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The Effect of Education on Evidence-Based Practice and Nurses' Beliefs/Attitudes Toward and Intent to use Evidence-Based Practice

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The Effect of Education on Evidence-Based Practice and Nurses' Beliefs/Attitudes

Toward and Intent to use Evidence-Based Practice

by

Steve Mooney

A capstone project submitted to the faculty of
Gardner-Webb University School of Nursing
in partial fulfillment of the requirements for the degree of
Doctorate of Nursing Practice

Boiling Springs

2012

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Approval Page

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Abstract

Purpose: Does tradition or “we have always done it this way” provide for safe, confident care? The care nurses provide should be based on evidence. Many barriers to evidence-based practice (EBP) exist. Nurses’ lack of knowledge about EBP and nurses’ beliefs/attitudes toward and implementation of EBP need to be addressed. Hospital administration and nursing staff must be aware of current practice guidelines. Awareness of the need for EBP demands a process/action to change practice habits. The rewards of implementing EBP should motivate a transformation leading to adaptation of EBP care. The research question this project proposed to answer was: Will a training program designed to educate nurses about EBP improve the beliefs/attitudes toward and intent to use EBP?

Methods: Nurse participants attended a seven hour training program on EBP. Pre- and post- mean scores on the EBP Beliefs/attitudes and EBP Implementation scales were compared using paired t-test to determine the effect of the program.

Results: Participants scored higher on both the EBP Beliefs/attitudes and EBP Implementation scales following the educational program. Paired t-test indicated a significant difference in means for both scales ($p < 0.01$).

Conclusions: Findings of the project demonstrated that education can affect the nurse’s belief/attitude and intent to use EBP. Additional work needs to be done on the use and implementation of EBP in health care organizations. The long-term effect of education on nurses’ beliefs/attitudes and use of EBP should be fostered and built into the organization’s culture and competencies. Bedside nurses must be convinced that the translation of research into practice is truly a vital part of every day nursing care.

Acknowledgments

“The Important thing is not to stop questioning” Albert Einstein

In this pursuit of knowledge I must stop and thank those who have supported, encouraged, and prayed that I would have the ability and strength to finish this journey. To God for answering the many requests to “just let me get through this”, I am humbled and truly amazed at His provision. Thanks to my family for allowing missed opportunities, for your unfailing love, support, and for the practical help of doing whatever it takes. Thanks also to my fellow road warriors who spent many hours discussing issues and helping me get through those hoops: “It’s good stuff.” Lastly I want to thank the wonderful professors and role models who guided and assisted along the way.

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Chapter 1

Think back to childhood years – remember parents telling children not to go swimming for thirty minutes after eating; or keep making that face and your face will freeze that way? Perhaps children heard cracking knuckles all the time will result in arthritis of the hands. Do parents deliberately lie to children? Believing these traditions to be true, grandparents passed them down to parents and parents to children. The nursing profession bases many activities on tradition. Giving lidocaine for ventricular dysrhythmias, pushing air down a nasogastric tube to verify placement, or wearing white because the color appears cleaner than other colors are traditions not based on scientific evidence. Does tradition or “we have always done it this way” provide for safe, confident care? The care nurses provide should be based on evidence. The Institute of Medicine (IOM, 2001) has determined that evidence-based decision making is an essential skill for all health care providers. Mantzoukas (2007) describes evidence-based practice (EBP) as a responsible, accountable, and professional method for nurses to perform care.

Mantzoukas (2007) defines EBP as the use of effective decision making, avoidance of habitual practice patterns, and application of proven clinical guidelines. Evidence is the collection of data that is thought to be true as the result of randomized controlled trials (Melnyk, B., & Fineout-Overholt, E., 2011). The results of randomized controlled trials must allow for generalization to larger populations to be useful. Evidence must also include the clinician’s expertise as well as process improvement data. Melnyk and Fineout-Overholt (2011) have expanded the definition of EBP to include the

most up-to-date research findings combined with clinical expertise, patient values and the current environmental factors to determine a plan of care.

Background

EBP is an important concept for teaching today's health care providers. EBP is built into nursing curricula in many schools; however there is limited information available on teaching evidence-based practice to the experienced nurse (Hockenberry et al, 2009). The problem is determining how to help experienced nursing staff develop the skills needed to critique research and translate findings into a professional and personal EBP.

EBP is not a new concept in nursing care. Florence Nightingale used statistical evidence to support her work in nursing reform, health care reform and to improve mortality rates (McDonald 2001). Melnyk and Fineout-Overholt (2011) credit Dr. Archibald Cochrane with founding the EBP movement. Dr. Cochrane recognized that a gap existed between current practice and evidence-based guidelines. As the result of Dr. Cochrane's work, the Cochrane Review was developed to examine research and synthesize the findings. Therefore, nursing should develop care guidelines based on the most reliable research available. The Institute of Medicine (IOM, 2010) has set a goal that by 2020, ninety percent of all health care decisions made in the United States will be evidence based (Olsen et al., 2006). In 2008, the Robert Wood Johnson Foundation and the Institute of Medicine began to look at the future of nursing and develop a plan of action. One key action identified was that nurses should practice to the full extent of their education (IOM, 2010). A second point of action was that nurses must achieve higher levels of education and training to meet competencies required to care for patients

(IOM, 2010). These competencies include EBP. According to Melnyk and Fineout-Overholt (2011) and McSherry, Artley, and Holloran (2006) EBP is necessary because it can reduce cost, save time and result in better patient outcomes. Melnyk, Fineout-Overholt, Stillwell and Williamson (2009) report nurses who are engaged in EBP experience more autonomy in their practice and have a greater level of job satisfaction. Pravikoff, Pierce, and Tanner (2005) found that nurses were not familiar with the term EBP and believed that their colleagues did not use research findings in their practice. Kajerma et al. (2008) suggested nurses have a huge potential to utilize research because nurses are the single, largest professional group within the health care arena. However, the nursing profession still struggles to interpret and implement evidence into practice (McCloskey, D., 2008 and Gotham, H., 2006). Pravikoff et al. (2005) found few nurses were taught how to use electronic databases. The majority of nurses did not search databases to find practice information and those nurses who did search felt they lacked well-defined search skills. Nurses who have little or no training in how to use theory and research will find using research results particularly difficult. Nurses need to be able to determine if research is of adequate quality to be used in their practice (Stillwell, S., 2010). According to Staffileno (2009) the associate degree nurse (ADN) is at a major disadvantage because of the lack of training in research utilization. Fineout-Overholt, Williams, Kent and Hutchinson (2010), Leeman, Baernholdt and Sandelowski (2007), and Valente (2003) agree that efforts to change clinical practice can be hindered by various factors including individual, group and organizational barriers. Chism (2010) concluded that barriers to EBP may be reduced or eliminated with education. Education is needed that explains how to evaluate research findings and how to implement the

findings into practice (Klem & Weiss, 2005). Implementation is defined as the introduction of an innovation into daily routines which requires effective communication and removing hindrances (Achterberg, Schoonhoven, & Grol, 2008).

Research Question

Many barriers to EBP exist. Nurses' lack of knowledge about EBP and nurses' beliefs/attitudes toward and implementation of EBP need to be addressed. Hospital administration and nursing staff must be aware of current practice guidelines. The awareness of the need for EBP demands a process/action to change practice habits. The rewards of implementing EBP should motivate a transformation leading to adaptation of EBP care. The research question this project proposes to answer is: Will a training program designed to educate nurses about EBP improve the beliefs/attitudes toward and intent to use EBP?

Purpose of the Project

The purpose of this project is three fold:

1. Design an educational program on the use of EBP
2. Implement the educational program
3. Evaluate the effect of the educational program on the nurse's beliefs/attitudes about and intent to use EBP

Conceptual / Theoretical Framework

There is a lack of understanding of the value of theory within nursing practice. The lack of understanding is known as the theory-practice gap (Billings & Kowalski, 2006). Theory-practice gap is defined as theory and practice not being equal parts in a model of care (Billings & Kowalski, 2006). This gap yields results that equal inadequate patient

care and unguided nursing processes. Eliminating the theory-practice gap is necessary to bring nursing research into practice (EBP). According to Billings and Kowalski (2006), bridging this gap will result in significant improvement of patient care, outcomes, and controlled health care cost.

Roy's adaptation model of nursing guided the intervention and project chosen by the project administrator. Roy's conceptual model guides research by providing a defined view of nursing. Roy places a significant emphasis on the correlation of nursing practice and nursing science. The assumptions of Roy's theory that apply to the project include: awareness of self and environment, thinking and feeling result in human action, personal and environmental transformations are caused by reasoned thought, and integration of person and environment result in adaptation (McEwen & Wills, 2007). Roy's adaptation model guided the use of focal and contextual stimuli (an educational training program). Simply, the intervention (stimuli) caused activation of the coping process. The coping processes are impacted by the adaptive modes (physiologic-physical, self concept-group identity, interdependence, and role function). The outcome will be an adaption in behavior (Tomey & Alligood, 2006) that results in use of EBP. The conceptual – theoretical - empirical structure is shown in Figure 1.

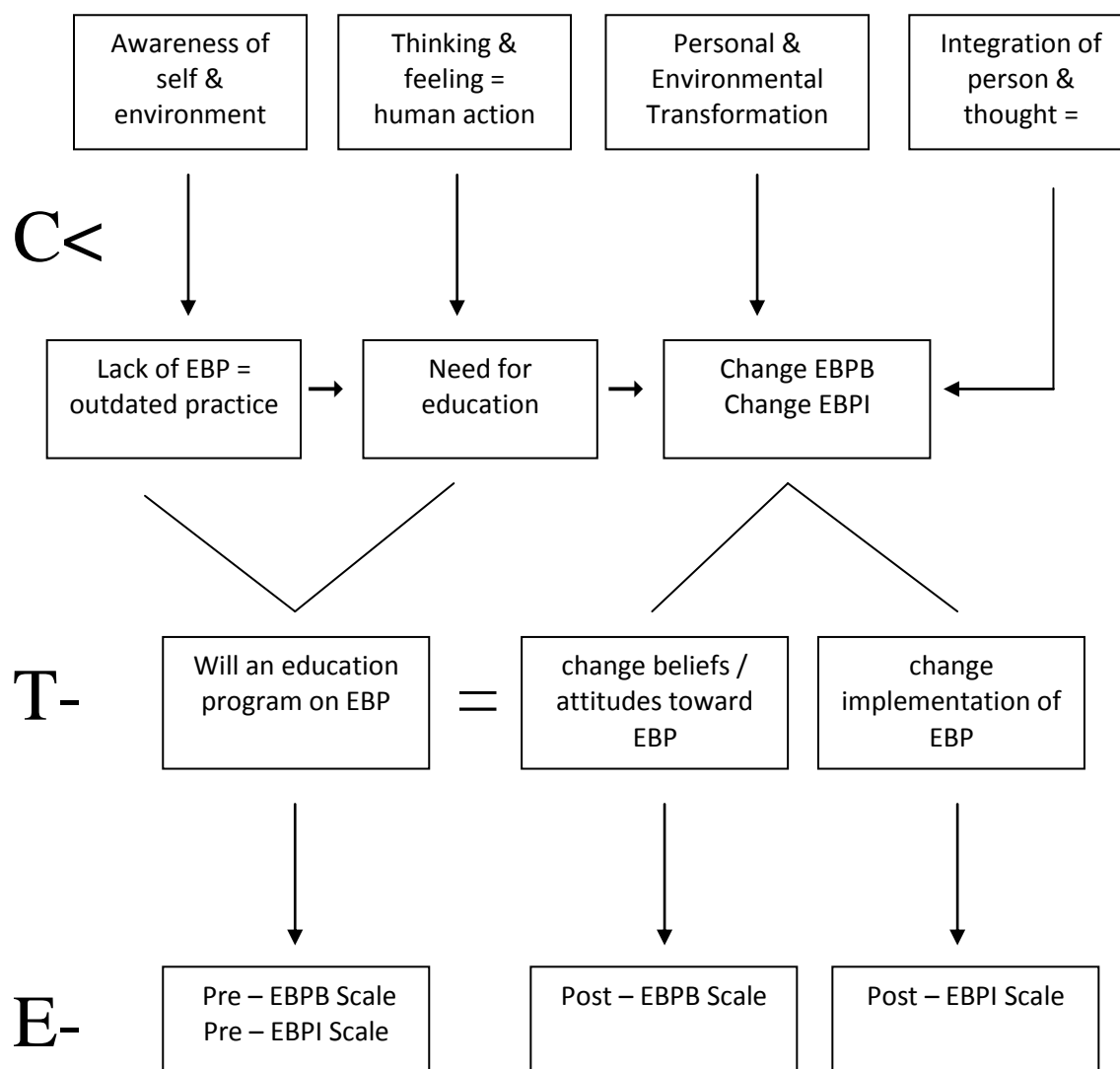


Figure 1. CTE diagram reflecting utilization of Roy's Adaptation Model in the project.

Key: EBPB = Evidence-based practice belief, EBPI = Evidence-based practice implementation, C = Contextual, T = Theoretical, E = Empirical

Chapter 2

Literature Review

In May, 1927, the American Journal of Nursing published an article asking nurses to provide evidence-based practice (EBP). According to the article there was a need to find better ways of teaching EBP (Marvin, 1927). EBP compliments the nursing process by allowing the nurse to use critical thinking skills to assess, plan, implement, and evaluate a patient's course of care. To plan this course of care the nurse must have knowledge of current practice guidelines, consider patient values, determine environmental influences, and have a sense of self competency (Hockenberry, Brown, Walden, & Barrera, 2009).

The purpose of the literature review was to determine if there is a teaching strategy available to assist the experienced nurse in the use of research and EBP. The review of the literature revealed research has been done on barriers to nurses using EBP. These barriers include: lack of time to apply research, lack of support from co-workers and administration, lack of education and experience with the research process, lack of perceived value in EBP, and case load (Kajermo et al, 2008, McCloskey, 2008, Brown, Wickline, Ecoff, & Glaser, 2008 & Bonner & Sando, 2008).

Kajermo, et al. (2008) looked at the nurses' perceived barriers to research utilization. The study involved 820 registered nurses (RN) and nurse mid-wives at a high tech, major research and teaching hospital. The sample consisted of nurses who had a two-year (ADN) degree (58%), a three/four-year (BSN) degree (42%) and a master's degree (0.7%). The nurses completed three questionnaires on barriers and work competency. Analysis revealed work pace was the highest predictor for research

utilization. The researchers concluded the higher the work pace the higher the perceived barriers. The data also showed the higher the degree held by the nurse manager the less the perceived barriers. According to the study data analysis the longer a nurse had been out of school, the less likely that nurse was to use research findings. The literature reviewed determined no further research is needed to identify barriers to EBP. Work does need to be done on overcoming two barriers: lack of experience/knowledge of research processes and lack of knowing how to use research are of interest to this author's study. These two barriers supported the proposed intervention. Nursing leaders must create programs to support nurses' professional development and their ability to implement research findings into practice.

McCloskey (2008) used a descriptive nonexperimental survey design to explore if educational level, years of experience, and hospital position impacted the beliefs toward, support of, and use of research in practice. Nurses in five hospitals were surveyed using the Research Utilization Questionnaire (RUQ). The RUQ measures nurses' perception of research utilization, beliefs toward research, availability of resources, and perceived support of research. ANOVA analysis of the data showed a significant difference in the use, beliefs toward and support of research based on education level and hospital position. No significance was found based on years of experience. McCloskey (2008) concluded that educational level is an important factor in research usage.

Brown, et al. (2008) conducted a descriptive cross-sectional study involving 458 nurses. Utilizing two questionnaires, the researchers determined lack of time and lack of autonomy were the top barriers to use of evidence-based science. Brown, et al. (2008)

concluded educators must work with management to overcome barriers and proactively support EBP.

Bonner and Sando (2008) looked at knowledge, attitude and use of research by nurses. In a descriptive designed study, 347 nurses were surveyed to determine awareness and use of research in their practice. The results showed that while 48.9% of the subjects had university training in research, only 14.5% indicated they had a good or very good understanding of research design and statistics. Bonner and Sando (2008) concluded that university training did not prepare nurses to critique and apply research in their practices. They also concluded specific education, management and environmental support are needed to ensure nursing practice is evidence-based.

Kim, Brown, Fields and Stichler (2009) conducted a controlled study to determine if an EBP focused interactive teaching (E-FIT) strategy is an effective strategy for training nurses. Is E-FIT a predictor of the knowledge, attitudes, use and future use of EBP? Two baccalaureate (BSN) programs in California were used in the study. The students were assigned to the groups. All senior nursing students enrolled in theory and clinical practice courses were eligible. The control group received standard teaching. The interventional group received standard teaching plus E-FIT. The study provides credence to the need for using creative ways of teaching EBP. The authors suggest further study is needed before a definitive result can be presented.

Varnell, Haas, Duke and Hudson (2008) conducted a quasi-experimental design study to determine what the effectiveness of an educational program is on the attitudes toward and implementation of EBP. Forty-nine nurses participated in an eight-week program to become EBP champions. Participants attended a two-hour class each week.

Pre- and post-test mean scores of the EBP Barriers and EBP Implementation Scales were compared. Paired t-test analysis was used to determine the effect of the education program. Nurses who attended the program showed improvement in beliefs and attitudes about EBP.

Hockenberry, et al. (2009) found that a common misconception is that clinically competent staff are believed to possess skills required to implement EBP. This misconception leads to a lack of education and training. Hockenberry, et al. (2009) described the development of a formal EBP Scholars Program. The scholars program was designed to teach clinical staff EBP skills. The program focuses on a specific patient care issue to engage staff. The belief being when asked a question, the question leads to improved outcomes and practices. The scholars program consisted of eight weekly two-hour classes and small group discussions. The participants chose a project to work on and presented the outcome at course completion. The ultimate result was a change in culture that values the impact of EBP on patient outcomes. The authors concluded that nurses who are able to search the literature for answers to clinical issues and evaluate the evidence, feel empowered to be in control of their nursing practice and use best practice strategies.

Fineout-Overholt, Williams, Kent and Hutchinson (2010), Leeman, Baernholdt and Sandelowski (2007), and Valente (2003), agree efforts to change clinical practice can be hindered by various factors including individual, group and organizational barriers. According to Chism (2010) barriers to EBP may be reduced or eliminated with education. Education is needed that explains how to evaluate research findings and how to implement the findings into practice (Klem & Weiss, 2005). Therefore, the question to

answer is: Will a training program designed to educate nurses about EBP improve the beliefs/attitudes toward and intent to use EBP?

Summary

The literature establishes that EBP is here to stay. EBP has many benefits and the failure to use EBP has potential negative consequences. Consideration must be given to constant changes in technologies, protocols, more stringent legislation, malpractice suits and the increasing knowledge and demands of informed patients (Dinsdale, 2008). The literature reviewed supported a need for education, even repetition of learning (DeSilets, L., 2007, Leufer, T. & Cleary-Holdford, J., 2008, Singleton, J. & Levin, R., 2008, Pierson & Schuelke, 2009). The literature also states barriers must be removed to allow assimilation and longevity of the use of EBP (Valente, 2003). The review identified the need for further study on how to get the bedside nurse to utilize EBP (Thompson, Moore, & Estabrooks, 2008). The implementation of EBP is essential for patients to have the best outcomes possible (Fineout-Overholt & Johnston, 2006).

Strengths and Limitations of the Evidence Base and Conclusion

A large amount of information was available on the use of EBP and the importance of implementing EBP. However, difficulty occurred in finding research that supported training for staff on how to use and how to implement the results of that training. Most of the research evidence dealt with teaching students to use EBP. A limited amount of literature was found on teaching students and their failure of future usage of research. McCloskey (2008) iterates the use of research is the focal point for EBP. However, to be affective, nursing must integrate the research findings and implement those findings into practice. The limitations of the evidence showed work needs to be done on developing

strategies for teaching experienced staff how to utilize EBP. There was a lack of research on how to teach, how to determine if teaching is effective, and after teaching whether the nurse will actually implement EBP. Evidence exists to support beliefs/attitudes can be changed. However, there are no long-term studies that identify persistent use of learned traits concerning EBP.

Implementation of evidence is essential for patients to have the best outcomes possible (Fineout-Overholt and Johnston, 2006). The bedside nurse must realize that the translation of research into practice is a critical part of daily job performance. Further studies are needed to identify the most effective teaching strategies to employ in teaching EBP, and commitment by experienced nurses to integrate EBP into their clinical practice.

Chapter 3

Methodology

The project site was a 312 staffed bed rural community, for profit, health system hospital. The hospital has approximately 600 registered nurses employed full or part time. The average daily census averages 200-240. The facility is located in western North Carolina. The facility had available a classroom with tables and chairs to allow up to 50 registered nurses to participate. Audio-visual equipment was available as needed. The project site had available a part-time Reference Librarian and Department of Education Director to assist with design and implementation of the education project. The researcher had access to the local community college's and university's colleges of nursing for reference material and access to a statistical package. Administration at the project site decided not to compensate the participants for time involved in the project intervention. Administration at the project site was supportive of the proposed project.

The project to assess the effect of an education program on nurses' beliefs/attitudes toward and intent to use EBP consisted of two phases. Phase one continued over approximately four months and was conducted with registered nurses (RNs) in a hospital setting. This phase involved designing the educational program, collection of the participant survey information, and completion of the educational program implementation. Phase two continued over approximately two months. Phase two involved a re-survey of the project participants to determine any change in beliefs/attitudes and intent to use EBP. Data analysis occurred during phase two. See Figure 2 for the study timeline.

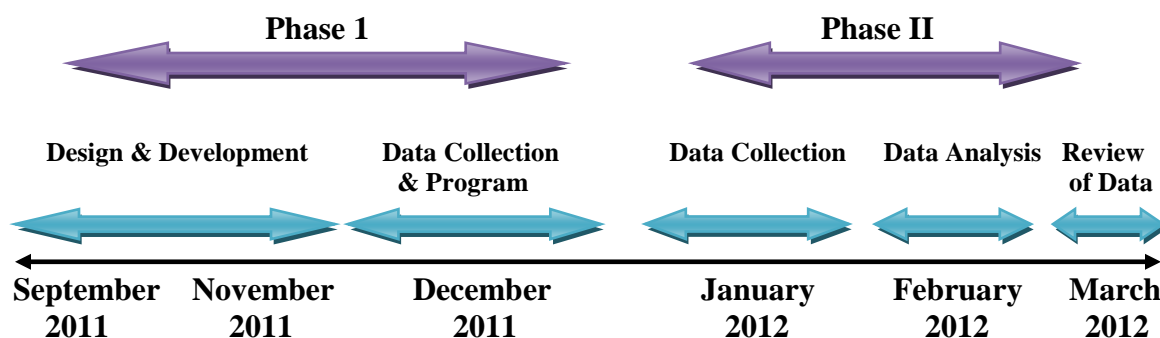


Figure 2. Project study timeline for Phase I and Phase II.

Formative Plan

The project plan/timeline described above was adjusted as necessary as the project moved forward and challenges were identified or encountered. The timeline was not intended to be static but to flow with the process and serve as a guide. The challenges requiring time adjustment involved suggestions from the project committee, and the study institution. For example the data collection process was moved from a paper tool to an online tool per request of the facility to allow more flexibility for participants. The process of completion was adjusted to meet graduation requirements and deadlines.

Project Design

Participants in the project were obtained by convenience sampling. The project utilized a quasi-experimental design to evaluate the effect of an EBP educational program on nurses' beliefs/attitudes and intent to use EBP. Participants were surveyed prior to and following the implementation of the EBP educational program.

Description/Definition of Variables of the Question

Dependent variables were the nurses' beliefs/attitudes toward and intent to use EBP. The independent variable was the educational program. The project evaluated

whether there were differences between the pre- and post- intervention belief/attitude toward and intent to use EBP using the selected tools.

Description of Target Population

Inclusion criteria:

1. Registered nurses employed full time or part time at the project hospital;
2. Registered nurses involved with patient care or managers of nurses involved in patient care;
3. Registered nurses who have a current unrestricted license to practice nursing.

Exclusion criteria:

Registered nurses who could not commit to completing phase I and phase II of the project.

Intervention and Survey Instruments

The intervention consisted of a six and one-half hour educational program. The program covered: evidence-based practice what it is and isn't, nursing theories-why we need them, how to develop a research question, evaluating evidence, accessing the digital library, designing a literature search, and manipulation of literature in the electronic format.

This project utilized three tools: the Evidence-Based Practice Beliefs (EBPB) Scale, the Evidence-Based Practice Implementation (EBPI) Scale and a demographic data sheet. The Scales tools were developed by Melynck and Fineout-Overholt (Varnell, Hass, Duke, & Hudson, 2008). The EBPB Scale is a Likert-type scale designed to measure beliefs and attitudes about EBP. Responses ranged from 1 = *strongly disagree* to 5 =

strongly agree and included two reverse scored items. The 16 items on the scale were summed with a possible score ranging from 16 to 80. Reliability and validity of the instrument had been established (Melynck, Fineout-Overholt, & Mays, 2008).

The EBPI scale is an 18-item Likert-type scale designed to measure indicators of nurses' engagement in EBP. Participants rated the frequency a particular task related to EBP was performed during the previous eight weeks. The scale ranged from 0 (*zero times*) to 4 (*greater than eight times*). Responses were totaled with a possible score range of 0 to 72.

According to Melynck and Fineout-Overholt (2011) the EBPB and EBPI Scales are psychometrically sound tools that can be used to study the effect of EBP education programs on EBP skills, patient care, job satisfaction, and job retention.

The demographic data sheet provided information on participant's age, educational level/preparation, current job role, years of employment as a RN, and whether currently enrolled in school.

Procedure for Data Collection

All data was entered into a computerized data analysis program. The data entry was performed by the researcher or other designated personnel. Data collection proceeded in the following steps:

1. Obtained permission to utilize selected tools (see Appendix A)
2. Designed and coded demographic data sheet
3. Designed educational program and submitted for continuing education credit approval (see Appendix B)

4. Obtained all necessary approvals (IRBs, Advisory committee, Facility Review Committee) (see Appendix C)
5. Scheduled educational program
6. Recruited participants
7. Obtained informed consent (see Appendix D)
8. Collected baseline/pre EBPB and EBPI Scales data (this was done via computerized data entry before the beginning of the educational program)
9. Presented program
10. Collected evaluation of program (required for contact hour credit) (see Appendix E)
11. Two months post program, collect posted EBPB and EBPI Scales data

Statistical Analysis

Data was entered into the Statistical Package for Social Sciences (SPSS) version 17.0 when the project was completed. Numerical coding was used for categorical demographic variables. Random checks were completed to ensure accurate data entry. The data set was examined for any out-of-range values before analysis. Mean substitution was used for missing data on the EBPB and EBPI Scales if less than twenty percent (20%). A Cronbach's alpha for internal consistency was conducted on each of the tools used in the study. Descriptive analysis was performed to describe sample characteristics and study variables (Meyers, Gamst, & Guarino, 2006). Paired t-test analyses were used to compare pre- and post-educational program scores on the EBPB and EBPI Scales.

Summative Plan

The data analysis resulted in proving the validity of the project intervention. This data was shared with the project committee, the study institution, and participants (if requested). Since the intervention results were positive, it is hoped a repeat of the intervention can occur allowing the project institution to become more grounded and involved in EBP. The plan is for study data to be submitted for publication.

Confidentiality

Information collected from all participants was kept confidential. Only the researcher has access to the data. All data collected by the researcher will be maintained in a safe, secure environment for storage. All data will be disposed of at the end of five years.

IRB Monitoring Plan

To protect the rights of the participants in this project, approval to conduct the study was requested via review by the university's Institutional Review Board (IRB) and the facility's Research Committee. The project underwent continuous IRB monitoring as required by each site's IRB policies. Each participant was asked to provide informed consent to be part of the project prior to any project-related activity. The participants had the right to withdraw from the project at any time by notifying the researcher.

Financial Information

Participants were not compensated for their involvement in this study. The participants received continuing education credit hours for the actual educational program portion of the project. The researcher and/or other personnel who conducted the educational program were not compensated by the project site.

Chapter 4

Results

Participants

Ten participants completed the initial EBP Beliefs and EBP Implementation scales. Eight attended the educational program on EBP (See appendix A). The five participants who completed the entire project were composed primarily of Nurse Managers (40%). The work shift most prevalent was eight hours dayshift (80%). The participants had various educational backgrounds and varied in age and experience (see Table 1).

Table 1:

Sample demographic characteristics

Characteristic	Number (n = 5)	Percentage
Age range:		
41-50	1	20%
51-60	2	40%
>60	2	40%
Years employed as an RN:		
<10	0	0%
6-10	1	20%
>10	4	80%
Educational Preparation:		
Diploma	1	20%
Associates Degree	0	0%
Baccalaureate	3	60%
Master's Degree	1	20%
Currently Enroll in School:		
Yes	1	20% Master's Program
No	4	80%
Current Role:		
Staff nurse	1	20%
Nurse manager	2	40%
Other	2	40%

Response Patterns

The percentage of participants who responded strongly agree or agree is shown in Table 2 for each item on the EBP Beliefs scale. Items with high percentages focused on beliefs/attitudes in the positive effect of EBP. Items with lower percentages focused on confidence in implementing EBP.

Table 2:

EBP Beliefs/Attitudes scale percentage of strongly agree or agree before and after the educational program

Item	Pre - strongly agree or agree		Post - strongly agree or agree	
	#	%	#	%
1. I believe that EBP results in the best clinical care for patients.	9	90%	5	100%
2. I am clear about the steps of EBP.	3	30%	3	60%
3. I am sure that I can implement EBP.	5	50%	3	60%
4. I believe that critically appraising evidence is an important step in the EBP process.	10	100%	5	100%
5. I am sure that evidence-based guidelines can improve clinical care.	9	90%	5	100%
6. I believe that I can search for the best evidence to answer clinical questions in a time efficient way.	5	50%	3	60%
7. I believe that I can overcome barriers in implementing EBP.	8	80%	3	60%
8. I am sure that I can implement EBP in a time efficient way.	6	60%	2	40%
9. I am sure that implementing EBP will improve the care that I deliver to my patients.	10	100%	5	100%
10. I am sure about how to measure the outcomes of clinical care.	4	40%	3	60%
11. I believe that EBP takes too much time. (Reverse scored)	0	0%	1	20%
12. I am sure that I can access the best resources in order to implement EBP.	4	40%	3	60%
13. I believe EBP is difficult. (Reverse scored)	1	10%	1	20%
14. I know how to implement EBP sufficiently enough to make practice changes.	3	30%	3	60%
15. I am confident about my ability to implement EBP where I work.	4	40%	3	60%
16. I believe the care I deliver is evidence-based.	7	70%	5	100%

The results indicated post intervention that participants improved: their understanding of the steps in EBP, how to implement EBP, and confidence in their ability to use EBP in the workplace.

The percentage of participants who responded four or more times in the last eight weeks to items on the EBP Implementation scale are shown in Table 3. The most significant change occurred in the implementation item - critical appraisal of scientific evidence. The use of critical appraisal went from 30% pre-intervention to 80% post-intervention. Increase in the use of EBP in discussions with colleagues was shown. Additionally there was an increase in the collection of evidence-base material on patient problems and the evaluation of care initiatives using outcomes data. There was a decrease in the sharing of research study results with the patient/family member and with the multidisciplinary team. There was also a decrease in the use of patient outcome data to change practice patterns.

Table 3:

EBP Implementation scale percentage of strongly agree or agree before and after educational program

Item	Pre – 4 or more times in the last 8 weeks		Post - 4 or more times in the last 8 weeks	
	#	%	#	%
1. Used evidence to change my clinical practice.	3	30%	1	20%
2. Critically appraised evidence from a research study.	3	30%	4	80%
3. Generated a PICO question about my clinical practice.	1	10%	0	0%
4. Informally discussed evidence from a research study with a colleague.	2	20%	2	40%
5. Collected data on a patient problem.	1	10%	1	20%
6. Shared evidence from a study or studies in the form of a report or presentation to more than 2 colleagues.	2	20%	0	0%
7. Evaluated the outcomes of a practice change.	1	10%	1	20%
8. Shared an EBP guideline with a colleague.	2	20%	1	20%
9. Shared evidence from a research study with a patient/family member.	2	20%	0	0%
10. Shared evidence from a research study with a multi-disciplinary team member.	1	10%	0	0%
11. Read and critically appraised a clinical research study.	5	50%	3	60%
12. Accessed the Cochrane database of systematic reviews.	0	0%	0	0%
13. Accessed the National Guidelines Clearinghouse.	1	10%	0	0%
14. Used an EBP guideline or systematic review to change practice where I work.	0	0%	0	0%
15. Evaluated a care initiative by collecting patient outcomes data.	1	10%	1	20%
16. Shared the outcome data with colleagues.	0	0%	1	20%
17. Changed practice based on patient outcome data.	1	10%	0	0%
18. Promoted the use of EBP to my colleagues.	2	20%	1	20%

Reliability

To determine the internal consistency of the tools EBPB and EPBI scales a Cronbach's alpha was completed. The Cronbach alpha exceeded 0.75 on each of the scales (see Table 4).

Table 4:

Cronbach Alpha

Scale	Cronbach α
EBP Beliefs/Attitudes Scale	0.776
EBP Implementation Scale	0.887

This reliability measure was in agreement with that established by the authors of the scales (Melynck, Fineout-Overholt, & Mays, 2008). Because the same participants were surveyed pre and post intervention, *t*-tests were performed to compare scores (Table 5).

Table 5:

t-tests Comparing Pre / Post Intervention Scores

Scales	Mean Score	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Pre Beliefs/attitudes	53.8000	5.53373	1.74992	30.744	9	.000
Post Beliefs/attitudes	56.4000	4.61519	2.06398	27.326	4	.000
Pre Implementation	34.1000	10.3971	3.28786	10.371	9	.000
Post Implementation	33.2000	7.25948	3.24654	10.226	4	.001

The mean score post intervention was higher on the post beliefs/attitudes scale. However the post implementation scale score was lower. The significance value on both post intervention scales score was <0.05 meaning a significant difference occurred. The *t*-test supported the hypothesis that education can make a positive change in the nurses' beliefs/attitudes of and intent to use EBP.

A participant feedback tool was used to evaluate the educational program (see appendix E). The evaluation tool summary indicated that all participants strongly agreed that "overall the program met my learning needs". One participant requested that the program be offered annually. Another participant suggested that all staff should be

required to attend the program. In answering the question “How do you plan to use this information in your practice setting?” responses included: to look up best practices, to utilize research to improve patient care processes, to evaluate contemporaries and peers use of EBP, and to improve patient care.

Chapter 5

Discussion

The literature establishes the need for EBP. EBP has the possibility of many potential benefits when identified and implemented. The nurse must be ever diligent to the constant changes occurring in technology, practice guidelines, and the political/legislative arena. Patients demand the latest and greatest services and are well-informed consumers when they enter the health care system (Dinsdale, 2008). The literature reviewed supports the need for education of nurses in EBP (Thompson, Moore, & Estabrooks, 2008). This project demonstrated that education can make a difference in the nurses' beliefs/attitudes toward and intent to use EBP. The analysis also supported the theoretical framework of the project; once the nurse is aware of the benefits of EBP the need for education becomes evident, the education in turn transforms the nurse's thinking and results in a change in practice that is based on evidence. The project revealed that the ADN nurse may not even recognize the need for education without being drawn into the knowledge of EBP by others. No ADN nurses chose to attend the intervention offered by this project. This might be the fault of the cultural DNA of the organization. The organization has a long history of hiring ADN nurses as compared to BSN nurses. The organization also does not provide any financial assistance to nurses seeking to further their educational level. This is slowly changing as demonstrated by the support given the project by nurse managers in the organization. Nursing administration provided support by allowing recruitment during management meetings and distribution of flyers. However, staff were not given paid time to attend the intervention. The

researcher provided the results of the project to the institution and it is hoped that further education will be planned in the future.

Implications of Findings

The findings of the project demonstrated that education can affect the nurses' beliefs/attitudes toward and intent to use EBP. Project results support the literature base that education of nurses is needed and can impact patient outcomes (Fineout-Overholt & Johnson, 2006). Outcomes affected may include patient/staff satisfaction, increased autonomy for nurses, reduced health care costs, increased access and use of EBP data and practice guidelines. With education, nurses will find interpretation and implementation of EBP, reduction of barriers, and the ability to speed up the translation of research into the use at the bedside.

Limitations

Economic conditions, change fatigue, and general staff moral may have affected the number of participants in this project. The organization chosen for the project has been affected by the economic downturn and had implemented a reduction in force two months before the intervention occurred. During this time period the organization also redesigned work processes by initiating electronic medical records with mandatory overtime for training of all nursing staff. Several nursing units were closed forcing staff to use vacation hours to maintain income levels. The administrator of the education department retired and was not replaced until after completion of this project. On the positive side, some of the participants' comments on the evaluations of the intervention were: "excellent program, very useful information, everyone should take this class, and this class should be offered annually". The results showed reliability of the tools used.

However, sample size limits the generalizability of the results and increases the possibility of a type II error.

Delimitations

This project was limited in scope due to time limits. The time limits did not allow measuring of long-term adaption of beliefs/attitudes and use of EBP. Time limits also affected recruitment. The project design did not allow for participants to enroll once the initial survey time was completed. Choosing to limit participants to a convenience sample from one organization also impacted the scope of this project by decreasing potential participants.

Recommendations/Summary

Additional work needs to be done on the use and implementation of EBP in health care organizations. The barriers to practice that exist in health care organizations have been identified (Chism, 2010). Working with leaders of the health care organizations to provide time and compensation for nurses who engage in EBP should be strengthened. The long-term effect of education on nurses' beliefs/attitudes toward and use of EBP should be fostered and built into the organization's culture and competencies. The bedside nurse must be convinced that the translation of research into practice is truly a vital part of every day nursing care.

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Appendix A

Permission to Use Tool

EBP Scales for Student Research Study

Ellen Fineout-Overholt [ellen.fineout-overholt@asu.edu]

Sent: Monday, January 03, 2011 6:57 PM

To: Mr Roscoe Steven Mooney

Cc: Bernadette Melnyk [Bernadette.Melnyk@asu.edu]

Attachments:EBP Beliefs Scale 2011.pdf (123 KB) ; EBP Implementation Scale 2~1.pdf (121 KB) ; CAEP Online Services Form.pdf (48 KB)

Hi Steve. Thank you for submitting the student permission forms for the EBPB & EBPI! We are glad you are studying an intervention to enhance shifting toward the EBP paradigm. Would you please provide the degree program you are in and your focus of study? I would greatly appreciate it.

Attached please find the EBP scales. This email serves as permission for you to use them in your academic research study. Should you find they are a match for further project/studies in your career, we would request that you complete a separate permission form for each scale. Should you wish to collect the data electronically, we offer that service for a nominal fee (see enclosed Online Services Form). This is a very efficient mechanism for surveying participants and data collection. You are responsible for getting the web address to your study participants. We take care of the rest - survey building, data collection via SurveyMonkey™ and delivery of an Excel file with the raw data to your email. You just tell us when to launch the survey and when data collection is to finish. Once you have addressed data cleaning and missing data, you can conduct simple analyses with the Excel file or easily import the file into SPSS for analysis. To maintain integrity of the scale, other means of electronic data collection are not permitted. Please let us know if that is of interest to you.

Your study sounds very interesting and we look forward to your results. As you progress in your study, please let me know if you have any questions or need assistance in scoring the scales.

Bern and I wish you all the best in your endeavors to advance EBP!

Take care,
Ellen

Anything is possible, when you believe!

Ellen Fineout-Overholt PhD, RN, FNAP, FAAN

Clinical Professor & Director, Center for the Advancement of EBP

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Appendix B

Intervention Outline

Evidence-Based Practice (EBP)

Intro 101

Agenda

November 2, 2011

0730-0800	Registration
0800-0900	EBP what it is and isn't
0900-1000	Why we do what we do (Nursing Theories to live by)
1000-1015	Break
1015-1115	Developing a research question – The PICOT
1115-1200	Evaluating evidence
1200-1300	Lunch on your own

Choice of one of the following:

South Campus computer classroom on Nov. 2 - afternoon

1300-1430	Accessing the digital library and designing a literature search
1430-1445	Break
1445-1545	Manipulation of literature in the electronic format, review evaluation criteria, and locate and manipulate info in electronic book format
1545-1600	Evaluation/Questions

OR South Campus computer classroom on Nov. 3 – Morning

0800-0930	Accessing the digital library and designing a literature search
0930-0945	Break
0945-1045	Manipulation of literature in the electronic format, review evaluation criteria, and locate and manipulate info in electronic book format
1045-1100	Evaluation/Questions

Appendix C

IRB Approval

The Frye Regional Medical Center Facility Research Committee
420 North Center St.
Hickory, North Carolina 28601

September 23, 2011

FRC APPROVAL LETTER

Steve Mooney, RN, MSN, CCRN
DNP candidate GWU
C/O Frye Regional Medical Center
420 North Center St.
Hickory, NC 28601

RE: "The Relationship of Education on Evidence-Based Practice and Nurses' Attitude Toward and Intent to use Evidence-Based Practice"

Dear Mr. Mooney:

I am writing to notify you that the study referenced above was granted approval at the full board meeting of the Frye Regional Medical Center Facility Research Committee (FRC) on September 22, 2011 to continue until the renewal on September 30, 2012 or completion of the study, whichever comes first.

For any protocols requiring informed consent or assent, the consent/assent must be provided to the subject and retained by the researcher for the duration of the study.

Please provide a written update report to the FRC in September or upon completion of the study, whichever comes first. Any changes in protocol or informed consent must be reported within 24 hours to the Chair of the FRC with a subsequent written report provided within 14 days of the event. The investigator must promptly report to the FRC, institutional officials of the participant hospital(s), study sponsor(s), and, as applicable, the FDA and/or OHRP, any instance of serious or continuing noncompliance with FDA or OHRP regulations or the requirements of the FRC."

Please feel free to contact me if you have any questions or concerns at 828-315-5217.

Sincerely,



Mary Robitschek, Secretary
Frye Regional Medical Center Facility Research Committee

Enclosure

GWU IRB Approval



THE INSTITUTIONAL REVIEW BOARD of GARDNER-WEBB UNIVERSITY

This is to certify that the research project titled The Relationship of Education on Evidence - Based Practice and Nurses' Attitudes Toward and Intent to Use Evidence - Based Practice

being conducted by Steve Mooney, RN, MSN

has received approval by the Gardner-Webb University IRB. Date 9/16/11

Exempt Research

Signed Dr. Cindy Miller
Department/School/Program IRB Representative
Rebecca Buck - Miller
Department/School/Program IRB Member

Expedited Research

Signed _____
Department/School/Program IRB Representative

Department/School/Program IRB Member

IRB Administrator or Chair or Institutional Office

Non-Exempt (Full Review)

Signed _____
IRB Administrator

IRB Chair

IRB Institutional Officer
Expiration Date _____

IRB Approval:

____ Exempt ____ Expedited ____ Non-Exempt (Full Review)

Revised 3/10

Pending faculty approval

Appendix D

Informed Consent

This is a project study and participation is voluntary. This form gives you information about this research study.

1. **Purpose of the Project**

- To design and implement an educational program on the use of evidence-based practice
- To evaluate the effect of education on the nurses' beliefs/attitudes about and intent to use evidence-based practice

You are being offered the opportunity to take part in this project to improve or enhance your knowledge of evidence-based practice.

2. **Procedures to Be Followed**

- i. Complete a survey on evidence-based beliefs/attitudes and intent to use evidence-based practice
- ii. Attend educational program on evidence-based practice
- iii. Complete follow-up survey
- All project data will be kept by the investigator for 3 years.
- All project data will be reported in aggregate.

3. **Discomforts and Risks:**

- There are no actual or perceived risks with this project. No personal identifiers will be collected, and participation is voluntary.

4. **Possible Benefits to the Participant:**

The possible benefits you may experience from the educational program described in this project include time savings related to increased use of practice guidelines and improved job satisfaction all leading to better patient outcomes. However, there is no guarantee that you will benefit from being in this project.

6. **Time Duration of the Project:**

- Initial survey completion will require approximately 15 minutes.
- The educational program is expected to require 6 hours to complete.
- A follow-up survey will require approximately 15 minutes to complete.

7. **Statement of Confidentiality:**

Privacy and confidentiality measures

All data collected will be reviewed, analyzed, and stored in a secured area in a password-protected electronic file.

In the event of any publication or presentation resulting from the research, no personally identifiable information will be shared.

Participation in this project will be kept confidential to the extent permitted by law. However, it is possible that other people may become aware of your participation in this study. For example, the following people/groups may inspect and copy records pertaining to this project:

- The Gardner-Webb University Institutional Review Board (a committee that reviews and approves research studies) and

- The Frye Regional Medical Center Facility Research Committee (a committee that reviews and approves research studies).

Reasonable efforts will be made to keep the personal information in your project record private and confidential but absolute confidentiality cannot be guaranteed.

8. Costs for Participation:

- There is no cost to participate in the project.
- You will not lose any legal rights by participating in this project.

9. Compensation for Participation:

- You will not receive any compensation for participation in this project.

10. Research Funding:

- The investigator is not receiving any funds to support this project.

11. Voluntary Participation:

- Taking part in this project is voluntary and you do not have to participate. If you choose to participate, you have the right to stop at any time. If you decide not to participate or if you decide to stop participating in the project at a later date, there will be no penalty or loss of benefits to which you are entitled.

Contact Information for Questions or Concerns:

You have the right to ask any question you may have about this project. If you have questions, complaints or concerns related to this project contact Steve Mooney at **828-315-5217**, roscoem1@hotmail.com or Dr. Camille Reese at **704-878-3282**, creese@mitchellecc.edu.

Participant: By completing this survey, you indicate that you are voluntarily choosing to take part in this project.

Appendix E

Intervention Evaluation Form

Participant Feedback Tool

Activity Title: Evidence-Based Practice Intro 101

Date 11/02/11 & 11/03/11

Provider # 059-11022011

Location: _____

I. Please rate the effectiveness of this continuing nursing education activity.

Objectives/Purpose Goals Achieved Upon completion of this activity the learner will be able to:	Excellent	Good	Fair	Poor
Objective 1 To define evidence-based practice (EBP)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Objective 2 Explain the importance of a theoretical framework to the nursing profession Discuss types of theoretical works in nursing Identify the major focus of selected nursing theories	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Objective 3 Understand the components of a well-designed researchable question	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Objective 4 Demonstrate a method to evaluate research evidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Objective 5 Design literature search strategy, Produce (or create) results list, Obtain journal articles, Manipulate literature in electronic format	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall this program met my learning needs	Strongly agree <input type="checkbox"/>	Agree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Strongly disagree <input type="checkbox"/>

II. Please rate the audiovisuals/handouts used for this workshop.

Excellent	<input type="checkbox"/>	Good	<input type="checkbox"/>	Fair	<input type="checkbox"/>	Poor	<input type="checkbox"/>
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III. Please evaluate the expertise and appropriateness of teaching strategies of each presenter.

Presenter(s) Expertise & Appropriateness of Teaching Strategies	Excellent	Good	Fair	Poor
Steve Mooney, MSN, RN, CCRN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
JoAnn Smith, MSN, RN, OCN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Karen Martinez, MLS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IV. Please evaluate the physical environment where the workshop was held:

Excellent	<input type="checkbox"/>	Good	<input type="checkbox"/>	Fair	<input type="checkbox"/>	Poor	<input type="checkbox"/>
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V. How do you plan to use this information in your practice setting?

VI. Suggestions for future education programs:

VII. How did you hear about this program?

_____ E-mail _____ Flier _____ Friend _____ Other _____

VII. General comments and/or suggestions: (Use back of page if necessary)