Effectiveness of an Evidence-Based Practice Nurse Training Program

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WellStar Health System

♦ Not-For-Profit 5-Hospital System ~ 1294 Beds
♦ Integrated Health System: 2 Health Parks, 1 Nursing Home, 2 Hospices, 8 Urgent Care Centers, 16 Imaging Centers, 1 Pediatric Center

♦ 180 Physician Offices (850+ Medical Group Providers)
♦ 69,900+ Discharges/year
♦ 9,500+ Deliveries/year
♦ 14,000+ Team Members
♦ Revenues > $1.9 Billion

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Background/Significance

♦ Evidence-Based Practice (EBP) is a problem-solving approach to clinical decision-making that integrates scientific evidence from well-designed research studies with clinical expertise and patient values[1,2]
♦ Despite evidence supporting EBP, research findings have not been consistently translated into practice to improve patient outcomes[3,4]
♦ Recent findings from a national survey found nurse leaders had a strong belief toward EBP; however, lacked resources, support and time thus making EBP implementation a low priority[5]
♦ An essential element to advance and sustain EBP was availability of trained EBP mentors within the organization[6-14]

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Project Aims

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To investigate the effectiveness of a training program on mentors' perceptions of knowledge, attitude, skill and confidence levels, and organizational readiness related to EBP and research utilization and to investigate the effectiveness of having trained EBP mentors available, delivering EBP education, and creating a formalized structure to enculturate EBP into clinical practice on nurses' perception of knowledge, attitude, skill levels, barriers, nursing leadership, organizational support related to EBP and research utilization

Phased Approach

♦ Phase I Identify and Train EBP Mentors
♦ Phase II Train Clinical Nurses
♦ Phase III Combine Phases I and II to Implement EBP Project (In Progress)

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What We Did

- ♦ **Developed Project Charter**
  - ○ Obtained senior nurse leader support and shared governance buy-in
  - ○ CNO letter created and distributed to clinical nurses indicating support

- ♦ **Identified and created EBP mentor responsibilities including but not limited to:**
  - ○ Helping staff learn the basics of EBP using Johns Hopkins (JH) EBP model, working with staff to generate and develop clinical practice questions, evidence search, review and critique evidence and evaluate outcomes
  - ○ Guiding staff to resources (including librarian, funding, experts, etc.)
  - ○ Guiding staff to incorporate research evidence in practice
  - ○ Supporting implementation of appropriate practice changes regarding clinical issue identified
  - ○ Guiding staff in communicating with key stakeholders including physicians, other disciplines, and administrative leaders
  - ○ Guiding staff in consultation with appropriate interdepartmental councils to effect change in clinical practice when issue(s) identified

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What We Did

- ♦ Education curriculum developed by a doctor of philosophy (PhD) prepared CNO, two PhD prepared nurse researchers, clinical nurse specialist, nurse manager, doctor of nursing practice (DNP) prepared nurse educators all knowledgeable in the principles of EBP and leadership development
  - ○ Created education and delivered to mentors
  - ○ Created education and delivered to nurses
- ♦ Formalized structure
  - ○ Job descriptions
  - ○ Annual competency
  - ○ Performance appraisal
  - ○ Clinical advancement program
  - ○ Website with EBP resources and toolkit
  - ○ Active list of EBP mentors for staff to contact
  - ○ Academic partnership with local nursing school
- ♦ Developed application reviewed/approved by Shared Governance Council for nurses to obtain financial assistance to attend conferences and present QI/research

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Mentor Education

Phase I Mentor Training
- ♦ Target Audience: clinical nurse leaders (CNL), clinical nurse specialists (CNS), clinical educators and clinical resource nurses received training in preparation to serve as EBP mentors
- ♦ Didactic instruction and discussion, webinar, in-person training, online learning to prepare a foundation to support and foster EBP
- ♦ Part I: Three-hour training (two hospitals divided training into consecutive monthly training sessions and three held training in one session); started 6/26/2013 with last training session completed 12/10/2014

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Training Outline for Mentors

Subject Area	Objectives
Introduction to EBP	Define and discuss origins of EBP, QI and research
Guidelines for Implementation	Describe JH EBP Model and PET (Practice Question, Evidence, Translation); Describe how to develop an answerable practice question
Searching for Evidence	Describe how to search for evidence and available resources
Appraising Evidence	Demonstrate appraisal of evidence; Overview of JH tools to critically appraise literature (research and non-research); Discuss essential components of a research article; Evaluate research and non-research articles using JH appraisal tools; Facilitate group appraisal/evaluation of research and non-research using the JH EBP process and tools
Summarizing Evidence and Beyond	• Provide an overview of framework to conduct EBP, QI and Research • Describe how to create a plan for translation, secure resources and common evaluation methods to evaluate outcomes • Provide an EBP project example from start to finish including dissemination • Describe how to move a project from practice to abstract to presentation to publication • Identify steps needed for poster/podium presentation development • List components of an abstract, poster and podium presentation • Identify publication options

Mentor Education

♦ **Part II Mentor Training included (four sessions held in December 2014):**
  o Identified strategies to support clinical inquiry
  o Identified mentor role, behaviors and actions to promote optimal mentoring environment
  o Provided overview of resources to translate evidence into daily practice
  o Group discussion related to potential barriers the mentor may encounter and strategies to support clinical inquiry

♦ **Part III included (four sessions held in March 2015):**
  o Recap Parts I and II
  o Review of resources available online, training modules, website, funds available
  o Mentor expectations

Clinical Nurse Education

♦ Clinical nurse training included four 30-minute online modules designed to equip nurses with tools and resources to implement EBP

♦ Modules were deployed as follows:
  o Part I January 31, 2015
  o Part II March 3, 2015
  o Part III April 1, 2015
  o Part IV May 7, 2015

Training Outline Clinical Nurse

Subject Area	Objectives
Module I	Overview of EBP, JH EBP model and how to develop an EBP question
Module II	Overview of available evidence resources, how to search for evidence and demonstrate appraisal and translation of evidence
Module III	Overview of framework to conduct EBP, quality improvement research; how to create a plan for translation; secure resources and review of common evaluation methods to evaluate outcomes; and review of a completed EBP project
Module IV	How to move an EBP project from practice to abstract and present and publication

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Methods

♦ **Setting/Sample**
  o 5-hospital healthcare system located in the Southeast United States
  o A convenience sample of registered nurses

♦ **Human Subject Protection**
  o WellStar Research Council and Kennesaw State University IRB approvals
  o Cover Letter Consent - Online Survey (Qualtrics)

Slide 1 — Instrument / Description table

Instrument	Description
Demographic Survey	Age, race, years practice, nursing degree, etc
Evidence-Based Nursing Questionnaire [15]	27 items: scale measure items that support or hinder the development of evidence-based nursing; 5-point Likert scale 1= *strongly disagree* to 5= *strongly agree* subscale mean scores range 1 to 5 and scale is psychometrically sound
Confidence Scale [16]	5 items: 1= *no opinion* to 5= *to a great extent* measure nurses perceived confidence in their knowledge and ability to implement EBP in practice; higher mean indicate a higher perception of confidence to implement EBP; CVI 0.90 and Cronbach's alpha 0.94
Barriers to Research Utilization [17]	29 items: scale measure perceived barriers to research utilization; 5-point scale 1= *no extent*, 4 = *great extent*, and 5 = *no opinion* and scale is psychometrically sound
EBP Nurse Leadership [18,19]	10 items: scale to measure clinical nurse perception of support provided by nurse manager for EBP; 5-point scale 1= *strongly disagree* to 5= *strongly agree*; subscale mean scores range from 1 to 5 and scale is psychometrically sound
EBP Work Environment [18,19]	8 items: scale to measure clinical nurse perception of support provided by organization 5-point scale 1= *strongly disagree* to 5= *strongly agree* subscale mean scores range from 1 to 5 and scale is psychometrically sound

Slide 2

Data Collection

Mentor
- Pre: one month prior to training
- Post: one month post training
- Demographic survey, Evidence-Based Nursing Questionnaire and Confidence Scale

Nurse
- Pre: December 31, 2014 to March 31, 2015
- Post: April 1, 2015 to September 1, 2015
- Demographic survey, Evidence-Based Nursing Questionnaire, Barriers to Research Utilization, EBP Nurse Leader and EBP Work Environment

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Slide 3

Data Analysis

Quantitative Analysis
♦ SPSS 22.0
♦ Pre-analysis data screening conducted prior to statistical analysis
♦ Statistical methods included frequencies, percentages, means, standard deviations, dependent t-test
♦ A *p* value of ≤ .05 considered statistically significant

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Slide 4

EBP Mentor Sample Characteristics. N = 66	Range	M	SD
Age (years)	24 - 67	42.86	10.62
Years Experienced	<1 - 45	15.94	11.51

	N	(%)
Gender		
Female	62	(93.9)
Male	4	(6.1)
Race		
White/Caucasian	48	(72.7)
Black/African American	13	(19.8)
Hispanic/Latino	2	(3.0)
Asian/Pacific Islander	1	(1.5)
Other	2	(3.0)
Degrees		
Diploma RN	1	(1.5)
Associate Degree	18	(27.3)
Baccalaureate Degree	33	(50.0)
Master's Degree	13	(19.7)
Doctorate	1	(1.5)
National Certification		
Yes	53	(80.3)
No	13	(19.7)
Belongs to Professional Organization		
Yes	46	(69.7)
No	20	(30.3)

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Slide 1 (EBP Mentors table)

EBP Mentors Only						
Dependent t-tests Comparing Means and Standard Deviations for Pre-Survey and Post-Survey Scores						
	N	Pre-Survey Mean (SD)	Post-Survey Mean (SD)	α	t	p
Evidence-based nursing questionnaire (total score)[15]	66	3.67 (.43)	4.20 (.57)	.87	-8.64	.000
Nurses' beliefs & attitudes of research evidence subscale[15]	66	3.90 (.54)	4.31 (.62)	.92	-6.50	.000
EBP skills subscale[15]	66	3.52 (.59)	4.12 (.60)	.79	-6.73	.000
Nurses' knowledge of research language & statistics subscale[15]	66	3.22 (.85)	3.91 (.78)	.80	-5.65	.000
EBP organizational support (readiness)[15]	66	3.63 (.49)	4.21 (.60)	.80	-8.25	.000
Confidence scale[16]	66	2.95 (.94)	3.82 (.88)	.96	-6.36	.000

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Slide 2

Clinical Nurse Only Findings

Module Completion by Hospital

	Module 1	Module 2	Module 3	Module 4
Hospital 1	148	54	112	88
Hospital 2	68	33	54	41
Hospital 3	1152	559	749	637
Hospital 4	73	23	58	38
Hospital 5	18	11	22	12
Totals	1459	680	995	816

♦ 417 nurses completed all modules & 367 completed all modules and both pre and post surveys
♦ 273 (74.4%) were clinical nurses who worked full-time (302, 82.3%)
♦ Most worked day shift (244, 66.5%)

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Slide 3 (Nurse Sample Characteristics)

Nurse Sample Characteristics. N = 367	Range	M	SD
Age (years)	22 - 67	45.90	11.09
Years Experienced	<1 - 46	18.87	11.85

	N	(%)
Gender		
Female	343	(93.5)
Male	24	(6.5)
Race		
White/Caucasian	266	(72.5)
Black/African American	60	(16.3)
Hispanic/Latino	6	(1.6)
Native American	6	(1.6)
Asian/Pacific Islander	21	(5.7)
Other	8	(2.2)
Degrees		
Diploma RN	34	(9.3)
Associate Degree	95	(25.9)
Baccalaureate Degree	199	(54.2)
Master's Degree	38	(10.4)
Doctorate	1	(0.2)
National Certification		
Yes	222	(60.5)
No	144	(39.2)
Missing	1	(0.3)
Belongs to Professional Organization		
Yes	174	(47.4)
No	193	(52.6)

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Slide 4 (Nurse Only table)

Nurse Only						
Dependent t-tests Comparing Means and Standard Deviations for Pre-Survey and Post-Survey Scores						
	N	Pre-Survey Mean (SD)	Post-Survey Mean (SD)	α	t	p
EBP Work Environment scale[18,19]	367	3.30 (.67)	4.09 (.63)	.88	-20.18	.000
EBP Nurse Leadership[18,19]	367	3.52 (.76)	4.19 (.65)	.96	-16.50	.000
Characteristics of the communication: Presentation & accessibility of the research[17]	367	3.01 (.76)	2.14 (.88)	.86	19.93	.000
Characteristics of the Adopter: The nurse's research values, skills, & awareness[17]	367	2.93 (.81)	2.15 (.91)	.90	17.45	.000
Characteristics of the Organization: Setting, barriers, & limitations[17]	367	3.16 (.76)	2.22 (.89)	.89	21.24	.000
Characteristics of the innovation: Qualities of the research[17]	367	3.10 (.96)	2.27 (.98)	.87	16.73	.000
Nurses' beliefs & attitudes of research evidence subscale[15]	367	3.74 (.57)	4.26 (.54)	.87	-18.53	.000
EBP skills subscale[15]	367	3.43 (.64)	4.09 (.85)	.70	-13.37	.000
Nurses' Knowledge of research language & statistics subscale[15]	367	3.29 (.76)	3.97 (.76)	.74	-14.52	.000

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Take Away

♦ Mentor program effective in supporting EBP initiatives with nursing staff
♦ Formal structure needed to incorporate EBP into practice
  o Job descriptions
  o Annual competency
  o Performance appraisal
  o Clinical advancement program
♦ Challenges
  o Competing nursing priorities
♦ Seek collaborative relationships
  o Academic-Practice partnerships

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Project Next Steps

Phase III is currently underway at one of the hospitals which is a joint endeavor between nurse managers, nurse mentors, and clinical nurses to conduct, implement, and disseminate EBP

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