three more months. This separate body certifies all supervisors and accredits each facility placement. It should be noted that the government funds this model and that there are only 59 thousand nurses in the whole country.

Scotland has an online voluntary model (Flying Start, 2010), termed "Flying Start," which incorporates an online mentorship. The elements of this model include: communication, teamwork, clinical skills, safe practice, research for practice, equality and diversity, policy, reflective practice, professional development, and career pathways. This model has been evaluated, though not for quality and safety outcomes and not with a comparison to a control group (Roxburgh, 2010). They measured future job intentions, knowledge and skill dimensions (self-perception), self-report competency, self-efficacy, and job demands in a convenience sample of 97 graduates who went through the program.

Australia, which will implement national licensure in July of 2010 (http://tinyurl.com/y99mqf3), plans to incorporate a yearlong graduate mentorship program into their. Canada has done a lot of work with preceptorships and mentorships (http://www.cna-nurses.ca/CNA/default_e.aspx) for new graduates, and the Canadian Nurses Association sent a representative to the NCSBN TTP Committee meetings to learn about what the U.S. is doing. Ireland has taken a different approach. In this country, a transition program that is part of the student's last year of school includes a 36 week internship period (http://www.nursingboard.ie/en/education.aspx). Employers pay the students during this internship period.

Status of Transition Programs in the U.S.

In the U.S., supporting new graduates in their transition to practice is not new. It was first discussed in the 1930s, where Townsend (1931) wrote about the need to integrate theory into the nurse's curriculum. However, that took a toll on practice, she wrote, and there was a resultant "…gap between the doctor's lecture and the actual nursing problem in the condition he lectured about…." (p. 1183) Yet, it wasn't until the 1970s that transition to practice was studied in depth. In 1974 Marlene Kramer, in her renowned *Reality Shock: Why Nurses Leave Nursing,* crystallized the concept. Kramer described the difficulties new graduates face when they begin to work, and she termed this "reality shock." Kramer (1974, p. vii-viii) describes reality shock as "…shock-like reactions of new workers when they find themselves in a work situation for which they have spent several years preparing and for which they thought they were going to be prepared, and then suddenly find that they are not." A major reason nurses have had difficulty moving into the workforce, Kramer says, is because of their perception of the role. While they are taught about maintaining professional standards, this is in stark contrast to the hospital's bureaucratic role where there is more emphasis on technical and administrative skills. She then proposed and assessed strategies to ameliorate reality shock, develop interpersonal competency and define lines of action for constructive conflict resolution. Similarly, in 1978 Patricia Benner began an august line of study of the nurse's transition from novice (first year of education), to an advanced beginner (new graduate), to the competent stage (one to two years in practice), and then to proficiency and expertise (Benner, 2004). More recently, there has been significant work on developing national transition to practice programs (Beecroft et al., 2001; Williams et al., 2007), and the Commission on Collegiate Nursing Education (CCNE) has developed a national accreditation process for residency programs (http://www.aacn.nche.edu/Accreditation/nrp.htm).

While there are successful transition programs available, transition experiences are quite variable across the U.S., across levels of education, and across settings. NCSBN (2006c) investigated transition experiences in a geographically represented sample of 628 newly licensed registered nurse graduates and 519 newly licensed practical nurse graduates. They found that while a majority of the graduates reported having some sort of orientation or transition program, RNs only spent an average of 11.4 weeks in transition programs, while LPNs/VNs spent 4.72 weeks. This difference was statistically significant. More RNs reported participating in comprehensive transition programs (39.7%) than LPNs/VNs (15.3%). Most RNs practice in hospitals after graduation, and only 40.9% participated in comprehensive transition programs that include an orientation to the hospital and unit, as well as an internship, preceptorship or mentorship. Similarly, while most LPNs/VNs work in long-term care facilities following graduation, only 12.7% of them participated in comprehensive transition programs. Shockingly, 3% of the RN

sample and 7.4% of the LPN/VN sample reported not receiving any type of transition program, including orientation (NCSBN, 2006c). Of the RNs reporting having no type of transition program, all graduated from ADN programs. Other studies had similar findings (NCSBN, 2004b; NCSBN, 2006b; Scott, Engelke & Swanson, 2008) related to the variability of transition programs in the U.S.

It is imperative to stress that this movement toward developing a national, standardized transition program is not because the education programs are failing to adequately prepare our nurses for practice. Our nurse educators are working harder, and smarter, than ever before to educate sufficient and qualified nurses during this intense faculty shortage. Nor is the need for this regulatory transition model because practice settings are failing and are expecting new nurses to hit the ground running. Many practice settings have developed their own individual programs because they are concerned about transitioning new graduates. However, the research has shown that the caliber of these programs is quite variable (NCSBN, 2006b; NCSBN, 2006c; Scott et al., 2008). This need for a national, standardized transition program has arisen because of the tremendous changes we've seen in health care in the past 20 years.

Is it finally time for nursing to take a giant step forward and design and implement a national, standardized transition program? Obviously this initiative would have to be implemented collaboratively with nursing practice, regulation, and education. Regulators have authority over the new nurses and could take the step of requiring a transition program for license renewal. However, nursing regulation does not have authority over nursing employers. Therefore, practice and education leaders would have to stand by the regulators and convince huge hospital systems, small rural community hospitals, nursing homes, legislators and other policymakers, and consumers that this action must be taken to improve the quality and safety of health care. Can nursing mount such an enormous effort? Nursing would have to come together with one voice, like never before, and articulate the necessity of this major change in how nurses are educated and regulated.

Promising Practices in Programs Transitioning New Graduates to Practice

Across All Settings and All Education Levels

There is no doubt the literature and research on long-term settings and licensed/vocational nurses is not as strong as with acute care settings and registered nurses. One NCSBN report (NCSBN, 2006c) found that PN transition programs averaged 4.72 weeks in length, which is so short that it most likely would not provide any insight as to what the effect of transition on PNs would be. Another study focused on discipline in nursing homes and concluded there is a need for improved transitioning of LPNs (Board of Registration in Nursing, 2007). A national survey on the nursing home workforce (My InnerView, 2008) calculated priority ratings on areas for needed improvement: 1) lower job stress; 2) management that listens; 3) management that cares; 4) training to deal with difficult residents. If new nurses in long-term care were to receive more support through a standardized transition program, impact on these areas of priority could be made.

While there are many descriptions in the literature of transition programs in acute care, exemplars of transition programs in long-term care are limited, though two statewide transition programs include long-term care sites (VNIP, 2010; Wisconsin, 2010). Personal communication with the project managers of each program has revealed that employers in the long-term care and rural settings have responded very

positively to these programs. Similarly, reports of nurses in these programs have been positive, though there is no formal data on these outcomes.

There is not much data on practical nurses in long-term care settings; however, there is reason to focus attention on this area. In 25 years, it is expected that one in every four, instead of one in every six, Americans will be 60 years of age or older (Orsolini-Hain & Malone, 2007). Long-term care settings will become even more important, and some of our most vulnerable patients are in long-term care. Relying on the limited number of available studies on practical nurses and long-term care, and applying results from the acute care settings and registered nurses, it is reasonable to include all settings and all levels of education in a transition model.

Recommended Elements of Transition Programs

The five transition modules, supported by the evidence (https://www.ncsbn.org/1603.htm) for this model are based on the Institute of Medicine (Greiner & Knebel, 2003) competencies and the Quality and Safety for Nursing Education initiative (Cronenwett et al., 2007):

- Patient-Centered Care
- Communication and Teamwork
- Evidence-Based Practice
- Quality Improvement
- Informatics

As Johnstone (2006) points out, these should not be taught as deficit education, meaning that they should not be presented under the assumption that students did not learn it in the first place, or did not learn it well. Instead, these concepts should be incorporated into the new nurses' experiences so they continue to learn, from preceptor role modeling, how to think like a nurse. While these could be presented separately as modules, they should be integrated throughout the transition program.

Patient-centered care

Patient-centered care will emphasize specialty content and prioritizing/organizing care. Specialty content in a transition program has been linked significantly to self-reports of lower practice errors (NCSBN, 2007). Other research supports integrating specialty practice into transition programs (Beecroft et al., 2001; Benner et al., 2010; Beyea et al., 2007; Flying Start, 2010; Halfer, 2007; Joint Commission, 2002; Keller et al., 2006; Pine & Tart, 2007; VNIP, 2010). NCSBN has identified some ideas for ways employers can support the integration of specialty care. A related element is prioritizing and organizing one's work. Prioritizing and organizing is a part of clinical practice that is often a weakness for novice nurses (Berkow et al., 2008; Halfer, 2007; NCSBN, 2004b; NCSBN, 2006a; Williams et al., 2007), most likely because of lack of experience. Specifically the UHC/AACN residency program measured ability to organize and prioritize before and after their program and found significant increases at the end of the program. Prioritizing and organizing was integrated throughout most of the transition programs that focused on specialty content.

While none of the programs specifically identified boundary issue (boundary crossings, violations, misuse of social media, etc.) as a topic, Boards of Nursing have identified this as an important area to stress in the TTP program so this content will be integrated into this module.

Communication and teamwork

Communication and teamwork is essential in any regulatory model. The 2003 IOM report on Health Professions Education (Greiner & Knebel, 2003) stressed the importance of teaching healthcare students to collaborate across professions. McKay and Crippen (2008) report that in hospitals where collaboration occurs there is a 41 percent lower mortality rate than would be predicted. In other hospitals, McKay and Crippen (2008) report, where collaborative communication does not take place, mortality rates were 58 percent higher than would be predicted. Similarly, enhanced communication in hospitals has been linked to nurse satisfaction, lower costs, and greater responsiveness of healthcare providers (McKay & Crippen, 2008). Supporting McKay and Crippens (2008), one NCSBN (2007) study found that new nurses perceived they made significantly fewer practice errors when they reported being more competent in communication and interpersonal relationships. Yet, Benner et al. (2010) report that pre-licensure nursing programs provide their students with few opportunities for interprofessional communication. Most of the reports of transition programs reviewed recommended a purposeful integration of communication, including interprofessional relationships, into transition programs (Beecroft et al., 2001; Beyea et al., 2007; Flying Start, 2010; Halfer, 2007; Keller et al., 2006; Pine & Tart, 2007; Williams et al., 2007; Wisconsin, 2010).

The communication and teamwork module will also include role socialization, which is a very important concept for regulation. New nurses must have a good understanding of their scope of practice, as well as that of others on the healthcare team. Role socialization has been studied by O'Rourke (2006) for a number of years, and she has developed a program and some metrics for measuring outcomes. Role socialization was an integral element of many of the transition programs we reviewed (Flying Start, 2010; Keller et al., 2006; Kentucky, 2010; Pine & Tart, 2007; VNIP, 2010; Williams et al., 2007).

Closely related to role socialization is the need for new nurses to develop a better understanding of delegating and supervising. NCSBN studies of new nurses, since 2002, have consistently found that new nurses report a lack of understanding of delegation (NCSBN, 2004b; 2006b; 2007; 2009b), as do others (Berkow et al., 2008). NCSBN's position paper on delegation and supervising will provide background for this module (NCSBN, 2005). Transition programs may be incorporating delegation/supervising into their curricula, though not many specifically indicate that. Of those we reviewed, only the Wisconsin Nurse Internship Program (Wisconsin, 2010) and the UHC/AACN (Williams et al., 2007) model identified delegating and supervising as elements of their programs. NCSBN's regulatory model will require experiential learning of delegation principles and practice.

Evidence-based practice

Another essential experiential module is evidence-based practice because nurses are expected to base their practice on the evidence (Cronenwett et al., 2007; Greiner & Knebel, 2003). Yet, NCSBN research (NCSBN, 2006a; NCSBN, 2006b) has shown that new nurses are weak in this area. Evidence-based practice was integral to most of the programs we had reviewed. In the Launch into Nursing

program in Texas, for example, new nurses participate in an evidence-based project and present the results to the hospital unit on which they work (Keller, et al., 2006). The international and national programs support incorporating evidence-based practice into transition programs (Beecroft et al., 2001; Flying Start, 2010; Williams et al., 2007), as do individual programs (Pine & Tart, 2007; Wisconsin, 2010).

Quality improvement

Quality improvement will be incorporated into NCSBN's transition to practice program as one of the modules. With health care institutions focusing on safety and improving their systems, novice nurses need experiential learning related to quality improvement processes, such as Six Sigma. Berkow et al. (2008) surveyed educators and practice leaders about the emphasis of 36 competencies taught in nursing programs, compared to how prepared new nurses were related to those competencies. They found that quality improvement (as well as priority setting and delegation) was not emphasized enough in nursing education and concluded it is best learned in a practice setting with experiential learning. Additionally, Barton, Armstrong, Preheim, Gelmon & Andrus (2009) conducted a national Delphi to determine the progression of quality and safety competencies and identified the following knowledge and skills (p. 329) for introduction in the advanced phase of a nursing curriculum, which also would include transition to practice programs:

- Give examples of tension between professional autonomy and system functioning
- Explain the importance of variation and measurement in assessing quality care
- Describe approaches for changing processes of care
- Participate in a root cause analysis of a sentinel event
- Practice aligning the aims, measures and changes involved in improving care
- Evaluate the effect of change

Informatics

Originally informatics had been included partially under the Communication and Teamwork and the evidence-based practice modules, but ultimately it was isolated as we looked toward the future of nursing. In this module, the newly licensed nurses will learn how to identify the electronic information that is available at the point of care and learn how to access information that isn't readily available, but is needed. The Technology Informatics Guiding Educational Reform initiative (TIGER, 2010) will be used as a resource. Confidentiality of information will be stressed in this module.

Threads Throughout the Curriculum

Safety

Teaching safety is an essential part of a transition to practice regulatory model, and this will be threaded throughout all the modules. Johnstone and colleagues (2006 & 2008b) in Australia have reported on the importance of experientially teaching risk management to new nurses. Cronenwett et al. (2007), using the expertise of national healthcare leaders across disciplines, have described in detail a module on safety that could be used in transition programs. This consensus opinion document, Quality and Safety Education for Nurses (QSEN), can be considered excellent evidence for this transition model.

The Massachusetts Board of Nursing (Board of Registration in Nursing, 2007) findings on nursing home errors called attention to addressing safety issues in transition programs, based on their review of discipline of new practical nurse graduates. Likewise, an NCSBN study (NCSBN, 2007) found that, according to self-reports, practice errors made by new graduates were prevalent. Many of the successful transition programs focus on safety (Beecroft et al., 2001; Beyea et al., 2007; Flying Start, 2008; Halfer, 2007; Pine & Tart, 2007; Williams et al., 2007; Wisconsin, 2010).

Clinical reasoning

Clinical reasoning, sometimes referred to as critical thinking, is another essential part of a transition to practice regulatory model that will be integrated throughout the modules. As the Carnegie study (Benner et al., 2010) points out, this is where nurses learn to think like a nurse. The Dartmouth program (Beyea et al., 2007) is exemplary as it uses simulation to assist novice nurses in making decisions during common clinical events or events that are uncommon, but life threatening. Transition programs that specifically report integration of clinical reasoning/critical thinking include: Beecroft et al., 2001; Halfer, 2007; Keller et al., 2006; Mississippi, 2010; Pine & Tart, 2007; VNIP, 2010; Williams et al., 2007; Wisconsin, 2010. However, interviews with project managers of transition programs indicated that all programs examined attempt to integrate clinical reasoning.

Feedback and Reflection

Feedback and reflection are important threads in this model and should be formally maintained during the six-month transition program, as well as during the six months that follow. Bjørk and Kirkevold's (1999) longitudinal study, discussed earlier, showed the importance of feedback and reflection. If new nurses do not receive feedback on their practice, along with an opportunity to reflect, their practice will not improve. As happened in Bjørk and Kirkevold's study, without those opportunities, new graduates are at risk of making the same mistakes time and time again. It is very important for preceptors to be taught how to provide constructive feedback and how to foster reflective practice. Many of the transition programs included in this review did provide opportunities for feedback and reflection (Beyea et al., 2007; Flying Start, 2010; Halfer, 2007; Keller et al., 2006; NCSBN, 2006a; Pine & Tart, 2007; Williams et al., 2007; Wisconsin, 2010). For fostering reflection, journaling and personal inventories were described as successful strategies.

Preceptor-Nurse Relationship

The evidence was overwhelming that transition-to-practice programs are most successful when they incorporate the use of preceptors. All the programs detailed on our Evidence Grid (https://www.ncsbn.org/1603.htm) used the preceptor model. In the Massachusetts study (Board of Registration in Nursing, 2007) of nursing errors, one practical nurse commented that during her orientation to the unit, she "worked with three different nurses on three different days" after which she worked alone and was encouraged to ask questions of other nurses as needed. This will not allow for the consistent feedback that is so essential to this model. However, if well designed, team preceptorships have been proven successful (Beecroft et al., 2008), and therefore this would be an acceptable strategy in this model.

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The evidence also supports that preceptors be skilled in the role. In many transition programs, orienting preceptors to the role is important; however, the Vermont Nurses in Partnership's internship program (2010) is an exemplary model of preceptor education. They have developed this model since the beginning of their initiative in 1999 and they now credential all their preceptors. There are also other models available in the literature (Nicol & Young, 2007). Often, preceptors feel unprepared and unsupported for the preceptorship role. For example, in one study of 86 preceptors, researchers found preceptors reported they were unprepared to precept new graduates and they needed more support and recognition (Yonge, Hagler, Cox, & Drefs, 2008). An online preceptor course, with credentialing, also has been successfully accomplished (Phillips, 2006).

In areas where preceptors are not available (very small workplaces, remote geographic areas, or organizations with preceptor burnout) a national Web site could be designed to connect preceptors, through a remote interface, to novice nurses. This innovative approach has been successfully implemented in Scotland's Flying Start program (2010) and could provide new nurses with opportunities for feedback, reflection, and support even when preceptors are not geographically available.

Once a national transition model is implemented and all nurses are precepted, it is expected the culture of nursing will change. Nurses will see precepting as an important part of their role, and it is anticipated facilities will no longer experience "preceptor burnout," or a shortage of available preceptors.

III.   Objectives of the Study

Primary Objective

To determine whether newly licensed nurses' participation in NCSBN's TTP model improves patient safety, leads to higher quality outcomes, and improves nurse retention.

Secondary Objectives

- To determine whether NCSBN's preceptor module adequately prepares nurses for the preceptor role.
- To identify the challenges and potential solutions of planning and implementing the transition model, individually, organizationally and across the state/jurisdiction.
- To determine the cost-benefit analysis to implement the TTP model at a health care organization by evaluating the return on investment based on new nurse turnover rates.

Study Overview

The entire study will consist of two phases. Phase I, which will last 18 months, will be conducted with newly licensed RNs in the hospital setting. This phase will examine the internal validity of the model. Phase II will last 18 and is projected to begin in April 2012, which will overlap with the end of Phase I. This phase will open the sample population and study setting to newly licensed LPNs/LVNs in long-term care and other settings, as well as RNs in health care provider offices, schools, correctional

facilities, community facilities and LPNs in hospital settings; it will examine the external validity, or generalizability, of the model.

In both Phase I and Phase II, three states/jurisdictions representing various geographic areas will be selected to participate in this study. NCSBN and the Transition Advisory Panel will begin review of all completed applications in December 2010. States/jurisdictions will be considered for participation based on the following criteria:

- Geographic diversity
- Minimum of 25 hospitals willing to participate from each state/jurisdiction
- Diversity of nurses in each state/jurisdiction

Study sites will be selected based on the following criteria:

- Willingness to participate and be randomized to either the experimental or control group
- Willingness of each site to adopt the proposed timeline
- Ability of site to produce a minimum of ten new graduates between July 1 and September 30, 2011
- Absence of a nationally, standardized program (UHC/AACN or Versant)
- Willingness of each site to share its rates of adverse incidents related to nursing
- Willingness of each site to share its CMS core measure indicators, nursing sensitive quality indicators, patient safety indicators, patient satisfaction information, patient discharge data, and staffing data/turnover
- Willingness of each site to allow nurses and preceptors to complete online modules and survey instruments during regular working hours
- Ability of each site to identify an internal candidate to serve as study site coordinator to manage IRB submission and organization research efforts for this study

Each state/jurisdiction will identify 25 hospitals for Phase I based on the selection criteria provided to the Boards of Nursing. A state coordinator, who will receive full salary support from NCSBN, will be identified for each state/jurisdiction that is selected in order to manage the implementation of the study across the 25 sites. The state coordinator will also assist in identifying the study sites for Phase II in late 2011. Using a random number table, 10 sites in each state/jurisdiction will be randomly assigned to the experimental group and 15 sites will be randomly assigned to the control group.

Each study site will designate a site coordinator who will be instrumental in managing the study at his/her hospital. The site coordinator will collaborate with the new nurses, preceptors (or managers), and state coordinators to ensure proper study implementation. He/she will also assist in collecting the institutional data from his/her hospital and ensure that it is entered into the electronic database. The site coordinator will ensure that all new nurses who meet the eligibility criteria will be asked to participate in this study.

See Figure 1 below for the study timeline.

Figure 1

Definitions

Adverse incidents – Any untoward, undesirable, and usually unanticipated event, such as death of a patient, an employee, or a visitor in a healthcare organization. (Ebright et al., 2004)

Clinical reasoning – The ability to reason as a clinical situation changes, taking into account the context and concerns of the patient and family. (Benner et al., 2010)

Errors – Incidents or occurrences that had the potential to place a patient at risk for harm or resulted in actual harm.

Experiential learning – Repeated and active experience with similar situations to improve performance. (Bjørk & Kirkevold, 1999)

Failure to Rescue – The inability to save a patient's life after the development of a complication. (Ashcraft, 2004)

Near miss – An event or situation that could have resulted in an accident, injury, or illness, but did not, whether by chance or through timely intervention. (Ebright et al., 2004)

Orientation – The process of introducing staff to the philosophy, goals, policies, procedures, role expectations, and other factors needed to function in a specific work setting. Orientation takes place both for new employees and when changes in nurses' roles, responsibilities, and practice settings occur. (American Nurses Association, 2000)

Preceptor (experimental group) – A nurse who has had NCSBN's preceptor training module and is assigned to work with the newly licensed nurse for the first six months of practice to provide expert feedback, to foster reflective practice, to role model safe and quality patient care, and to socialize the novice nurse into the role of a nurse. The preceptor can work on a one-to-one basis with the new graduate, or some institutions might utilize a team preceptorship model.

Preceptor (control group) – A seasoned nurse who is paired with a newly licensed nurse for the purpose of transition to practice. (Note: This may be the nurse manager if there is no established preceptor.)

Reflection – An active thinking back upon one's experience for the purpose of improving practice.

Transition to Practice – A formal program of active learning, implemented across all settings, for all newly licensed nurses (registered nurses [RNs] and licensed practical/vocational nurses [LPNs/LVNs]) designed to support their progression from education to practice.

IV. Methodology

Study Design

This will be a longitudinal, multi-institutional, randomized study to evaluate the effect of the TTP model on patient safety and quality outcomes.

Research Variables & Measuring Instruments

The independent variable for this study will be the use of NCBSN's TTP model which includes:

- The TTP modules
    - Patient-centered care
    - Communication and teamwork
    - Evidence-based practice
    - Quality improvement
    - Informatics
- Preceptorship
    - Preceptor training module
- Institutional support

This study will evaluate whether there are differences between the experimental group and the control group across the following dependent variables:

- Patient safety (through analysis of infection rates, use of restraints, failure to rescue, decubiti, post-op thrombosis, falls, reports of errors, and near misses)
- Competence of the new nurse
- Experiential knowledge of the new nurse
- Stress perceived by the new nurse
- Patient satisfaction
- New nurse satisfaction
- Retention (actual turnover rates and reports by new nurses of intent to leave/stay)
- Self reports of errors, near misses, and failure to rescue patients

See Figure 2 for a schematic relationship between the dependent and independent variables.

Figure 2 – Outcome Variables
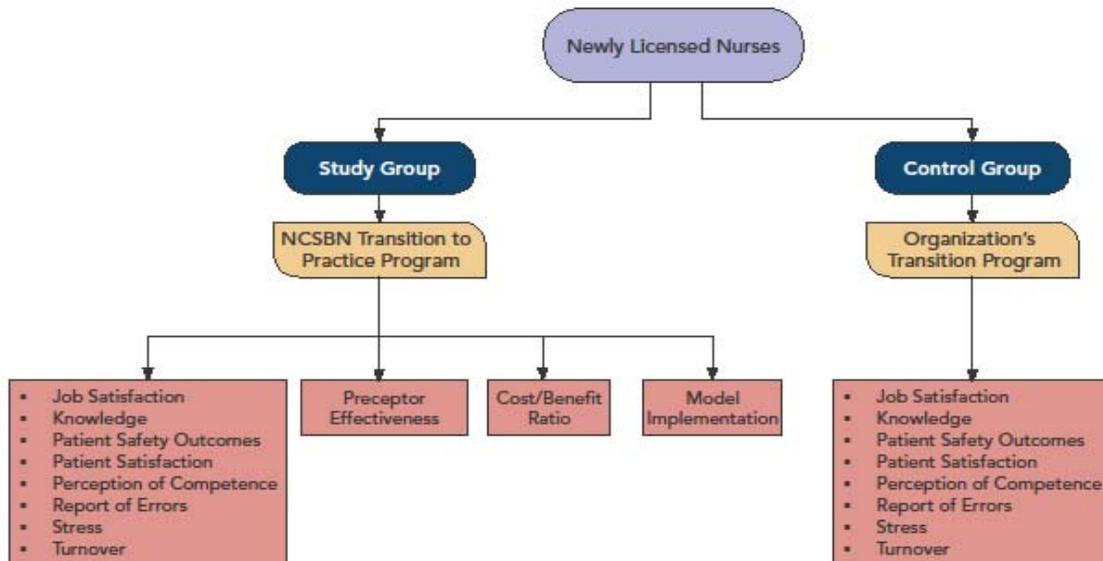
See Table 1 – Research Outcomes (on page 37) for an explanation of how the variables will be measured and their relationship to NCSBN's TTP model.

Focus groups will be conducted by the investigators at the end of the study in order to identify the challenges and possible solutions in implementing the TTP model. The cost-benefit ratio will also be analyzed to determine the value of this program to the health care organization in these focus groups.

Biweekly e-mail logs will be collected on all new nurses enrolled in the study, asking for reports in the last two weeks of errors, near misses or situations where they failed to rescue or pick up subtle changes in patients.

Preceptor effectiveness will be evaluated using a 360-degree evaluation consisting of the new nurse's evaluation, the preceptor's self evaluation, and the evaluation by the preceptor's manager.

The following tools (see Table 1 on page 37 for the rationale for using these tools) will be pre-tested, in the Chicago area with cohorts of new nurses, for clarity of the language and understandability and interpretation of the questions. Researchers will establish construct validity and reliability of these tools (see the statistical analysis section for details).

- Modified Quality & Safety Education for Nurses and Nursing Executive Center Critical Thinking Diagnostic
- NCSBN Practice Issues tool

- Brayfield & Rothe Index of Job Satisfaction
- Modified North Carolina Foundation for Nursing Excellence New Nurse Feedback Tool and National Institutes of Health Preceptorship Evaluation Survey created by Dr. Marsha Moore

For ease in completing the surveys, the above tools will be merged into one instrument, called the New Nurse Survey for the newly licensed nurses and the Preceptor Survey for preceptors.

Participant Selection

Participant Selection Procedures – Phase I (for hospitals)

Inclusion criteria:

1. New graduate nurses who are employed by the hospital during July, August, and September of 2011
2. New graduates nurse who have passed the NCLEX-RN
3. Nurses who meet the hospital's criteria for a new graduate transition program
4. Nurses who have not worked a permanent position as a registered nurse at another hospital prior to this current position

Exclusion criteria:

1. Nurses who were employed by the hospital prior to July and after September 2011
2. Nurses who previously worked a permanent position as a registered nurse in a hospital before current employment (temporary positions at facilities other than hospitals are allowed)

Participant Selection Procedures – Phase II (for health care agencies)

Inclusion criteria:

1. New graduate RNs and LPNs/LVNs who are employed by the agency during April through September of 2012
2. New graduates nurse who have passed the NCLEX-RN or NCLEX-PN
3. Nurses who meet the agency's criteria for a new graduate transition program
4. Nurses who have not worked permanent position as an RN or LPN/LVN at another agency prior to this current position

Exclusion criteria:

1. Nurses who were employed by the agency prior to April and after September 2012
2. Nurses who previously worked a permanent position as an RN or LPN/LVN (temporary positions are allowed)

Study Procedures

Experimental Group:

New Nurse

The enrollment period for Phase I will begin July 1, 2011 and continue through September 30, 2011. The enrollment period for Phase II will begin April 1, 2012 and continue through September 30, 2012. New graduate nurses who are hired within these periods are eligible to participate in the TTP study. All new nurses who meet eligibility criteria will be asked to participate. The hospital or other agency will agree to use the NCSBN TTP model as their only method of transition to practice during this period.

The site coordinator will verify eligibility of each new nurse. Eligible new nurses will be entered into the study by the site coordinator. Prior to enrolling a new nurse, the new nurse will be given a study consent form for review. Once the new nurse has reviewed the study details and has been given an opportunity to ask questions, the new nurse will sign the consent form, thus designating her/his willingness to take part in the surveys and focus groups, and will be enrolled onto the study. In order to enroll, the new nurse will complete a Demographics form via the electronic database.

The TTP program in this study is not meant to replace the organization's current orientation program. The new nurse will go through the organization's existing orientation program. Upon enrollment onto the study, the new nurse will be partnered with a preceptor who works within the same unit/department/area as the new nurse. The new nurse and her/his preceptor will actively participate in this preceptorship within the transition program for a 6-month period. The new nurse and the preceptor will meet initially to review the program. Then, they will meet *at least* every two weeks throughout the six-month transition period to provide feedback and to discuss questions or any areas of concern (e.g., near misses, errors, etc.).

Within the first month of the start date, the new nurse will be required to initiate the five online TTP modules in the areas of patient-centered care, communication and teamwork, evidence-based practice, quality improvement, and informatics. The hospital/health care agency will allow the new nurse to access the online modules at least twenty hours per month for three months during scheduled working hours. Prior to starting the modules, the new nurse will be prompted to take the 'Experiential Knowledge' evaluation tests in the five transition areas. Once she/he completes the evaluation tests, she/he can progress through the modules at her/his own pace but will be required to complete all modules within three months of initiation. The new nurse will receive a certificate of completion for each module she/he has successfully completed. She/he will be expected to give the certificates of completion to the preceptor to be maintained in the new nurse's employee file. The preceptor will make herself/himself available to the new graduate throughout the 6-month preceptorship. Upon completion of the 6-month preceptorship, the new nurse will continue to receive institutional support (Refer to section on Description of Roles and Responsibilities, under Institution). At 6, 9 and 12 months (or at study termination if the nurse terminates employment prior to the end of the transition period), the new nurse will be asked to

complete the new nurse survey instrument. At the end of 12 months, the new nurse will be required to take the final 'Experiential Knowledge' evaluation tests and will be asked to complete a Transition to Practice evaluation. The new nurse will receive 20 contact hours of continuing education, awarded by NCSBN, at the completion of the study.

Throughout the 12-month transition period, the new nurse will receive an email alert biweekly prompting her/him to complete a brief error log, via email, reporting any errors, near misses, or situations where there was a failure to recognize patient deterioration.

Preceptor

Each hospital/agency will identify the preceptors who will participate in the TTP study. Prior to enrolling a preceptor, the preceptor will be given a study consent form for review. Once the preceptor has reviewed the study details and has been given an opportunity to ask questions, the preceptor will sign the consent form and be enrolled onto the study. All designated preceptors will be required to complete the preceptor training module prior to the start of new nurse enrollment. The hospital/health care agency will allow the preceptor to access the online module at least ten hours total during scheduled working hours. Prior to starting the module, the preceptor will complete the Demographics form via the electronic database. At 6, 9, and 12 months (or at study termination if the new nurse terminates employment prior to the end of the transition period), the preceptor will be asked to complete the preceptor survey instrument. In addition at the end of 12 months, the preceptor will be asked to complete a Preceptor Module Evaluation. The preceptor will receive 20 contact hours of continuing education, awarded by NCSBN, at the completion of the study.

Nurse Manager

Prior to enrolling a nurse manager, the preceptor's nurse manager will be given a study consent form for review. Once the nurse manager has reviewed the study details and has been given an opportunity to ask questions, the nurse manager will sign the consent form and be enrolled onto the study. At 6, 9 and 12 months, the nurse manager will be asked to complete the Preceptorship Evaluation Survey.

Focus Groups

At the end of the 12-month transition period, a series of focus groups will be conducted both with the new nurses and preceptors in the experimental group in order to obtain qualitative data on the evaluation of the transition program and modules. Each focus group will be approximately one hour in length. Two NCSBN staff members will be present in each focus group. One staff member will serve as facilitator while the other will take notes and monitor the recording of each session. The facilitator will ask for clarification as necessary and moderate the session.

Additionally, a series of focus groups will be convened with site coordinators and state coordinators. These groups will assess the challenges and potential solutions of implementing the TTP model organizationally and across the state. Information on cost/benefit ratios will also be gained at during these focus groups.

Control Group:

New Nurse

In phase I, new graduate nurses who are hired by the hospital from July 1, 2011 through September 30, 2011 are eligible to participate in the TTP study. In phase II, new graduate nurses who are hired by the health care agency from April 1, 2012 through September 30, 2012 are eligible to participate in the TTP study. All new nurses who meet eligibility criteria will be asked to participate. The site coordinator will verify eligibility of each new nurse. Eligible new nurses will be entered onto study by the site coordinator. Prior to enrolling a new nurse, the new nurse will be given a study consent form for review. Once the new nurse has reviewed the study details and has been given an opportunity to ask questions, the new nurse will sign the consent form and be enrolled onto the study. In order to enroll, the new nurse will complete a Demographics form via the electronic database.

Upon enrollment, the new nurse will go through the organization's existing orientation program and will not complete the NCSBN's TTP modules. Within the first month of the start date, the new nurse will take the 'Experiential Knowledge' evaluation tests in the five transition areas. At 6, 9, and 12 months (or at study termination if the nurse terminates employment prior to the end of the transition period), the new nurse will be asked to complete the new nurse survey instrument. At the end of 12 months, the new nurse will be required to take the final 'Experiential Knowledge' evaluation tests and will be asked to complete a Transition Program Description form.

Throughout the 12-month transition period, the new nurse will receive an email alert biweekly prompting her/him to complete a brief error log, via email, reporting any errors, near misses, or situations where there was a failure to recognize patient deterioration.

Preceptor (or manager if there is no established preceptor)

Prior to enrolling a preceptor, the preceptor will be given a study consent form for review. Once the preceptor has reviewed the study details and has been given an opportunity to ask questions, the preceptor will sign the consent form and be enrolled onto the study. The preceptor will complete the Demographics form via the electronic database. At 6, 9 and 12 months (or at study termination if the new nurse terminates employment prior to the end of the transition period), the preceptor will be asked to complete the preceptor survey instrument. In addition at the end of 12 months, the preceptor will be asked to complete a Transition Program Description form.

Description of Roles and Responsibilities

New Nurse (For Experimental Groups Only):

The new nurse will be expected to begin the online transition modules within one month of her/his start date and should complete all modules within three months of her/his start date. Each time the new nurse completes a module, she/he will be awarded a certificate of completion which should be provided to the preceptor for the new nurse's employee file. The new nurse will work closely with the preceptor throughout the transition program and will meet with the preceptor at least every two weeks in order to discuss any questions or areas of concern.

Preceptor (For Experimental Groups Only):

        The TTP model is strongly dependent on a well-developed preceptor-nurse relationship. Prior to enrollment of new nurses, preceptors at hospitals that are randomized to the experimental group will be expected to complete the online preceptor training module. Ideally, newly licensed nurses will work and train with a preceptor on a one-on-one basis. The goal will be for preceptors to work with the new nurses throughout the transition program during which she/he will assist the new nurse in socializing to her/his new role by identifying support systems (e.g., staff development, manager, peer, and Board of Nursing).

        During the beginning weeks of the new nurse's employment, the preceptor will spend more time with the new nurse to serve as a role model, to provide feedback and to allow the new nurse time to reflect on his/her practice. As the preceptorship continues, the preceptor will foster more independence, but will continue to provide feedback and opportunities for reflection throughout the six-month period. The preceptor will facilitate development of clinical reasoning, understanding of delegation and accountability, and detection of subtle changes in patient's condition. Throughout this period, the preceptor will recognize and celebrate the new nurse's successes. She/he will meet with the new nurse at least every two weeks in order to discuss questions or any areas of concern (e.g., near misses, errors, etc.), and collect the certificates for completion of the modules from the new nurse.

Institution:

<u>For Both Experimental and Control Groups:</u>

        A site coordinator will be designated by the institution for both experimental and control groups in order to assist in oversight of the study. Adequate computer/internet resources will be provided to the new nurses, preceptors, and site coordinator. During the study, the institution will allow the new nurses and preceptors to complete online survey instruments and complete the online baseline and final evaluation tests. Additionally, the institution will provide institutional data (e.g., quality and safety data, patient satisfaction data, staffing/turnover data, and economic impact data) to the site coordinator and state coordinator for entry into the study database.

<u>For Experimental Groups Only</u>

        During the time prior to new nurse enrollment and during the first six months of the new nurse's transition program, the institution will allow the preceptors and new nurses to access the online modules.

        During the last six months of the new nurse's transition program, the institution should provide opportunities for feedback and reflection of practice. This includes allowing the new nurse to evaluate any processes that could be done differently and what lessons were learned from specific situations. In order to facilitate this evaluation, there should be a discussion of the performance appraisal including any strengths or weaknesses. In addition, the institution should provide the new nurse with opportunities to review any sentinel events or any near misses to develop an understanding of problem solving methods. The institution should encourage the new nurse to participate in committee work or grand rounds in order to engage the new nurse with the institution. Finally, there should be a celebration of the end of the program (whether individual or hospital-wide) in order to formally recognize the new nurse's transition period.

Site Coordinator:

The site coordinator will assist in the identification of new nurses and preceptors (or managers if there are no established preceptors) for the study and will be the primary contact person for the new nurses, preceptors (or managers), and state coordinator. This individual will facilitate the IRB submission process and maintain updated IRB files at the study site. She/he will monitor new nurse and preceptor enrollment and provide routine enrollment updates to the state coordinator and NCSBN staff. In addition, the site coordinator will assist in compiling institutional data (e.g., quality and safety data, patient satisfaction data, staffing/turnover data, economic impact of the TTP) and ensure timely and accurate data collection (including completion of survey instruments by new nurses and preceptors) in order to adhere to the specified timeline.

State Coordinator:

The state coordinator will oversee the designated study sites and act as the liaison for designated study sites for communication with NCSBN. This individual will assist study sites with the IRB submission process and ensure the study site coordinators, new nurses, and preceptors (or managers) are adequately trained on the study protocol. This includes organizing site training visits after each site has received IRB approval. She/he will monitor participant enrollment at designated study sites and devise a plan to increase new nurse/preceptor enrollment as necessary. Additionally, the state coordinator will support data collection processes in order to adhere to the specified timeline and will ensure data integrity and quality.

Duration of Study Participation

The new nurse will continue her/his transition into practice (i.e., formal NCSBN TTP or organization's orientation program) for 12 months from the start date unless she/he terminates her/his employment with the organization. If the new nurse terminates her/his employment with the organization prior to an evaluation period (i.e., at 6, 9, or 12 months), then the site coordinator will make every effort to have the new nurse complete the survey instruments and evaluation tests as described in the *Study Procedures* section prior to the formal separation date of employment.

If the preceptor (or nurse manager if there is no established preceptor in the control group) terminates her/his employment with the organization prior to an evaluation period (i.e., at 6, 9, and 12 months), then the site coordinator will make every effort to have that individual complete the survey instruments as described in the *Study Procedures* section prior to the formal separation date of employment. In addition, another preceptor (or nurse manager if there is no established preceptor in the control group) will be assigned to the new nurse.

	Pre-Study (Prior to enrollment of New Nurses)	Baseline (Within 1 month of Start Date)	Every 2 weeks (from baseline through end of study)	6 months from Start Date (or termination date, whichever comes first)	9 months from Start Date (or termination date, whichever comes first)	12 months from Start Date (or termination date, whichever comes first)
Experimental Group:						
• **New Nurse**						
– **Initiate TTP Modules**		X[**]				
– **Complete Demographic tool and Experiential Knowledge Evaluation Tests**		X				X
– **Complete Error Log**			X			
– **Complete New Nurse Survey**				X	X	X
– **Complete Transition to Practice Evaluation**						X
– **Focus group interview**						X
• **Preceptor**						
– **Initiate Preceptor Training Module**	X					
– **Complete Demographic tool**		X[**]				
– **Complete Preceptor Survey**				X	X	X
– **Complete Preceptor Module Evaluation**						X
– **Focus group interview**						X
• **Nurse Manager**						
– **Complete Nurse Manager Survey**				X	X	X
Control Group:						
• **New Nurse**						
– **Complete Demographic tool and Experiential Knowledge Evaluation Test**		X				X
– **Complete Error Log**			X			
– **Complete New Nurse Survey instrument**				X	X	X
– **Complete Transition Program Description – New Nurse**						X
• **Preceptor/Manager/Mentor**						
– **Complete Demographic tool**		X				
– **Complete Preceptor Survey instrument**				X	X	X
– **Complete Transition Program Description – Preceptor/Manager/Mentor**						X
Both Groups:						
– **Submit institutional data (e.g., quality and safety data, patient satisfaction data, staffing/turnover data, economic impact data)**	X					X

[*] For ease of identification/completion of the survey instruments, the following instruments have been integrated into one survey called the New Nurse Survey: Quality & Safety Education for Nurses (QSEN) Student Evaluation Survey and Nursing Executive Center (NEC) Critical Thinking Diagnostic, NCBSN Practice Issues Tool, Brayfield & Rothe Index of Job Satisfaction, and National Institutes of Health Preceptorship Evaluation Survey (PES) created by Dr. Marsha Moore and the North Carolina Foundation for Nursing Excellence New Nurse Feedback Tool. Additionally, the following instruments have been integrated into one survey called the Preceptor Survey: QSEN Student Evaluation Survey NEC Critical Thinking Diagnostic, National Institutes of Health PES created by Dr. Marsha Moore and the North Carolina Foundation for Nursing Excellence New Nurse Feedback Tool.

[**] The new nurse and the preceptor (in the experimental group) should meet initially to review the program. Then, they should meet at least every two weeks throughout the six-month transition period to discuss questions or any areas of concern (e.g., near misses, errors, etc.)

V. Data Collection and Handling

Data Collection

All data will be entered into a web-based data collection and reporting system. A separate instruction manual for this system will be provided.

Confidentiality

Information collected from the new nurses, preceptors, and nurse managers will be kept confidential. The site coordinator, other individuals from the study sites and the state coordinator will not be able to view responses entered by the new nurses, preceptors, and nurse managers. In the event that a new nurse or preceptor terminates her/his participation in the study and thereby revokes her/his authorization to collect further data, NCSBN retains the ability to use all information collected prior to the revocation of authorization.

The site coordinator and state coordinator will be able to enter and view site-specific patient safety and quality outcomes data but the confidentiality of this information will also be protected. This information will be used only for the purposes described in this study. All institutional data about adverse incidents related to nursing, CMS core measure indicators, nursing sensitive quality indicators, patient safety indicators, patient satisfaction information, patient discharge data, and staffing data/turnover will be reported in the aggregate and specific institutional data will not be reported.

VI. IRB Monitoring Plan

In order to protect the rights of the new nurses and preceptors who are participating in this study, approval to conduct the study will be requested via review by either a local or central (if allowed per the study site's policies) Institutional Review Board. The study will undergo continuous IRB monitoring as required by each site's IRB policies. Each new nurse and preceptor will be asked to provide written informed consent to participate in the study prior to any study-related procedures. The participant has the right to withdraw from the study at any time by notifying the site coordinator.

VII. Statistical Analysis Plan

Sample

Determination of Sample Size:

Sample-size requirements include statistical power of 0.80 with two-tailed α-levels of 0.05 in studies with a balanced design that plan to compare two groups on time-averaged, repeated observations of a binary outcome. The sample size will be based on the algorithm of Diggle, Heagerty, Liang, and Zeger (2002) and is a function of several features of the study, including the response rates for each group, the number of repeated observations per participant, and the strength of the association among

observations within participant as quantified with an intraclass correlation coefficient. The algorithm used to compute the sample size is as follows:

$$m = \frac{2\left(z_\alpha + z_Q\right)^2 \sigma^2 (1-p)}{ns_x^2 d^2}$$

where m = number of participants required per group

α = .05 = the assumed correlation of the repeated measures

$Z_{\alpha/2}$ = the Z value beyond which α/2 of the standard normal curve falls (e.g., if α = .05, $Z_{\alpha/2}$ = 1.96

Z_Q = the Z value below which β of the standard normal curve falls (e.g., if β = .20, that is, the value that corresponds to power of .80, Z_Q = .8416)

σ^2 = Measurement variation = the assumed common variance in the two groups.

p = Correlation among the repeated observations

n =Number of repeated observations per person = *3*

s_x^2 = sample variance

d = Smallest meaningful difference to be detected (effect size)

Validity and Reliability of the Instruments

The first step in establishing validity will be to have a panel experts review the questionnaires and see whether "on its face" there seems like a good translation of the construct. Concurrent validity of outcomes measures will be examined with Pearson or Spearman correlation coefficients and chi square and kappa statistics.

Factor analysis will provide an estimate of the factorial validity of the scale and determine the underlying themes and constructs. Cronbach's alpha coefficients will be calculated to examine internal consistency and reliability. Intraclass correlation coefficients and kappa coefficients will be used to examine test-retest reliability.

Statistical Method

Measurements will be recorded on individual subjects at 6, 9, and 12 months after they have entered the transition program. A repeated measurement design will be used to analyze the data. In this design, participants present scores for a measure repeated over time (e.g., perceived competence before, after intervention). Repeated-measures designs can be thought of as an extension of the paired-samples t-test to include comparison between *more than two repeated measures*.

The qualitative data obtained from the biweekly logs will be analyzed to help researchers uncover and systematically analyze complex phenomena hidden in text. Information will be coded, and findings in

primary data material will be annotated, weighed and evaluated regarding their importance. The logs will help us discover the texture of the data and their interwoven meanings.

VIII.   Financial Information

The new nurses and preceptors will not be paid for their participation in this study. The new nurses will receive 20 continuing education contact hours for successful completion of all transition modules and the preceptors will receive 20 contact hours for completion of the preceptor training module. The hospital will designate a site coordinator to implement the study at their site and thus will receive $2,000 in support (to be used however the site decides). The state coordinator will be paid a full salary and benefits throughout both phases of the study.

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Appendix - Table 1 – Research Outcomes

Study Objectives	Outcome Measure	Rationale	Instruments	Collection Time	Data Source
PRIMARY OBJECTIVE:					
1. To determine whether newly licensed nurses' participation in NCSBN's TTP model improves patient safety and quality outcomes. a) Safety	a) *Actual outcomes:* • Infection rates • Use of restraints • Failure to rescue • Decubiti • Post-op thrombosis • Falls • Medication errors • Incident reports *Perception:* • Report of errors (New Nurse), near misses and situations where there was a failure to recognize patient deterioration	a) Actual outcomes – nurse sensitive indicators • Reports of errors from new nurse perspective **Relationship to NCSBN TTP Model:** • Safety is integrated throughout all the modules. • Preceptor relationship stresses patient safety. • All new nurses required to complete/participate in a root cause analysis of an adverse event or near miss.	a) • AHRQ Safety indicators • CMS core indicators • NDNQI • System data collection • Joint Commission • NCSBN Practice Issues tool • Email log on errors, near misses and situations where there was a failure to recognize patient deterioration	a) At baseline, 6 months, 9 months, & 12 months (need to collect pre-study actual data in order to compare to post-study data) Logs will be reported biweekly	a) Institution New Nurse
b) Competence	b) Perception: New Nurse • Patient-centered care • Communication and teamwork • Evidence-based practice • Quality improvement • Informatics • Clinical reasoning	b) Perception of new nurse can be challenging, but many studies have used this with good success. Measuring elements of the model for outcomes of the modules. **Relationship to NCSBN TTP Model:** • Modules of the model include patient-centered care, communication and teamwork, evidence-based practice, informatics and quality improvement. Clinical reasoning is integrated throughout all modules. Feedback and reflection are threaded throughout the model.	b) Perception of the New Nurse • Modified Quality & Safety Education for Nurses (QSEN) and Nursing Executive Center (NEC) Critical Thinking Diagnostic • NCSBN Practice Issues tool	b) At 6, 9, & 12 months	b) New Nurse

Study Objectives	Outcome Measure	Rationale	Instruments	Collection Time	Data Source
	• Patient-centered care • Communication and teamwork • Evidence-based practice • Quality improvement • Informatics • Clinical reasoning		Preceptor • Modified QSEN/NEC tool	At 6, 9, & 12 months	Preceptor
c) Experiential knowledge	c) Actual performance on modules	c) Actual performance on modules will provide objective measurement data. **Relationship to TTP Model:** The online modules, which incorporate the patient-centered care, communication and teamwork, evidence-based practice, quality improvement and informatics, will provide experiential learning experiences to the newly licensed nurse. Their performance on these will provide data on their knowledge of these concepts.	c) Experiential Knowledge evaluation tests at end of each module	c) Pre-model & Post-model	c) New Nurse
d) Stress	d) Stress (perception)	d) Perception of stress (Elfering et al, 2006; NCSBN, 2007) is linked to errors. **Relationship to TTP Model:** By providing experiential learning via preceptor and institutional support and the online modules, it is hypothesized that stress will be reduced in the study newly licensed nurses. It has been shown that newly licensed nurses are more stressed, and increased stress has been linked to errors.	d) Stress • NCSBN Practice Issues tool	d) At 6, 9, & 12 months	d) New Nurse
e) Patient satisfaction	e) Patient's perception of satisfaction with hospital/setting	e) Patient satisfaction is a general measure of patient-centered care and communication with patients; attempt at 360 evaluation. The Mississippi 6-month transition program showed increases in patient satisfaction by 10%. **Relationship to TTP Model:** The focus on communication and teamwork, quality improvement, and patient centered care will provide new nurses with the ability to provide care to	e) Patient Satisfaction	e) Per institutional collection interval	e) Patient

Study Objectives	Outcome Measure	Rationale	Instruments	Collection Time	Data Source
		specific patient needs, and they will therefore be more satisfied. Further, the model's focus on safety and patient surveillance will prevent adverse outcomes, which certainly affects patient satisfaction.			
f) Retention	f) Intent to leave/Intent to stay Actual turnover rate Report of Intent to leave/stay	f) Intent to leave - Actual • Reports of intent have been reliable • > 25% retention during 1st year • Increased errors with temporary nursing staff when nurses leave (Berens, 2000; Massachusetts BON) **Relationship to TTP Model:** The preceptorship in the TTP model has been designed to allow new nurses to be socialized to the role of the nurse in the organization. There will be opportunity to reflect on this role , and there will be continued institutional support for another 6 months. At the end of the new nurse's first year there will be a celebration, which will further socialize the new nurse into the institution.	f) Retention • Data instrument from the institution • NCSBN Practice Issues tool	f) At 12 months At 6, 9, & 12 months	f) Institution New Nurse
	Nurse Satisfaction	• When nurses are satisfied, they are less likely to leave (Beecroft, 2008) **Relationship to TTP Model:** This is related to the above variable in that the model has been design to integrate the new nurse into the system by providing a preceptor, allowing for continued institutional support, supporting the new nurse in their area of specialty, and celebrating their first year of practice.	Nurse satisfaction • Brayfield & Rothe Index of Job Satisfaction	At 6, 9, & 12 months	New Nurse
SECONDARY OBJECTIVES:					
1. To determine whether NCSBN's preceptor module adequately prepares nurses for the preceptor role.	2a) Preceptors' perception of being adequately trained	Measurement of perception from three perspectives will provide evaluative data. **Relationship to TTP Model:** The preceptor training model incorporates an understanding of the role of the preceptor, teaching learning concepts, effective communication techniques, as well as an overview of the TTP model that the new	• Preceptor Module Evaluation • Modified North Carolina Foundation for Nursing Excellence New Nurse Feedback Tool and National Institutes of Health Preceptorship Evaluation Survey	At 12 months At 6, 9, & 12 months	Preceptor

Study Objectives	Outcome Measure	Rationale	Instruments	Collection Time	Data Source
		nurse will experience. It has been documented that most preceptors have very little preparation.			
	2b) New nurses' perception of preceptors being adequately trained		• Preceptorship Evaluation Survey	At 6, 9, & 12 months	New Nurse
	2c) Preceptors' Managers' perception of preceptor being adequately trained (experimental group only)		• Preceptorship Evaluation Survey	At 6, 9, & 12 months	Preceptor's Manager
2. Identify the challenges and potential solutions of planning and implementing the transition model, individually, organizationally and across the state.	3. Perception of challenges: a) Preceptor b) New nurse c) Site coordinator d) State coordinator	Self report from institutional perspective Provide BONs with implementation hints they may benefit from. **Relationship to TTP Model:** This standardized model has many aspects that need to be implemented across settings and levels of education. Implementing the model is bound to create challenges, though piloting it will provide information on how to solve some of these problems.	• Preceptor Module Evaluation • Transition to Practice Evaluation – New Nurse • Focus groups with preceptors, new nurses • Focus groups with site coordinators and state coordinators	At 12 months	New Nurse Preceptor Institution State
3. Determine cost benefit analysis	Return on Investment (ROI of implementation)	Cost seems to be one of the biggest barriers **Relationship to TTP:** Cost is a major reason employers cite for not implementing a transition to practice model so this is a crucial variable to explore. The TTP model will require time for new nurses to experience the modules and for preceptors to be trained. Additionally there will be the need to support the nurse/preceptor relationship so that there will be some decreased patient loads until the new nurse is ready for independence. There will be the need for institutional support where the new nurse will be monitored, allowed to reflect on his/her practice and provided feedback in the last 6 months. However, all of this will be offset by a decreased turnover, which researchers have found to cost 1.2 times the salary of the new nurse.	• Focus groups with site coordinators	At 12 months	Institution