

Building Evidence-Based Nursing Practice Capacity in a Large Statewide Health System: A Multi-Modal Approach

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Abstract

Integration of evidence-based practice (EBP) into the culture of a healthcare organization is essential to provide safe patient care and promote a thriving culture for the nurses within the healthcare organization. Collaboration and utilization of both clinical and academic experts facilitates the removal of barriers to EBP. This article describes the successful partnership between a healthcare system and school of nursing in executing a 3-phased multi-modal approach to an EBP training program.

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Evidence-based practice (EBP) is a problem-solving approach to clinical decision-making, integrating the best available scientific evidence, experiential evidence (of the patient and practitioner), and judicious application of evidence into the care of a patient, population, or system (1). EBP is a construct of nursing practice as healthcare demands decreasing costs of care while simultaneously improving patient health outcomes. Nurses manage these demands while caring for higher acuity patients and an increasingly aging population. These challenges elucidate the importance of nurses having access to evidence to inform their real-time clinical practice decisions. Integrating EBP into organizations' culture and clinical practice decisions decreases care provision variation and improves patient, nurse, and organizational outcomes (2, 3).

Competencies to facilitate EBP integration into nursing clinical practice include developing a skill set for the EBP process, participating in EBP activities, evaluating, modifying, and disseminating outcomes and encouraging and mentoring nurses to develop these skills (4,5). Despite the existence of these competencies, the integration of EBP into the clinical practice setting remains inconsistent. Nurses continue to describe personal (confidence, knowledge and skills) and organizational characteristics (lack of time, lack of access to research evidence and lack of leadership support) as primary barriers to providing evidence-based care (6, 7, 8). Nurse executives are in a key position to create an environment of inquiry by recognizing and reducing barriers to enable a practice culture that embraces EBP.

The American Nurses Credentialing Center's Magnet Recognition Program® requires organizations to demonstrate EBP integration into nursing practice (9). Nursing leaders must balance competing clinical demands and organizational fiscal constraints with support for EBP integration into nursing practice and implementing EBP programs. Oftentimes, healthcare organizations do not have internal resources necessary for teaching and sustaining EBP. Establishing collaborative partnerships between healthcare and academic organizations is a creative way to address challenges associated with EBP integration. Academic nurse researchers have experiential learning expertise and can provide mentoring support to practice-based clinicians (10). Practice-based clinicians have expertise in direct patient care and healthcare delivery processes. Utilizing the combined expertise from both the healthcare system and academia is essential for integrating EBP to enhance nurses' clinical decision-making. The purpose of

this article is to describe the implementation of an EBP training program through a collaborative partnership between a large healthcare system and a Midwestern university school of nursing (SON).

The training initiative described in this article utilized a collaborative academic-clinical partnership to teach fundamental EBP skills to nurses. A relevant clinical issue identified by the clinical partners was used to make the learning experience applicable. The system-wide reach of this training initiative, focused primarily on the development and replication of the curriculum to increase EBP knowledge and skills for nurses within the health system, rather than implementation. Nurses armed with knowledge and the skills serve as resources for their peers and are imperative to the creation of an EBP culture and the implementation of best practice.

Background

Indiana University Health (IU Health) and Indiana University School of Nursing (IUSON) have an established partnership for promoting nursing education and advancing nursing practice. IU Health is a large healthcare system in the Midwest, employing approximately 9,000 registered nurses (RNs), with more than 2500 beds in 18 facilities; providing healthcare services in outpatient, acute care, urban and rural, critical access, academic/teaching, and Level I Trauma settings. Several of the IU Health facilities have obtained Magnet® or Pathway to Excellence® designation, which recognizes nursing excellence and high-quality clinical outcomes for patients (9). Magnet designation requires hospital organizations to develop, disseminate, enculturate and sustain EBP resulting in an improved work environment for nurses and improved health outcomes for patients (9). IU Health nursing leaders possess expertise in clinical practice, patient quality, and healthcare delivery processes. The IUSON faculty have expertise in EBP, including methodology, building infrastructure and translating evidence into nursing practice. This unique partnership between IU Health and IUSON was originally formed in 2009 and known as the Indiana University Nurse Learning Partnership. The partnership was internationally recognized as setting the standard for collaboration between academic and clinical sites to benefit the students, clinicians, and communities they collectively serve (11).

Developing infrastructure to support the clinical application of EBP was a logical next step for this collaborative relationship. In 2016, IU Health and IUSON leaders enhanced the academic-clinical partnership to implement an EBP training program across the health system. Nursing leaders from IU Health and IUSON faculty formed a

collaborative group with key stakeholders from both institutions and met frequently to plan, implement, and evaluate project progress. The creation of a specific mutual strategic plan for EBP and research resulted in a proposal and award of a foundation grant to support the year one training initiative. A key stakeholder throughout the project was the Research to Practice Council, IU Health's shared nursing leadership research council. The Research to Practice Council partnership was crucial as it is composed of direct care nurses, clinical nurse specialists, nursing leaders from across the health system, and IUSON faculty representatives charged with promoting research and EBP.

This cohesive team of key stakeholders from both organizations (hospital system and university) was instrumental in the success of this initiative. Executive nursing leaders at the system level facilitated communication with regional CNO's ($n=14$). A PhD-prepared clinician who has a joint appointment with IUSON and IU Health facilitated development and implementation of the training, as well as communication with the Research to Practice Council. Key stakeholders from IUSON, included school leadership (Dean of the School of Nursing, the Associate Dean of Research), 2 full-time PhD-prepared faculty, a program manager (DNP), Assistant Dean for the Center for Professional Development and Lifelong Learning education, and a post-doctoral fellow. IUSON stakeholders have expertise in developing and implementing EBP training, research, leadership, and education. Additional collaborations with hospital and university librarians and the IU Health educational learning institute were integral to planning and implementing this initiative. This collaborative approach engaged multiple levels of nursing leaders from IU Health and IUSON to build and strengthen EBP infrastructure across the organization. Key stakeholders are described in Figure 1.

EBP Training

A 3-phased multi-modal approach was the strategy utilized for implementing the EBP training, which included, sequentially: train-the-trainer sessions, replication of the train-the-trainer sessions at individual facilities, and global organizational learning for all RNs via web-based modules. This approach targeted multiple groups of nurses through an in-depth formal EBP training program to develop EBP experts to serve as system wide resources, and provided an overall EBP education program for the larger population of RNs.

Phase 1: EBP Experts and Mentors

A formal, in-depth train-the-trainer approach was selected to begin the health system work. Prior to developing content for the Phase 1 training, the health system executive leadership was consulted to determine a system priority and generalizable topic to formulate an EBP training question. Leadership chose a nursing quality topic, specifically that of hospital-acquired pressure injuries and the use of preventative foam dressings. The program content introduced the methods included in the EBP process while using the clinical topic to apply EBP skills and knowledge. Because the topic for this system-wide EBP training was preselected as a system-wide priority, the subsequent trainings were clinically relevant and easy to replicate locally.

The target audience for the initial 8-hour train-the-trainer workshop included direct care RNs, educators, and advance practice nurses that would lead future EBP initiatives. EBP mentors were chosen by each facility's chief nursing officer (CNO). The expectation of the EBP mentors who attended the train-the-trainer workshop included replicating the training and serving as an EBP resource within their respective facilities. Course content addressed the background and importance of EBP as well as the EBP process (SCD 1). Teaching strategies used in the program included didactic, interactive, and experiential group activities. Course faculty were EBP experts and leaders from both IUSON and IU Health. Empirical studies related to the EBP question were assigned to participants as pre-reading material prior to attending the training. Course faculty guided the participants through the EBP process using Johns Hopkins tools and interactive group activities (1). During the class, participants worked in pre-assigned groups of 5 to 7 nurses, to critically appraise the articles and present their findings to the other participants and discussed the application of the evidence to clinical practice.

Two train-the-trainer workshops were held, accommodating scheduling and staffing priorities at the various facilities. All EBP mentors received a binder containing the workshop handouts and supporting materials. Additionally, the EBP mentors had online access to a shared web site with electronic versions of the training presentations, articles, and appraisal tools in order to support the replication of the training at their own facility. Participants captured and chronicled their engagement in training activities using photographs and social media platforms.

Phase 2 EBP Mentors Train Hospital Staff

Mentors conducted EBP training at their respective facilities. Using the workshop materials, the EBP mentors implemented the EBP training session and mentored groups of nurses at their facilities. The IU Health and IUSON workshop facilitators who conducted the Phase 1 training provided additional support through mentorship calls hosted weekly for 5 weeks. The mentorship calls facilitated discussions around planning and implementing the replication training, additionally serving as a venue to address questions, highlight available resources, and exchange ideas. These discussions provided the opportunity for EBP mentors who had already conducted their facility training to discuss teaching and workshop planning strategies, things that worked well, and lessons learned with the EBP mentors that were still in the planning stages.

The facility-specific EBP training content reflected the Phase 1 training but format was not prescribed. This allowed EBP mentors to customize the training format to meet facility-specific priorities and needs, while still maintaining the content and ensuring that EBP competencies were met. Faculty from the Phase 1 training from both IU Health and IUSON attended the facility-specific workshops to support the EBP mentors and to serve as additional resources. Continuing education contact hours were available to the participants for Phase 1 and 2 trainings once they completed a post-workshop electronic evaluation.

Phase 3 Global System EBP Learning

The final stage of this initiative focused on broad EBP training for all health system nurses. This included the development of online web-based modules providing general EBP information to all direct-care nurses system wide. The web-based module consisted of 3 short (5-9 minutes) online videos that covered the definition of and relevance of EBP to the nursing role; differentiating EBP, quality improvement, and research; and describing resources available in the healthcare system to support EBP. IU Health leadership, IUSON stakeholders, and the Research to Practice council provided input and feedback as the modules were developed. Photos and voice-over interviews from the Phase 1 training were incorporated into the videos to illustrate the participation and relevance of the content with actual nurses from the system. Closed captioning was available within the videos so nurses viewing on computers without audio capability would still be able to follow along. Members of the IU Health Learning Institute, the department responsible for management of online learning activities, uploaded the modules to the system

electronic learning management system for viewing. The online web-based modules were available to all disciplines across the healthcare system.

Program Results and Outcomes

Several important outcomes were achieved through this collaborative project. Relationships between IU Health and IUSON strengthened, new partnerships and new professional friendships were established across many levels of nursing from leaders to direct-care nurses. The leadership for this collaborative project was composed of 5 healthcare executive nursing leaders, 6 faculty and 1 clinical leader with a joint faculty appointment. Additional collaborative relationships extended to the chair and members of the Research to Practice Council, 1 hospital and 1 university librarian, director of the funding foundation and 2 members of the IU Health Learning Institute. Meetings consisted of planning, objective clarification, curriculum development, and selection of platforms and formats to disseminate the educational material. To maintain accountability, monthly updates and progress reports were presented to the health system executive leadership team and the health system Research to Practice Council.

Phase 1

A summary of the results of the multi-modal approach are presented in Figure 2. EBP nurse mentors attended the initial train-the-trainer workshop, representing 14 facilities within the IU Health system. Participant evaluations following the training indicated the workshop training was a positive learning experience. See SDC #2 for a summary of evaluation feedback from the initial train the trainer workshop.

Although the focus of the training was on EBP skill development, rather than the implementation of a practice change itself, following the EBP training many of the attendees evaluated their current hospital pressure prevention processes and using the evidence from the training, made evidence-based improvements to their prevention processes, reducing variation in practice. Specifically, the largest of the IU Health facilities (Level 1 Trauma academic/ teaching hospital) examined their current pressure injury preventive practices, made process improvements and implemented the recommendations for prophylactic dressings in the emergency department for critically ill patients, with in an overall decrease in the number of HAPI from prior to the training. There was also an increase in EBP projects initiated across IU Health. Scholarship increased as a greater number of abstracts have been

submitted to regional and national research conferences. Although the cost benefit of the training has yet to be fully realized, our initial findings which are promising, are outlined in Table 1.

Phase 2

The EBP nurse mentors replicated the EBP workshop over a 5-month period. Training ranged from half-day to whole-day workshops. Several smaller facilities combined resources and held joint trainings regionally. EBP training crossed healthcare disciplines with interdisciplinary health care team members (pharmacists and respiratory therapists) participating in the EBP training. Mentorship call attendance was initially robust with the majority of facilities represented. Mentorship calls were discontinued after 5 weeks as most facilities had replicated the training.

Phase 3

The majority of direct care nurses who were assigned the web-based training modules, completed the training within the 60-day requirement time period. No subjective evaluation data was collected for the web-based training modules due to the volume of participants. The web-based EBP modules were incorporated into new hire nursing orientation and were available for interdisciplinary viewing. Additionally, a shared system-wide repository was created to house ongoing EBP projects, training materials, and resources. Activities around maintaining the training program and sustaining momentum for EBP were transitioned to the Research to Practice Council.

Discussion

This collaborative endeavor between a health system and a university was a successful endeavor, and addressed challenges associated with integrating EBP into clinical nursing practice in a large healthcare organization. The multi-modal program provided a venue for nurses to develop a skill set for the EBP process, participate in EBP activities, encourage, and mentor other nurses in this process (4, 5). This project succeeded in integrating an EBP training program into the existing infrastructure using the shared governance model to incorporate leaders from direct-care nurses at each facility to system executive leadership.

The Institute of Medicine (IOM) Quality Chasm calls for improvements in health care performance states improvements should be based on knowledge-based care, patient-centered care, and systems-minded care (12).

Implementation of this EBP training supports the IOM report through the emphasis on evidence based nursing practice driving patient-centered care and quality outcomes (12). The EBP training addressed the 1st 7 of 13 EBP competencies for practicing nurses proposed by Melnyk and colleagues (5). It has been established that EBP is an essential component of professional nursing and results in improved patient outcomes (13, 14).

There are a number of benefits realized in clinical academic partnerships, which include attainment of mutual strategic goals, establishing teams with capacity to conduct EBP, establish additional mentors to support infrastructure for EBP and research and developing sustainable materials that can be shared across the health system. Using a stepwise approach facilitates development of basic nurse competencies for EBP without overwhelming the system, trainers or trainees. Academic faculty with expertise in EBP and evidence translation can mentor nurse champions that will lead future efforts- and establish relationships needed to move toward the next stage of development- research. Establishing the nurse champions as experts locally is a natural progression toward establishing their leadership in training unit nurses. Using academic and clinical experts to develop materials that can be implemented and disseminated throughout the health system in partnership with the Research to Practice committee creates sustainable resources, policies, guides, training material and videos through a central resource. The efforts together produce a win-win for nurses (and the patients that benefit from use of evidence-based practices).

Some challenges were encountered during this EBP training initiative. Balancing staffing needs, and organizational priorities caused some delay in scheduling the EBP training at each facility. Additionally, due to amount of literature appraised, emphasizing the importance of the prerequisite assigned readings for attendees would have facilitated discussion and classroom activity completion within the time allotted. Lastly, due to the one-year time limitation of funding and the scope of the training, focus on building fundamental EBP skills, the impact of cost-effectiveness of the training was unable to be fully assessed. However, cost-benefit analysis is assessed over time as projects are completed and measurable practice changes are implemented as a result of the skills gained through the training.

Several key strategies contributed to successfully implementing this EBP training. First, the multi-modal approach to infuse EBP into a large health system built on the current infrastructure supporting EBP, but also extended the

infrastructure to multiple facilities within the healthcare system using regional partnerships, shared resources, and electronic learning modalities to complete all training phases. Second, the train-the-trainer approach was well received and advanced EBP and nurses' mentoring skills. Third, general training provided basic EBP competencies and expectations for nurses and facilitated integrating EBP into the organizational culture. Fourth, targeting salient clinical issues, such as hospital-acquired pressure injuries, that align with system priorities and strategies brings relevance and urgency to the topic and enhanced inter-professional engagement.

Conclusion

The collaborative efforts and subsequent results of this endeavor demonstrate the power to cultivate, enhance, and support an infrastructure through integration of a sustainable EBP program in which nurses (direct-care to nurse leader) are well prepared with the knowledge, skills, and resources needed to incorporate the best evidence into their practice. This collaborative EBP training program addressed many of the barriers to implementing EBP and fulfilled the competencies described. The collaborative executive nursing leadership across both the IU Health and IUSON organizations were integral to the success of this training. This multi-modal EBP training program, developed through a collaborative partnership between a large health system and an academic university provides an effective and sustainable strategy to support EBP in a healthcare

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Figure 1. Key Project Stakeholders.

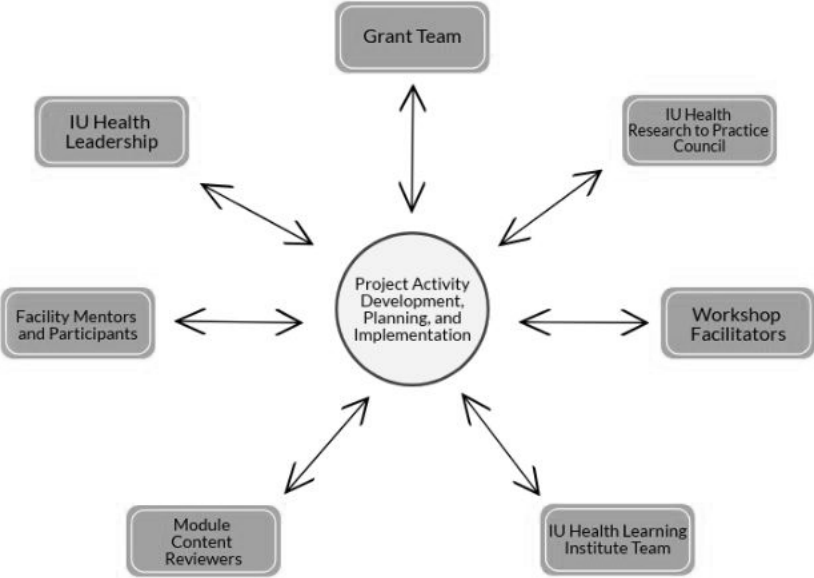
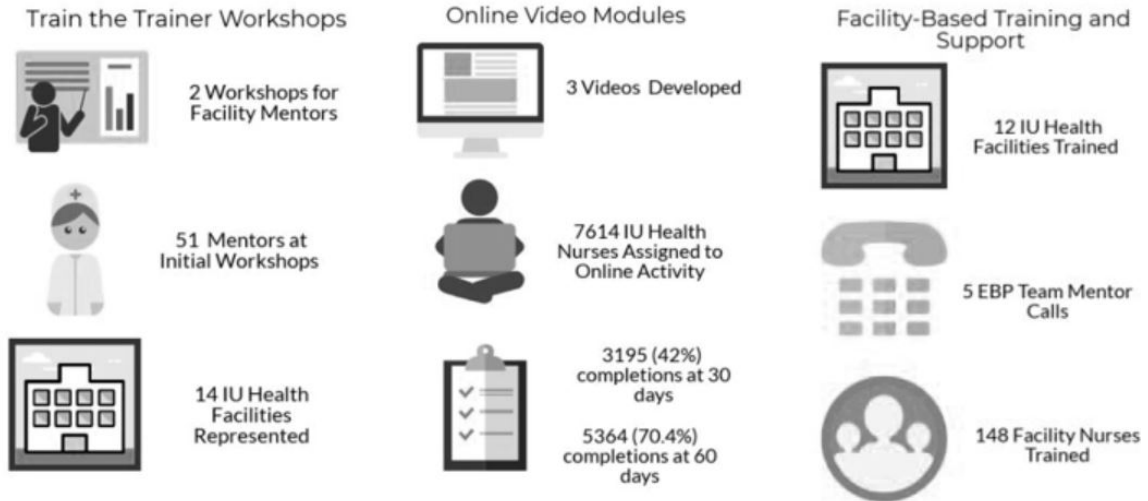


Figure 2. Results of 3-Phase multi-modal approach



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SDC 1. Workshop Content Outline

Topic	Time Frame	Activities
Introduction to Evidence-Based Practice (EBP)	25 minutes	Didactic and overview of need for EBP
EBP Process and Development of PICOT Question	45 minutes	Didactic and practice question development
Evidence Type, Level, and Quality	60 minutes	Didactic and overview of tools to be used
Searching for Evidence	60 minutes	Overview of library resources, demonstration of search techniques and use of library website
Appraising the Evidence	120 minutes	Interactive small group review of assigned articles; Facilitated discussion of level and quality of each article
Summarizing the Evidence	50 minutes	Interactive group synthesis of article. Presentation of group synthesis to larger group for discussion and identification of best evidence for clinical decision-making.
Implementing and Facilitating EBP at Your Facility	45 minutes	Interactive group brainstorming and sharing of ideas about engaging leaders, developing teams, facilitators and barriers in EBP environment

Topic	Results (n=41)
Strongly agree or agree with these statements:	<ul style="list-style-type: none"> • I am able to distinguish between quality improvement/performance improvement, evidence-based practice, and research activities. 95% • I am able to apply the evidence-based practice process to a problem. 100% • I am able to create realistic practice recommendations and implementation plan for the sample problem. 93% • I am able to identify facilitators and barriers to implementation of an EBP project at my site. 88%
Most frequently identified useful session or activity (open-ended item)	<ul style="list-style-type: none"> • Appraisal of articles: 46% • Library services and searching: 39%
Most frequently identified facilitators for success (open-ended item)	<ul style="list-style-type: none"> • Use tools provided & refine the EBP process: 32% • Gain support from leadership: 27% • Selecting the right team: 24% • Educating and increasing awareness of others: 24% • Utilize/partner with CNS's, councils, and other experts in facility: 22%
Most frequently identified barriers to implementation (open-ended item)	<ul style="list-style-type: none"> • Time: 56% • Lack of buy-in/interest: 34% • Staffing: 20%
Most frequently identified areas still in need of more practice (open-ended item)	<ul style="list-style-type: none"> • Critical appraisal of articles: 34% • Implementation strategies: 32% • Library resources/searching: 20%

<p>Most frequently identified support, tools, or resources needed to implement EBP (open-ended item)</p>	<ul style="list-style-type: none">● Educational opportunities to continue development in this area: 28%● Leadership support of use of time/resources: 25%● Mentoring (8%), team buy-in (8%), education of others at facility (8%)
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Table 1. EBP Training Cost-Benefit for Health System

Participant Direct Training Cost	Cost Savings Directly Related to Training and Subsequent Implementation	Indirect Benefits Related to Training and Subsequent EBP Projects
<p>51 RN's attend initial 8 hour training: 51x \$35* x 8 hours=\$14, 280</p> <p>148 RN's attend on site trainings: 148 x \$35* x 6 hours = \$31, 010</p>	<p>14% reduction (15 fewer) Hospital Acquired Pressure Injuries post training resulting in \$700,000 cost avoidance.</p>	<p>Increase of EBP projects: 11 concurrently in process</p> <p>40 + abstracts (35% increase) submitted/accepted for local and national conferences</p> <p>Support of system/hospital Magnet accreditation and re-accreditation requirements related to EBP</p> <p>Enhanced professional development and clinical decision making abilities of RN's specific to EBP</p> <p>Multiple members of the Research to Practice Council applied for or enrolled in higher education (masters and doctoral) programs within 1 year of project; at least 1 student focusing dissertation work on EBP</p>

*Hourly rate is an estimate of average hourly rate and fringe benefits (38%).