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DNP FINAL REPORT: DIABETIC FOOT CARE IN HISPANIC FEMALES WITH TYPE II DIABETES: AN EVIDENCE-BASED QUALITY IMPROVEMENT INITIATIVE

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by

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Dedication

I would like to dedicate my Doctor of Nursing Practice Project to my children Jessica, Aaron, Benjamin, Madeline, Emily and Liam, thank you for understanding my journey and the many long hours and years it has taken.

To my sisters Patty, Georgianne and Jackie, we have an unbreakable bond that is an honor to share.

And to my husband Jimmy, you have been my rock, my encouragement and my safe place to land at the end of many long days, thank you.

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Table of Contents

List of Tables

List of Figures & Forms

Abstract

DNP FINAL REPORT DIABETIC FOOT CARE IN HISPANIC FEMALES WITH TYPE II DIABETES: AN EVIDENCE-BASED QUALITY IMPROVEMENT INITIATIVE

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Background: Diabetes affects 30.5 million people in the United States at an annual cost of approximately 245 billion dollars. 176 billion dollars are spent on debilitating often life-threatening complications affecting the heart, kidney, eye and nervous system. Over 69 billion dollars are spent on reduced workforce productivity. Approximately 9.9% of the United States population has diabetes, the diabetic population in Texas is 11.4% and in Collin County population is 10.2%. Hispanic populations are at a higher risk of developing diabetes at approximately 12.2% nationally.

Purpose: Peripheral neuropathy commonly occurs in the lower extremities of diabetic patients increasing risks of foot complications or lower limb amputations by 15-40 times. 56,200 people annually are at risk of losing a foot or leg due to diabetes. Early education on proper footcare and preventative measures can lead to healthier more independent lives. Teach-back methods are an important component in the self-management process allowing both the provider and patient to better understand educational gaps. Incorporating self-management with healthy lifestyle behaviors assists patients in gaining a sense of ownership over their disease. Teach-back instruction on foot care techniques encourages problem-solving skills necessary to help patients address daily challenges.

Methods: a systematic search was conducted across three databases, PubMed, Cochrane Complete Library, and the Cumulative Index of Nursing and Allied Health Literature (CINAHL). Inclusion criteria across all databases included adult females, type II diabetes and teach-back management. Filters included English text, and exclusion criteria included all male samples. The PubMed search was conducted using the keywords: *Type II Diabetes, foot care education, and adult Hispanic females*, producing a total of 17 articles for review. The combined searches including filters produced a total of 42 articles to be reviewed. A final strategic hand search of the 42 articles led to 10 keeper studies to be included for use in this intervention.

Results: The recommendation from the evidence that guided this project implementation was two-fold: 1) offer Diabetic Self-Management Educational instruction to healthcare providers using a standardized foot assessment protocol that included steps to follow that were evaluated with a standardized patient teach-back knowledge assessment; and 2) initiate best care practices via a new standardized evidence-based protocol of care initiated with Hispanic female patients with Type II diabetes. Included will be a new care protocol with instruction on steps in foot care maintenance and demonstration of foot care practices for prevention of foot complications.

Chapter 1: Development of the Clinical Question and Problem Identification (EBP Process Steps 0, 1, & 2)

Background and Significance

According to the American Diabetes Association, diabetes affects 30.3 million people in the United States at an annual cost of approximately 245 billion dollars (Rice, Desai, Cummings, Birnbaum, Skornicki, & Parsons, 2014; American Diabetes Association, 2018). Of these health care expenditures, 176 billion dollars were spent on health care costs ranging from debilitating or life-threatening complications involving the heart, kidney, eye, and nervous system.

One specific complication is peripheral neuropathy in the lower extremities combined with lower extremity atherosclerosis placing the person with diabetes at an increased risk for foot complications (Peripheral artery disease-legs, 2016; Bonner, Foster, & Spears-Lanoix, 2016). Such complications have created over 69 billion dollars in reduced workforce productivity. While many of these costs are attributable to the treatment of diabetes itself, substantial costs were incurred in treatments related to complications of chronic diabetes (Rice et al., 2014; American Diabetes Association, 2018).

The American Diabetes Association has found 60-70% of people with diabetes have symptoms of nerve damage ranging from mild to severe (American Diabetes Association, 2018). This nerve damage results in foot complications in approximately 25% of all diabetic patients over the span of their lifetime and has resulted in over 56,000 foot or leg amputations annually (Norris, Engelgau, Narayan & Narayan, 2001; Rice et al., 2014).

In the United States the prevalence of diabetes is approximately 9.9%, in Texas the estimate is approximately 11.4 % and in Collin County the rate of diabetes is approximately

10.2 % (Diabetes Data Surveillance and Evaluation, 2017). Diabetes Data Surveillance and Evaluation (2017) assessed diabetes prevalence by race and found that Hispanic American's had a 12.2 % affected rate resulting in an urgent health problem for this population (American Diabetes Association, 2018). According to Duggan et al. (2014), Hispanic populations are more likely to have poor glycemic control possibly related to less utilization of self-management practices including glucose self-monitoring protocols.

At the Community Health Clinic (CHC) in McKinney, Texas, the diabetic prevalence rate for the Hispanic population is approximately 23.5% (Rakowski, 2018). Utilizing proper foot self-care management and increased provider evaluations can reduce the risk of injury or infection leading to foot complications or ulcerations (McCulloch, 2015). In patients with diabetes, even a minor trauma causing cutaneous damage can lead to foot ulceration.

Observations such as early recognition and management of risk factors illustrate the importance of frequent foot evaluations in these patients (McCulloch, 2015). Education about foot care interventions may mitigate such sequelae as rapid onset of infection and amputation, which can be costly and disabling. This is a national issue and impacts patients in many Texas communities. For example, the Department of State Health Services, Center for Health Statistics Data (2014), for Texas hospitals indicated that amputation rate in Collin County included forty-three hospital admissions, and 6.76 observed lower-extremity amputation rates involving patients with diabetes.

Internal Evidence

In Collin County, 6.74% of the population live below the poverty line and mostly include females between the ages of 25-34 (Health Risks, 2015). Furthermore, many of those living in poverty are Caucasian, followed by Hispanic and Asian ethnicities (Health Risks, 2015). An

outpatient medical facility serving the indigent population of Collin County is the Community Health Clinic (CHC) in McKinney, Texas. Requirements to be a patient include being medically uninsured and to have an income at least 200% below the poverty line (Rakowski, 2018).

The Community Health Needs Assessment report (2018), states the CHC provides care for many Hispanic and diabetic patients. Currently, the clinic has approximately two hundred diabetic patients, of these, ninety-seven are Hispanic females. (Rakowski, 2018). There is an opputunity to make untoward outcomes within this population.

To better understand this phenomenon, an epidemiological needs-based assessment for the CHC was conducted. Of the 1056 active patients, there were 68.9% female patients, 68.7% who identified themselves as Hispanic and 23.5% have been diagnosed with diabetes (Methodist Health System, 2016; Rakowski, 2018). Often diabetic foot care education is only offered when a patient presents with a lower extremity complication. Rouyard, Kent, Baskerville, Leal, and Gray (2016) have indicated that often ethnic minorities are unaware of the risks of Type II diabetic-related complications, especially as they pertain to vascular complications.

King, Fleck, Estrella, and Reitz (2013), stated providing preventative services to patients with chronic disease processes such as diabetes, is often non-existent in transient populations living in underserved areas. These issues can include transportation or work-related obstacles that interfere with educational classes or ability to follow -up medical treatments. According to Rakowski (2018), the clinical executive director, patient follow up at the CHC is often inconsistent.

At present, education on diabetic foot care management within CHC is provided sporadically to patients. Furthermore, current education does not consistently include cultural considerations. Finally, there is no mechanism to ensure that material presented is fully

understood – that is, no teach-back method. Protocols that include Diabetic Self-Management Education provide patients with the opportunity to learn how diabetes affects the body and increases their risk of developing potential foot complications

External Evidence

Diabetes may cause wide-ranging debilitating or life-threatening complications involving the heart, kidney, eye, and nervous system. Specifically, peripheral neuropathy in the lower extremities combined with vascular atherosclerosis places a person with diabetes at risk for foot complication (Peripheral artery disease-legs, 2016; Bonner, Foster, & Spears-Lanoix, 2016). As in the exemplar, such complications from diabetes are the most frequent causes of lower limb amputations, and the risk of a lower limb amputation is 5-40 times higher in people with diabetes (Norris, Engelgau, Narayan, & Narayan, 2001). Diabetes Self-Management Education (DSME), programs that include teach-back instructions are designed to ensure information provided to people living with Type II diabetes is retained.

These methods include information on proper foot care include early recognition of peripheral artery disease with symptoms such as weak or absent pulses in the limbs, hair loss over the legs, feet, or toes and paleness or shininess of the skin, as well as education on methods used to reduce the possibility of foot injury (Peripheral artery disease-legs, 2016; Bonner et al., 2016).

Furthermore, including teach-back methods sometimes known as “show me” or “closing the loop,” offer opportunity for patient to verify that material and care is properly understood. This method can be accomplished by asking the patient to repeat back key components of instruction through a series of questions such as “can you tell me what you learned today” or

"can you discuss necessary diet changes you need to make" (Dinh, Bonner, Clark, Ramsbotham, & Hines, 2016).

If a gap or discrepancy in information is discovered, healthcare providers can identify what information needs to be repeated. Current practices for DSME with teach-back instruction can include individual instruction from healthcare providers or education that is presented in small group classes (Hwee, Cauch-Dudek, Victor, Ng, & Shah, 2014).

For example, providing one-on-one instruction using pamphlet style information or providing short video presentations can assist patients in developing necessary problem-solving skills needed to meet challenges faced when implementing daily foot care routines. Reinforcement of DSME instruction monthly can further assist patients in addressing health maintenance barriers (Hwee, Cauch-Dudek, Victor, Ng, & Shah, 2014; Bonner et al., 2016). In diabetes lifestyle management, culturally appropriate health education has been shown to improve outcomes on glycemic control and increased knowledge (Attridge, Creamer, Ramsden, Cannings-John, & Hawthorne, 2014). Cultural indications include language specific education, religious preferences, and the inclusion of dietary choices. Therefore, when diabetic education is planned, culturally appropriate health education strategies need to be considered (Attridge et al. 2014).

Development of the Clinical Question

Current practices for DSME with teach-back instruction can include individual instruction from healthcare providers or education that is presented in small group classes (Hwee, Cauch-Dudek, Victor, Ng, & Shah, 2014). Therefore, the question arises: In adult Hispanic females with Type II diabetes (P) how does adding diabetes self-management education

with teach-back demonstration to a healthcare regimen (I) compared to no patient education added (C) affect the incidence of diabetic foot complications (O) over a 3-6-month period (T)?

Chapter 2: Evidence Synthesis & Model of EBP (EBP Process Steps 1, 2, 3, & 4)

Systematic Search

To answer the clinical question, a systematic search was conducted across three databases, PubMed, Cochrane Complete Library, and the Cumulative Index of Nursing and Allied Health Literature (CINAHL). Inclusion criteria across all databases included adult females, type II diabetes and teach-back management. Filters included English text, and exclusion criteria included all male samples. The PubMed search was conducted using the keywords: *Type II Diabetes, foot care education, and adult Hispanic females*, producing a total of 17 articles for review (Appendix E, Figure E1).

A search of the Cochrane Complete Database was completed using the same keywords as PubMed: *Type II Diabetes, foot care education, and adult Hispanic females*, yielding a total of 18 articles for review (Appendix E, Figure E1). I then searched CINAHL Complete Database using the same keywords: *Type II Diabetes, foot care education, and adult Hispanic females,* yielding a total of 7 articles (Appendix E, Figure 4). The combined searches including filters produced a total of 42 articles to be reviewed. Additionally, a final strategic hand search of the 42 articles led to 10 keeper studies to be included for use in this intervention.

Critical Appraisal

Critical appraisal has four phases: 1) rapid critical appraisal, 2) evaluation, 3) synthesis, and 4) recommendation. All phases were addressed in this project.

Rapid Critical Appraisal

Rapid critical appraisal checklists can assist in the evaluation of a studies validity, reliability, and applicability in time-efficient methods as it applies to a PICOT question (Melnyk, Gallagher-Ford, & Fineout-Overholt, 2017). A body of evidence can then be gathered, appraised,

evaluated, and synthesized to determine the need for practice changes. This is an essential step in the evidence-based practice process and involves decisions related to possible clinician interventions. In this implementation plan, ten studies were evaluated using a rapid critical appraisal process and general overview forms.

Rapid critical appraisal (RCA) was performed on the ten studies retained from the systematic and strategic hand search. Each of the studies retained were determined to be valid and reliable. The rapid critical appraisal process and general appraisal overview process were conducted on the following studies: Bonner, Foster, and Spears-Lanoi (2016), performed a systematic review of thirty studies on foot care knowledge and practices including diabetic foot care self-management interventions. While I have included information from this systematic review some aspects within did not include information on foot care knowledge or practices related to caregiver limitations such as time constraints or staff shortages. Also, some of the studies reviewed failed to report study size and had limited information on bias reported. However, this systematic review answers questions addressed within my PICOT question as it discusses foot care knowledge and diabetic self-management interventions applicable to clinical practices. A systematic review by Dorresteijn, Kriegsman, Assendelft, and Volk, (2014), determined positive short-term effects of education in patients with diabetes mellitus foot ulcers in five of the eight studies evaluated. I have included information from this systematic review as it addresses positive short-term effects on patient education. Encouraging behavioral change is one goal needed to increase foot care awareness and increased DSME provides beneficial information on efforts to reduce incidence of foot ulceration or amputation.

A randomized control trial conducted by Behador, Afrazandeh, Ghanbarzehi, and Ebrahimi (2017) included sixty patients with diabetic foot ulcers in Jiroft Imam Khomeini

hospital from January 2016 to May 2016. The comparison of the self-efficacy in patients with diabetic foot ulcers in case and control group before training was homogeneous. A Mann–Whitney U-test was utilized to show differences was not statistically significant ($p>0.05$). After intervention however, a t-test showed self-efficacy training to be statistically significant ($p=0.001$). Patient scores after training were 93.56 ± 2.1 and 182.25 ± 1.4, for control group with the score of self-efficacies in the case group better than the control group at ($p=0.001$) (Behador, Afrazandeh, Ghanbarzehi, & Ebrahimi, 2017).

In Behador and colleagues' study, patients were randomly assigned to a case control groups and a comparison group with thirty participants in each group. Tools used were the Demographic questionnaire, Diabetes Management Self-Efficacy Scale (DMSES) and Diabetes Foot Self-care Behavior Scale (DFSBS). I have included information from this quasi-experimental study due to the educational training and self-management protocols covered. These are similar types of questionnaire methods used when gathering data within the clinical setting. Included in this study were the positive effects nurses have on diabetic education. The limitation of this study was difficulty in patient access after intervention for completion of questionnaires needed and small sample size.

Two additional studies assessed how teach-back methods improved medical adherence techniques. In the systematic review by Dinh, Clark, Bonner, and Hines (2013) investigations of self-management approaches to assist patients and families with better management of chronic conditions were addressed. Findings agreed with the usefulness of teach-back methods in helping patients with a better understanding of treatment regimens and disease warning signs (Dinh, Clark, Bonner, & Hines, 2013).

Similar findings were found in the study by Hwee, Cauch-Dudek, Victor, Ng, and Shah (2014). In this study diabetes complications and quality of care management using DSME in group settings verses individual counseling were addressed. This study addressed individual counseling verses group counseling showing poorer foot care results in patients who participated in individual counseling versus patients who attended group classes with teach back methods provided. Group class attendees were noted to be less likely to require emergency department interventions showing a 95% confidence interval in the reduction in hospitalization for hypo/hyperglycemia or hospitalization for foot ulcers or cellulitis (Hwee, Cauch-Dudek, Victor, Ng, & Shah 2014).

In both studies, possible clinician-related barriers were indicated, such as poor communication with patients, lack of time for consultation, and failure in providing information at a suitable level for patient understanding (Dinh, Clark, Bonner, & Hines, 2013). A disadvantage of this cohort study included data on DSME protocols only available for 2006 and reasons for group or individual participation of education in specific programs not known.

The importance of group management is valuable to incorporate into my PICOT question as the use of group education is the method currently in use at the clinic where implementation will take place. A cohort study by Didarloo, Shojaeizadeh, and Alizadeh (2016) examined effects of education level, beliefs, behaviors and glycemic control among diabetic women. Changes were seen in patients' health beliefs, behavior, glycemic control index and quality of life improvements.

This study discusses the need for healthcare providers to consider interactive education as a core element for diabetes patients with ongoing education using the value $P< 0.05$ to be deemed a significant value in all tests. This study incorporates cultural aspects of my PICOT

question as it examines methods leading to improved outcomes in glycemic control including health beliefs and cultural behaviors.

Cultural effects on diabetes education and self-management techniques were discussed in a randomized control trial conducted by Attridge, Creamer, Ramsden, Cannings-John, and Hawthorne (2014). The overall effectiveness of culturally appropriate health education for people in ethnic minority groups with type 2 diabetes mellitus was evaluated.

Finding indicated in these studies showed a 95% confidence interval indication in effectiveness for culturally appropriate health education (Attridge, Creamer, Ramsden, Cannings-John, & Hawthorne, 2014). This study is valuable in addressing my PICOT question due to the high ratio of Hispanic patients within the clinic and importance of incorporating culturally related healthcare beliefs.

A meta-analysis conducted by Flodgren, Rachas, Farmer, Inzitari, and Shepperd (2015) included randomized control trials and cluster randomized control trials indicating the use of telecommunication systems to deliver health care at a distance could improve overall patient health outcomes. Use of telecommunication as access to health care can reduce healthcare costs and showed a 95% confidence interval indication for success (Flodgren, Rachas, Farmer, Inzitari, & Shepperd, 2015).

Telecommunication is one form of increasing delivery and effectiveness of healthcare interventions in a more frequent and timely manner. This method assists with management of chronic conditions improving access to health care (Flodgren, Rachas, Farmer, Inzitari, & Shepperd, 2015). Implementation of a telehealth system is currently being considered within this clinical environment to increase provider access to patient care. Utilizing this method would assist in establishing patient education and support of diabetes foot care management. This study

addresses educational interventions within my PICOT question. Results were shown to have a high confidence interval of 95% in the sixteen studies addressing diabetes interventions and hemoglobin A1C levels.

An additional cohort study based on findings on the performance of the Ipswich touch test (IpTT) were studied by Rayman, Vas, Baker, Taylor, Gooday, Alder, and Donohoe (2011). The IpTT test is used to promote diabetic foot screening of hospital inpatients and patients in clinical settings. When directly compared the IpTT and Monofilament test showed an almost perfect correlation ($\kappa = 0.88$, $P < 0.0001$) (Rayman et al., 2011). The IpTT positively evaluates at-risk feet sensitivities and specificities and is beneficial to improve patient outcomes for the incidence of foot ulcerations.

Results show positive outcomes, however; the sample size was small with only 265 participants. However, I included this study to address my PICOT question, as the monofilament test and IpTT test were shown as a predictable measurement of foot sensation in diabetic foot care analysis within the clinical setting.

Ren and colleagues (2014) found in a cohort study that intensive nursing education helped to prevent diabetic foot ulceration and decreased the rate of amputation among patients at high risk for diabetic foot disease. Foot ulcers occurred on test toes in twenty-four cases, accounting for 48.0% of all ulcers, with 70.8% occurring on the first toe. Foot ulceration after nursing education showed a decreased from 41.2% to 11.1% (Ren et al., 2014).

Emphasis on education in diabetes mellitus, diabetic foot diseases and correct guidance in foot care practices care reduce the development of foot ulcers. Intensive nursing education can be widely carried out in hospitals and clinics at all levels (Ren et al., 2014). This study was retained as it addresses the impact of nursing education on foot care instruction and teach-back

methods in my PICOT question. Addressing the syntheses study is to develop a more specific understanding of the body of evidence, this process is also valuable when developing an implementation plan.

Across the 10 studies, the common purpose was to understand the importance of DSME in the reduction of foot complications. The independent variables were patient education, nursing education, cultural education and increased patient access to care. The outcomes were determined to be reduction of foot complications with implementation of DSME in patients and provider education. These data were entered into the evaluation table in the next phase of critical appraisal.

Evaluation

The evaluation table consisted of several components. These include the author of the study, the type of research performed, the patient population size and demographics, measured clinical indicators such as independent and dependent variables, statistical or analytical measurements used for analysis, interventions used, strength and quality of evidence, and recommendations.

After the ten studies were verified as the keeper studies and comprised the body of evidence (BOE), an evaluation table was developed that included column headings of Conceptual Framework, Design Methods, Variables, Data Analysis, Study Findings, and Recommendations.

Appropriate interventions and methods to deliver diabetic self- management education (DSME) in Type II diabetic patients identified from entering the data in the evaluation table included teach-back education with a focus on exercise and diabetic dietary instructions using culturally appropriate information. Also include in interventions was hemoglobin A1c

maintenance, cholesterol checks, daily foot inspections, use of appropriate shoes, and daily foot hygiene such as cleaning, lotion application and caution when cutting nails.

After Entering the information in the evaluation table, patterns began to emerge across studies. Outcomes identified from each study and included information on the reduction of diabetic foot complications. The data were formulated into one evaluation table and the effectiveness of appropriate interventions and methods evaluated comparing data on Diabetic Self-Management Education (DSME) in Type II diabetic patients was retained. This phase in critical appraisal led to synthesis and recommendations to answer the PICOT question.

Synthesis

Synthesis tables allowed for data to be synthesized from across the studies through the process of extracting specific information smaller more focused sections of information can be presented. Evidence from these tables provided the foundation for the final recommendation for current practice (Melnyk, Gallagher-Ford, & Fineout-Overholt, 2017). There were several patterns in the data identified for the evaluation phase of this critical appraisal leading to the development of Synthesis tables.

In Synthesis Table one (Appendix F, Table F1), the Level of Evidence (LOE) for each study is identified, ranging from Level I-VII. There were two Level I studies, four Level II studies, and four Level IV studies.

Synthesis Table two 2 (Appendix G, Table G1), included study design, samples sizes and outcomes related to DSME. The sample sizes in the studies retained included systematic reviews, random control trials, and individual studies with numbers of participants ranging from 60 to 265. The DSME outcomes included patient and provider footcare instructions, physical examinations and self-reported behaviors, including patient communication protocols and

culturally appropriate health education delivery methods. This table provides methods necessary to include in patient and provider education when developing DSME protocols to reduce foot complications.

The independent and dependent variables for each study are presented in Synthesis Table three (Appendix G, Table G2). The various study interventions used (independent variable) and their associated outcomes (dependent variable) demonstrated after completion of DSME protocols, which in all studies indicated the use of DSME decreased diabetic foot complications.

Each of these synthesis tables provided information used to craft a recommendation to guide clinical practice. These tables are valuable indicators on DSME outcomes necessary to ensure evidence-based practice education to health care providers when educating patients on foot care techniques used in the prevention of diabetic foot complications.

Recommendation

The recommendation from the evidence that guided this project implementation in the Community Healthcare Clinic (CHC) in McKinney, Texas, was two-fold: 1) offer Diabetic Self-Management Educational instruction to healthcare providers using a standardized foot assessment protocol that included steps to follow that were evaluated with a standardized patient teach-back knowledge assessment; and 2) initiate best care practices via a new standardized evidence-based protocol of care initiated with Hispanic female patients with Type II diabetes (Appendix G, Table G3). The new care protocol included instruction on steps in foot care maintenance and demonstration of foot care practices for prevention of foot complications (Beck et al., 2017; Bonner, Foster, & Spears-Lanoix, 2016; Dinh, Bonner, Clark, Ramsbotham, & Hines, 2016).

Larrabee Model for Evidence-Based Change

The Larrabee Model for Evidence-Based Practice Change model was used (Appendix D, Figure D1), at the Communality Health Clinic in McKinney (CHC) in six outlined steps to implement the stated project plan.

Steps in Larrabee Model include: 1. Assess the need for change by formulating a PICOT question based on changes needed in current practice. 2. Evaluate and locate best evidence: Obtain sources and assess credibility and relevancy to PICOT question. 3. Synthesis of evidence: By comparing and contrasting evidence found to answer PICOT question evaluate different approaches. 4. Design implantation of change: Apply Synthesis of evidence and create a change method within the practice environment that utilizes best practice protocols. 5. Implementation and Evaluation of change: Implement change within the environment and assess changes to acquire new evidence. 6. Integrate and maintain changes: Information is gathered based on new evidence to continue change. Steps 1-4 can be completed in a classroom setting, steps 5 and 6 require the use of a healthcare environment (Huett & MacMillian, 2011).

Bandura's Social Cognitive Theory of Self- Efficacy

The Social Cognitive Theory of Self- Efficacy model used in this patient care initiative provides a specific framework for addressing interactive or reciprocal factors as they relate to Diabetic Self-Management Education and Support (Appendix D, Figure D2). Bandura's Social Cognitive Theory of Self-efficacy and Support theory is composed of three main tenets including environmental, behavioral, and personal. Competencies found within this framework include addressing interactive or reciprocal factors as they relate to Diabetic Self-Management Education and Support.

In the self-efficacy model, Bandera addresses certain components as expectations related to outcome behaviors, therefore, an outcome expectation is the belief that a specific behavior will lead to a specific outcome (Bandura, Social Cognitive Theory of Self-Regulation, 1991). Bandura's Social Cognitive Theory of Self-Regulation reinforces the significance of each factor in the theory including environmental, behavioral, and personal, by explaining that if one factor changes then the other factors change leading to behavioral pattern differences. These changes were important to understand as providers begin to educate patients on the various systems involved in DSME.

Self-Management has been highlighted as one way of approaching healthcare issues that increase patient feelings of empowerment while assisting providers to encourage patients to become partners in their own health needs (Boger et al., 2015). Encouraging these factors allows the patient to take charge of their own healthcare decisions including self-management approaches that assist patients and families with management skills needed in chronic conditions such as diabetes (Dinh, Clark, Bonner, & Hines, 2013). Learning Diabetes Self-Management Education (DSME) techniques and understanding individual behavioral factors influenced by environment and social settings can assist in determining what support may be needed to encourage self-management of diabetic foot health maintenance.

Chapter 3: Project Design and Methodology (EBP Process Steps 3-4)

Project Design and Methodology

Facilitating knowledge and skills necessary to practice and sustain diabetes self-management behaviors in an ongoing basis requires reinforcement and that includes culturally considerate educational and training classes. Classes incorporate the needs and goals of patients on an individual basis and consider life circumstances of the person with Type II diabetes guided by best practice evidence. Behavioral, educational, clinical and psychosocial support are needed to assist in the patient's ability to implement self-care behaviors. This initiative provided patients with information and testing procedures that can ensure improvement in the reduction of foot care complications associated with diabetes.

Education to clinic staff and providers on best care practices has been disseminated in various forums including a 45-minute face- to- face educational presentation and offered on varying dates to ensure maximum provider turnout (Beck et al., 2017; Dinh, Bonner, Clark, Ramsbotham, & Hines, 2016).

Added to diabetic patient chart are new patient care forms used to assess the patient teach back educational component and foot assessment protocols (Appendix I, Figures I7, 8, and 9). A follow-up provider educational survey is available to assess project at three- and six-month intervals to establish protocol outcomes. These protocols allow for provider inputs and suggestions for improvement and reinforcement of initiative (Jornsay & Garnett, 2014; Norris, Engelgau, Narayan, & Narayan, 2001).

The American Association of Diabetes Educators (AADE7) assessment scale (Appendix D, Figure D3) identifies seven specific self-care behaviors that include a framework for patient centered care. A pre-test and post-test administered to providers based on information evaluated

from evidence studies retained include the evaluation of knowledge test (Powers et al., 2016; Beck et al., 2017). Appendix I1, shows a sample test given after provider educational session and again at the end of the three-month evaluation period to assess provider knowledge retention (Jornsay & Garnett, 2014; Lorig & Holman, 2003).

Seven self-care behaviors include healthy eating, being active, taking prescribed medication, monitoring hemoglobin A1c levels, assessment of fasting blood sugar and total cholesterol levels, and assisting patients with healthy problem-solving skills to reduce risks (AADE7 Self-Care Behaviors, 2014; Blood Test, 2019). Appendix I, Form I1, 2, and 3, show the foot assessment tools used by the provider for diabetic foot care assessment. These include visual inspection of feet and evaluation of foot neuropathy via monofilament test and assessment of pulses (Bonner, Foster, & Spears-Lanoix, 2016; Rayman et al., 2011).

Also, new standardized patient chart evaluation forms will monitor project completion outcomes of hemoglobin A1c levels, cholesterol levels and patient follow-up visits documented to assess number of clinic visits in a six-month period (Beck et al., 2017; Behador, Afrazandeh, Ghanbarzehi, & Ebrahimi, 2017). Outcome success are determined by a decrease in hemoglobin A1c levels, provider utilization of foot care protocol assessment screening tool and increased patient clinical visits (Blood Test, 2019).

Fully Operationalization Plan

A 2018 epidemiological report estimated that the Community Health Clinic had approximately 1056 patients who are at the 200% below poverty level, of this the number 68.9% are female patients, and those who identify as Hispanic are 68.7% and this number continues to grow (Community Health Needs Assessment& Implementation Plan, 2018).

This initiative can reduce patient foot complications leading to ulceration or amputation (Dorresteijn, Kriegsman, Assendelft, & Volk, 2014). Increased patient costs incurred due to diabetic foot related complications can include the patients lack of or ability to work due to injury or illness therefore increasing financial and emotional burdens (Rice et al., 2014; AADE7 Self-Care Behaviors, 2014;Williamson, 2017).

Management tasks include approval of new forms to be placed in patient charts that will improve outcomes evaluations, addition of a redeveloped video presentation on patient foot care practices offered in both English and Spanish to be added to existing room kiosks and incorporating each of the short video presentations to the clinic website for patient education or reinforcement (Attridge, Creamer, Ramsden, Cannings-John, & Hawthorne, 2014; Hwee, Cauch-Dudek, Victor, Ng, & Shah, 2014).

Future additions to the clinic website include a recorded video presentation of educational session for provider viewing needs, as well as, provider annual diabetic foot care protocol certification needs (Powers et al., 2016; Flodgren, Rachas, Farmer, Inzitari, & Shepperd, 2015). Protocols for patient initiative implementation and self-management of Type II diabetes in Hispanic female's include recommendations from the American Diabetes Association (ADA) that emphasizing Diabetes Self-Management Education (DSME) with teach-back instructions (AADE7 Self-Care Behaviors, 2014; Dinh Bonner, Clark, Ramsbotham, & Hines, 2016).

Teach-back methods are often known as "show me" or "closing the loop" methods and are accomplished by asking key questions such as "can you tell me what you learned today" (Dinh, Bonner, Clark, Ramsbotham, & Hines, 2016; Dorresteijn, Kriegsman, Assendelft, & Volk, 2014). Appendix I1 shows sample questions to be asked to patients by each provider to establish teach-back knowledge.

Patient education on DSME behaviors include monitoring daily blood sugar levels, dietary changes, daily shoe and foot inspections, no barefoot walking, avoiding use of abrasive items on feet and increasing activity (Dinh, Bonner, Clark, Ramsbotham, & Hines, 2016; Bonner, Foster, & Spears-Lanoix, 2016). It is also important to provide patients with behavioral, educational, and psychosocial support (Hwee, Cauch-Dudek, Victor, Ng, & Shah, 2014; Ren et al., 2014).

Education on best care practices is provided in various forms including a 45-minute face to face educational class, addition of new patient care forms in all diabetic patient charts to measure patient encounters and outcome data, and provider education follow-up to reinforce this initiative. Provider pocket cards with the mnemonic stated as "ICE-MF" were distributed and included standardized provider information such as foot care information to assess each patient visit and standardized questions to ask patients each visit (Appendix I. Figure I1 and 12):

Diabetes is a complex disease requiring numerous daily decisions regarding diet, activity, and medication management (Powers et al., 2016; Beck et al., 2017). Proper management necessitates proficient self-management skills (AADE7 Self-Care Behaviors, 2014; Lorig & Holman, 2003). Learning the necessary skills to be an effective self-manager provider is a critical component to laying the foundation to proper patient education (Powers et al., 2016; Jornsay and Garnett, 2014). Diabetic self-management skills have been proven to decrease the incidence of Type II complications; therefore, it is imperative that health care communities explore resources to meet the needs of adults living with and managing type II diabetes (Powers et al., 2016).

Evidence supports that DSME with teach back interventions decrease foot complications through increased patient education to fill in the gaps that may exist in patient knowledge.

Collaboration within health-care teams to improve patient health status and quality of life outcomes is important to keep in mind. Therefore, initial implementation plans included meeting with the executive clinical director and facility mentor to discuss the need for project protocols relating to foot care needs of the adult Hispanic female patient within the clinic's population.

Additional discussions related to the need for improvement of current practices for DSME due to the lack of current standardization of practices and high volume of volunteer practitioners at the clinic. Information on best care practices such as patient educational video presentations along with DSME monthly classes for continued information of knowledge.

Timeline and Gantt Chart

Project timelines and logic models are effective approaches to planning and implementing an evidence-based practice change. Each one offers a different perspective when planning a project however, they also complement each other. A project checklist or timeline is helpful when developing a plan due to the challenging nature of coordination among providers in the change process (Melnyk, Gallagher-Ford, and Fineout-Overholt, 2017). Referral to timelines when implementing establishes expectations and tasks needed to complete the process. Change requires communication and relationship building strategies that become clearer when a directional timeline is established. A project timeline is listed as the Gantt chart (Appendix H. Figure H1) will assist individuals or teams when timelines are established while providing a visualization of completed tasks for team members.

Logic model

A logic model is a systematic and visual method used to share and present relationships and resources made available that assist in understanding operations within a facility. They can be used for defining inputs, outputs, and outcomes in the flow of activity to results (Logic Model

Development Guide, 2014). The goal of the Practice Logic Model (Appendix H. Table H2) was to increase provider knowledge on educational methods of instruction needed to reduce diabetic foot-related complications in clinic patients.

The logic model was used as a visual tool to those implementing this patient initiative to see how the individual pieces of this project puzzle fit together to achieve the objectives and goals. My logic models and timelines worked together to define the inputs, outputs and project outcomes, such as timelines to follow and methods to follow to assist in reduction of foot complications as well as explain the process and activities necessary to utilize within the dynamic flow of patients and providers within this facility

Larrabee EBP Model

Within the DNP Project, the Larrabee EBP Model was operationalized as follows (Appendix D. Figure D1). Step 1- I assessed the need for change in formulating the PICOT question based on needed changes in current practice: The issue of diabetic self-management education (DSME) at the CHC for Adult Hispanic Females with type II diabetes is addressed in the form of a PICOT question: In adult Hispanic females with Type II diabetes (P) how does adding Diabetes Self-Management Education (DSME) with teach-back demonstration to a healthcare regimen (I) compared to no education added (C) affect the incidence of diabetic foot complications (O) over a period of one year (T)?

Step 2-I evaluated and located the best evidence across sources to assess credibility and relevancy to my PICOT question: Systematic search of evidence was performed and evaluated. Evidence on DSME obtained from an exhaustive search using the databases CINAHL, Cochrane Database, and PubMed. After retrieval of initial studies, an exhausted hand search produced ten keeper studies were retained and evaluated based on Levels of Evidence ranging from I-VI and

contained: Two Level I systematic review studies, four Level II randomized control trials, and four Level IV cohort studies. Synthesis of information tables was then constructed using information provided through the culmination of evidence incorporated into an evidence table. Keyword searched were Type II diabetes, Foot care education, and Adult Hispanic females.

Step 3- Synthesis of Evidence: Synthesis tables provide a recommendation from evidence and current practices. Synthesis table #1 discusses Level of Evidence of studies, Synthesis table #2 discusses Study Design /Sample Size/DSME Outcomes, Synthesis table #3 discusses Independent and Dependent Variables within each study and Synthesis table #4 discusses Measurement Variables and Outcomes.

I implemented the recommendations with clinical patients and provided education to health care providers on self-care management protocol, such as foot care techniques and how to monitor and inspect feet systematically to evaluate feet for possible complications leading to infection or skin breakdown. A PowerPoint presentation of procedures and updated video presentations of foot care practices was provided in both English and Spanish. The presentation, offered in both English and Spanish, on footcare practices was uploaded to existing kiosks in patient exam rooms and waiting area television.

Step 4- design implementation: I applied the appropriate recommendations to clinical patients and provided education to health care providers on self-care management protocols such as foot care techniques and how to monitor feet for possible complications that can lead to infection or skin breakdown.

Step 5- Implementation and Evaluation of Change: Initial implementation plans included meeting with the Executive clinical director and Facility mentor to discuss the need for project implementations and the need for improvement of current practices for DSME patient protocol

was discussed due to lack of current standardization of practices and high volume of volunteer practitioners at the clinic. Information on the best practice methods such as patient educational video presentations along with DSME monthly classes for continued reinforcement of knowledge.

Monofilament testing during patient visits every three to six months, healthy diet and exercise and hemoglobin A1c testing are outlined in patient documentation protocols. Possible phone application to patients existing phone for care reminders was discussed, follow up phone call checks discussed. It was decided at this time to incorporate educational process with the existing monthly diabetic diet planning class. I contacted the clinical diabetic education coordinator on ways to combine group classes and methods to implement DSME protocol into sessions. Alert office staff and providers of class offering and times. Informational flyers have been provided to staff and Executive Director.

Step 6- Integrate and Maintain Changes: Based on the body of evidence, DSME with teach back practices was implemented with a focus on foot management control and foot-related complications for diabetic patients.

Bandura's Social Cognitive Theory as a Change Model

Bandura social cogitative theory was the framework for this EBP project (Appendix D. Figure D2). Diabetic Self-Management Education (DSME) skills and behaviors can prove patients emotional states and be used to correct their faulty, self-beliefs and habits of thinking (personal factors), improve foot assessment abilities and self-regulatory practices (behaviors), and alter the underlying social or cultural structuring currently in place that may undermine a patients success for healthy lifestyle management (environmental factors) (Pajares, 2002).

Using concept analysis terms “self-management” and “support”, Bandura’s Social Cognitive Theory and Self-Efficacy management can be used to evaluate factors influencing individual behaviors. Bandura’s Social Cognitive Theory of Self-Efficacy model was be used to increase support and improve self-management skills will as they relate to DSME protocols. Trained in these methods providers can educate patients on best care practices in the prevention of diabetic foot related complications (Bonner, Foster, & Spears-Lanoix, 2016).

Bandura’s Social Cognitive Theory and Self-Efficacy management can be used to evaluate factors influencing individual behaviors. Additionally, this theory emphasizes social influences using external and internal social reinforcement methods such as increasing patient-provider interactions, using peer support with group feedback, and increasing patient outreach programs using telephone reminders (LaMorte, 2016).

The foundation of Bandura’s design of reciprocal determinism as this relates to personal factors involves the education of patients in the Community Health Clinic. Here, patients will gain a greater understanding of possible foot related issues that can lead to serious complications when managing diabetes. Incorporating environmental (group support classes), personal (social and cultural interactions), and behavioral factors (reduction of foot complications) into diabetic foot care management will allow healthcare providers to assist the patient in increasing self-management strategies (Nundy, Dick, Solomon, & Peek, 2013).

Problems needing change include provider education based on DSME protocols delivered to the patient with diabetes to prevent foot complications associated with diabetes. Included are standardized patient evaluation forms in patient charts that include the monitoring of hemoglobin A1c levels, lipid levels, diet and exercise, patient daily foot checks and increased foot care knowledge and foot care practices (Bonner et al., 2016; Ren et al., 2014). Learning Diabetes

Self-Management Education (DSME) techniques and understanding individual behavioral factors influenced by environment and social settings can assist in determining what support may be needed to encourage self-management of diabetic foot health maintenance.

Utilizing Bandura's methods, DSME protocols were taught to primary care providers in the form of PowerPoint presentation, discussion formats, and video presentations offered in both English and Spanish. This format will also be used for patient education and demonstration purposes. Educational protocols based on training the provider on necessary interventions need to be maintained for proper diabetic foot care practices. These practices will include diet and exercise, evaluation of hemoglobin A1c blood sugar levels every three months, and utilization of the monofilament foot test every six months.

Protocols will also include evaluation of cultural differences and providing individualizing patient care. Patients teach-back methods are emphasized to reduce gaps in understanding and assist patients in overcoming knowledge deficits that may reduce sustainable foot care interventions. A participant pre-test and posttest using the Diabetes Skill Assessment tool was conducted on both the provider and patient end points to assess knowledge of educational intervention as well as assessment of diabetic knowledge utilizing the American Academy of Diabetic Educators AADE7 Self-Care Behaviors (AADE7) assessment scale (Appendix D. Figure D3). Trained in these methods providers can educate patients on best care practices in the prevention of diabetic foot related complications (Bonner, Foster, & Spears-Lanoix, 2016). Patient outcomes will include lower A1c levels, foot care teach-back implementation recorded in the chart for provider access, patients to have increased exercise and weight loss, performance of daily foot checks and foot care protocols learned in DSME classes.

Final budget

Currently, the clinic has two hundred active diabetic patients, of those ninety-seven are Hispanic females with estimated annual cost per patient visit of $900.00 (Rakowski, 2018). To properly assess ninety-seven Hispanic female patients cost the clinic $87,300.00 annually in provider services alone, therefore, for the purposes of this six-month project, the initial cost was calculated to be approximately $43, 650.00. Also needed are labs results for two quarterly visits to measure hemoglobin (Hmg) A1c, and total cholesterol levels. The average cost of each Hgb. A1c lab test is $15.00 equaling $2910.00, and the total cost for each cholesterol profile is $8.00 equaling $1552.00 (Blood Test, 2019).

In addition to these financial requirements, time to meet with implementation team providing education on new procedures with follow up query will include three sessions at one hour per session and involve ten primary care providers at $80.00 per hour equaling $2400.00 (Rakowski, 2018). Nursing staff education included was three sessions at one hour per session for a total of $ 35.00 per hour with three registered nurses present equaling $315.00 (Rakowski, 2018). Time needed to add standardized foot assessment form to patient charts will require ten hours at $35.00 per hour equaling $350.00, and cost of new standardized chart forms is $100.00 (Appendix H. Table H3).

Patients follow up calls made by both sets of providers quarterly for two quarters total three hours per set of providers. Six hours for registered nurse providers and six hours for primary care providers totaling $3030.00. This sum of these expenses is $54,307. Current salaries for the clinical director, assistant clinical director and front office staff is approximately $55,000 per year (Rakowski, 2018).

Additional funding to support ongoing monitoring of the evidence-based intervention and demonstrated outcomes within this project is imperative. Furthermore, a focus on treatment and prevention related to diabetic foot care complications and securing adequate staffing and educational resource information is key to maintaining standard of care with the clinic.

Data Collection Plan

The data collected were hemoglobin A1c values, adherence to quarterly follow-up visits and provider use of teach-back forms in patient charts. A1c lab values were gathered by assessing the patient clinical visits and lab values ordered over a three- and six-month time period. The lab values were expected to be reduced or maintained if within normal limits. The evidence indicated that hemoglobin A1c levels are critical to understand in the treatment of type II diabetes. Monitoring hemoglobin A1c enables providers to discern the impact of higher or sustained high blood sugar levels on foot complications, as well as impact rate of health from such an injury (AADE7 Self-Care Behaviors, 2014).

Patient adherence to quarterly follow up appointments is an important component to monitor due to the transient nature of this population and follow up medical care can be difficult. The evidence supports the need for consistent follow-up care to maintain the educational aspect of care with teach-back demonstration and to maintain foot inspection protocols. In this clinic, provider use of diabetic foot assessment documentation is now part of the new protocol (Bonner, Foster, and Spears-Lanoix, 2016; Dinh, Bonner, Clark, Ramsbotham, & Hines, 2016).

Reviewing the evidence, I have found there is improvement in diabetic foot complications with the addition of patient education, reduction in hemoglobin A1c levels and inclusion of factors such as patient based self-care behaviors. These behaviors include diet management, daily foot inspections, monitoring daily blood sugar levels, maintaining follow up

appointments at clinic and ability to provide teach-back instructions (AADE7 Self-Care Behaviors, 2014). Data elements collected and assessed will include: Needed improvement in diabetic foot complications includes patient teach back education, reduction in hemoglobin. A1c levels and patient follow-up visits.

I obtained information from sixty-eight patient charts. Currently, the clinic does not have an electronic health record and charts are maintained within the clinic and are property of the clinic. I conducted chart assessments of this data on sixty-eight patents seen at the clinic over a three-month time period and again at the six-month time period after initial implementation, the patients were identified as female, Hispanic and type II diabetics. Sixty-eight patients were included in the evidence-based initiative (Rakowski, 2018).

Additional data collected included information regarding patient weight, medication use, total cholesterol levels and attendance of diabetic education classes offered by the clinic. This information is important in providing best care protocols for reduction of overall diabetic complications including the onset of foot complications (Bonner, Foster, and Spears-Lanoix, 2016; Dinh, Bonner, Clark, Ramsbotham, & Hines, 2016).

Data Analysis Plan

The outcomes measured include no foot complications in patients with type II diabetes, maintaining or lowering of hemoglobin A1c levels, patient follow up visits, along with provider teach-back education documented as given at the time of visit.

This data was measured by the addition of the new patient chart form and includes a check list of criteria needed for observation by providers along with recommendations of care based on observations and the documentation of criteria, including the new standardized methods of foot inspection, such as top of foot, bottom of foot, in between toes, foot color, heel

inspection, toenail inspection, assessment of pedal pulses, documentation of quarterly A1c levels, quarterly foot monofilament test, patients ability to provide teach-back instructions on foot care instructions and patient maintenance of follow-up clinical visits (AADE7 Self-Care Behaviors, 2014; Dorresteijn, Kriegsman, Assendelft, and Volk, 2014).

The data set of information was preserved in de-identified format to protect the patient identity in this evidence collection. Patients were identified by numbers only on an excel spreadsheet. This patient information will also use a delimiter separated values to store and exchange information (Waxman, 2018). Stewardship is maintained in the office of the Clinical Executive Director and patient information was identified by chart numbers with results randomly selected by a computerized random number generator. The master list of this information was maintained within the office of the Clinical Executive Director.

The project was sustained after implementation using an offered provider educational video presentation. Recording of this provider educational segment of implementation is to be available on the clinic website and after appropriate approval needed for continuing educations, this protocol offered to providers as a form of continuing education. The goal of the diabetic foot educational component would become part of an initial or annual clinical provider certification process.

Chapter 4: Project Implementation, Outcomes, Impact, and Results (EBP Process Steps 4 & 5)

Process Indicators/Milestones

Process indicators and Outcomes assessed by Quality improvement measurements and outcome measurements included utilize the Plan, Do, Study, Act method and used to appraise the effectiveness of implementation of DSME protocols to healthcare provider staff members. The Plan-Do-Study-Act (PDSA) has been used successfully in many healthcare organizations (Appendix H. Figure H2). A worksheet for documenting test changes is useful when implementing a new protocol.

The cycle of testing allows for planning and developing a process change through the steps of a “plan”, followed by carrying out a process or test, the “do” phase, learning from observation and consequences, the “study” phase, and then assessing potential modifications necessary, the “act’ phase (Plan-Do-Study-Act, n.d.). These indicators will include a patient documentation form in diabetic patient charts for measurement of Hgb. A1c levels every three months, monofilament evaluation on feet every six months, instruction on diabetic diet follow up to diabetic diet classes offered by clinical personnel, added exercise, monitoring lipid levels, assessment of skin of feet and pulses on feet and ankles. Evaluation of possible peripheral vascular disease, education of foot care protocols to reduce the risk of complications such as daily foot checks, proper washing of feet, correct shoe and sock evaluations.

Outcome indicators included chart documentation of improvement in hemoglobin A1c levels, documentation of foot care instructions with teach-back demonstration and increases patient follow-up visits. Neuropathy in feet is evaluated using the monofilament test and palpation of pedal and ankle brachial pulses.

Providers were instructed on testing for patient evidence-based patient outcomes and benefit of DSME using the using the AADE7 Self-Care Behaviors evaluation scale that analyze healthy eating, being active, taking medication, monitoring, problem-solving, reducing risk and healthy coping skills. A participant pre-test and posttest evaluation were conducted to assess knowledge of educational intervention using a questionnaire that was given as a before and after knowledge test on DSME skills.

Project Results

Project participants included the Executive Clinical Director, the facility Clinical Manager, one student Nurse Practitioner, three registered nursing students and one staff Registered Nurse for a total of seven participants.

The initial pre-test was performed using a short five question analysis form to gain initial understanding of student and staff's diabetic foot care knowledge. This pre-test was given before educational presentation of problems that cause increased risk of diabetic foot ulcerations including how the use of Diabetic Self-Examination Management (DSME) can decrease foot complications and the implementation of easier to read handout information.

In the educational presentation the newly created video presentations available in both English and Spanish increased patient footcare knowledge in /examination rooms. When presentations of materials were concluded, a post-test was given. Staff members were samples of the new handout materials and reference information on the efficacy of nurse led teaching protocols, newly developed ICE-MF protocol pocket cards, as well as a timeline of when to expect the availability of in room video presentations. After conclusion of presentation a summative questionnaire was performed and documented.

This information was made available to additional staff members as they present to the clinic to work along with sustainable patient informational video presentations, including ICE-MF pocket cards as this project has a high chance for sustained implementation given that the data revealed 100% of staff who received education were receptive to implementation of new information. Key stakeholders, including Executive Director of the clinical facility along with Nurse Practitioner faculty stated this project would have positive outcomes on patient care protocols.

Data Collection

The purpose of the implementation is to establish a protocol using teach back education for the prevention of lower extremity complications of diabetes in an underserved community in McKinney Texas. The Community Health Clinic (CHC) in McKinney, Texas, is staffed by volunteers, supported by charitable donations and operates with the assistance of multiple providers that donate their time. The clinic also operates on a system with paper records and paper charts. There is a computer data base of patient names. Patients were selected from the data base if they met the following criteria. They were active patients, female and had a diagnosis of type II diabetes. 68 patients were selected.

There are approximately twenty providers that donate their time and rotate through the clinic. There were two opportunities to educate those providers in the method of teach back. I did not have access to all providers at one time. Providers were educated at the beginning of July 2019, and again in mid-September 2019.

Patients were categorized into three group based on their opportunity to receive teach back education. Baseline - no opportunity for teach back their most recent office visit was before the education of providers. T1- some opportunity for teach back; July, August or September -

most recent office visit occurred after the first education session of providers but prior to the second education session T2- greatest opportunity for teach back; October, November or December that included the most recent office visit occurred after the second education session of providers.

Data Analysis

Sixty-eight patients were selected from the CHC data base, thirty-five patients from time period T2, twenty-five patients from time period T1, and eight patients from the baseline period. In group T-1, 20% of patients received teach back education, in group T-2, 25.7% of patients received teach back education (Appendix J. Table J1).

This implementation seeks to reduce the complication rate of lower extremity disease in a population of underserved diabetic patients in McKinney Texas. As a secondary measure, I looked at improvement in A1c levels and measured the rate at which providers were being educated, and the rate that patients were receiving teach back (Appendix J. Table J2).

A1c improvement is not a direct measure of teach back education for lower extremity complication, however it has been shown that improvement in A1c is associated with reduction of lower extremity complications (AADE7 Self-Care Behaviors, 2014; Bonner et al., 2016; Ren et al., 2014). It has also been shown that increased education in foot care is associated with improvement in A1c, I therefore followed A1c as a secondary measure of success.

Hemoglobin A1c levels varies directly with the blood glucose concentration, but it is not subject to daily fluctuation. For that reason, it is usually measured no more often that once in every three months (AADE7 Self-Care Behaviors, 2014; Bonner, Foster, and Spears-Lanoix, 2016). Therefore, if any patients in T1 had a follow up A1c they would have automatically been recategorized into group T2. Three patients in group T2 had follow up A1c's, two had significant

improvements and one had a slight decline, which is not statistically significant. I then assessed the rate providers were educated and the rate patients received teach back (Appendix J. Figure J3).

Outcome Measures

In the T1 time period, twenty providers were available to see patients Six providers (30%) were educated in the protocol, and five patients (20%) received teach back education (Appendix J. Table J2). In the T2 time period, fifteen providers were available to see patients seven providers (46.7%) were educated in the protocol and nine patients (25.7%) received teach back education (Appendix J. Figure J2). The education of providers increased from period T1 to T2 and the teach back education of patients increased from T1 to T2 (Appendix J. Figure J3).

A closer look at the teach back group showed of the fourteen patients who received teach back, seven were seen by providers who were educated in either session T1 or T2. Four were seen by providers who were not educated in either session, three could not be determined due to illegible records. The education of providers can be highly correlated with the teach back of patients. Surprisingly, it was only moderately correlated. This suggested that another phenomenon was going on and prompted a further analysis into how teach back was occurring.

The office visits of the patients who received teach back were sorted by day of week. A distribution resembling a binomial distribution is immediately visible, with a peak centered on Thursday. For most of the time period of this implementation, a diabetic champion was present at the CHC on Wednesday through Friday (Appendix J. Figure J5).

Of patients who did receive teach back education: Twelve of fourteen patients (85.7%) were seen on Wednesday, Thursday, or Friday, seven of eleven patients (63.6%) were seen on days when an educated provider was present. Teach back education was more highly correlated

with the day of the week than with the presence of an educated provider (Appendix J. Figure J5). Three of the fourteen patients who had received teach back education had a reduction in A1c levels (Appendix J. Figure J4). Furthermore, the days of the week teach back occurred were strongly correlated with the presence of a diabetic champion, with thirteen of fourteen patients (92.9%) and seen either by educated provider or the diabetic champion, only one of fourteen was unexplained (Appendix J. Table J5).

Outcomes Analysis

The evidence gathered supported the need to further the evaluation process needed for implementation. The decision was made to continue an organizational adoption and implementation of this project. The implementation of this project based on the educational techniques gathered have been put into action at the Community Health Clinic in McKinney, Texas. Assistance from the clinical staff was provided by Dr. Virginia Holter, and Jackie Rakowski, clinical manager. Reinforcement of implementation protocols are needed to continue improvement of staff and clinical provider involvement. In review of change theories and implementation strategies on promoting use of EBP, that include clinical reminders, interactive education, educational outreach and context of care delivery including leadership, learning and questioning will continue to be evaluated (Titler, 2008).

Financial Impact

This initiative provides protocols to reduce the incidence of foot complications in adult Hispanic females with Type II diabetes using Diabetic Self-Management Education (DSME), that includes teach-back instruction. Nerve damage results in foot complications in approximately 25% of all diabetic and have resulted in over 56,000 foot or leg amputations at a

cost in Collin County with a mean average charge of $101,895 with 43 admissions in 2014 and a Risk-Adjusted admission rate of 7.79/100,000 population (Health Risks, 2015).

Participating stakeholders in this patient initiative have a vested interest in the success of this project to not only to be one of the first clinics in the area to implement the most current evidence-based practices in diabetic foot care protocols, but more importantly to improve patient care outcomes in the reduction of diabetic foot complications. Implementing these protocols can reduce costs related to patient care within the clinic including staff and clinic costs and increase the number of patient care encounters related to provider availability.

Chapter 5: Project Sustainability, Conclusions, and Recommendations

(EBP Process Step 5 & 6)

Implications of Project Results

Results of summative questionnaire reported staff and students were 100% overall satisfied with new information and implementation of DSME protocol along with use of language specific video information. Staff and students seemed eager and open to use and introduce patients and family members to the new materials along with nurse led teaching for reduction of diabetic foot problems. Results of post-test evaluation and summative reports showed that the project outcomes were positive for influencing a sustained change with the use of the new materials provided to the clinic. Strengths of this project are available in collection of data before and after educational material presentation, varying the educational delivery methods provided an important dynamic that can appeal too many due to the nature of different learning styles.

Thee resources provided to the staff including handout presentations, reference materials for further education information and confirmation along with development of patient informational videos provided a great potential for successful implementation of new protocols. Weaknesses for this presentation include small sample size of both staff and patients and difficulty with dissemination of educational protocols due to number of volunteer providers and schedule limitations.

Information on protocols are now made available to additional staff members as they present to the clinic to work with sustainable patient informational video presentations available giving this project a high chance of sustained implementation efforts given that staff data revealed 100% willingness to implement new information. The key stakeholders including

Executive Director of the clinical facility along with Nurse Practitioner faculty state this project has positive patient outcomes and patient care protocols along with availability of in-room patient video presentations allows for continued patient education and sustainability. Assessing the results of patient data gathered from A1c levels, teach back instruction given by providers, and follow up appointments from the Baseline period, T1and T2, there had been a reduced incidence of hemoglobin A1c levels and increased documentation of provider use of teach back education.

Project Sustainability Plans

Health care policy development needed to impact sustainability at the local, national, and global level includes the evidence protocol outlined in this Evidence Practice Implementation Plan. Areas for increased sustainability include a video presentation of EPIP protocols along with the need to provide a Continuing Education component to be offered to providers and staff. This involves incorporating necessary components such as Objectives, along with a pre and posttest Qualtrics survey.

Additionally, the goal for sustaining this protocol involves standardizing care practices at facilities utilizing the components of the educational video presentation and distribution of ICE-MF cards to providers. Having a recording available on the clinic website for continuing education along with educational classes allows the protocol to become part of the annual clinical provider certification process. Additional funding of this project is needed for continued research and analysis of outcomes related to diabetic foot care complications while securing adequate staff and patient and provider educational resource information.

Implications of Results

At the CHC healthcare is considered a basic human need with the vision that every child and adult residing in Collin County will have access to basic care needed to live a more productive, healthy and happy life. Patients are treated with dignity and compassion. Primary care services are provided to residents without insurance living at least 200% under the poverty line. This community is expected to double in population by 2030 (Rakowski, 2018).

Currently, the CHC has almost 2000 active patients and education of providers and patients on the signs, symptoms and solutions, by having the addition of a diabetic foot care protocol in place is necessary to help prevent complications that may lead to neuropathy, ulceration or amputation. From a medical standpoint, we have an obligation to provide patients with the most up to date evidence-based practices. This patient care initiative presents information and testing procedures needed to ensure improvement in the reduction of foot care complications associated with these complications. Additional clinic sites have shown an interest in initiating this protocol within their facilities based on best practices for patients with diabetes.

Key Lessons Learned

Some of the key lessons learned involved differing outcomes from the collected body of evidence and patient initiative implementation results. Due to the nature of this clinic, the revolving door of providers makes it difficult to provide education and incorporate project implementation plans. However, continued monitoring of patient data charts will yield future outcome results. Providers using this method have voiced improvements in patient foot care assessments. They have also begun to own this project implementation as part of this clinic's standardized method of foot assessment discussing ways to make changes in some of the foot

care documents originally added to improve provider efficiency of use. This is a positive step for clinical sustainability.

The body of evidence led the design for the development of the ICE-MF cards, addressing patient and provider related issues leading to formulation of the 5 Daily Do's questions. The evidence guided me on important information needed and how to best educate providers, in other words, how do you educate the educator. This educational protocol is being utilized for both the provider and patient initiative project at the Community Health Clinic. The benefit of diabetic champions increased education to the patient populations by providing patient education to a population that has variability in clinical staff and providers.

Project Recommendations

Education of providers and patients on the signs, symptoms and solutions, by having the addition of a diabetic foot care protocol in place to help prevent complications that may lead to neuropathy, ulceration or amputation. This patient care initiative presents information and testing procedures needed to ensure improvement in the reduction of foot care complications associated with these complications.

Chapter 6: DNP Practice/Scholar Role Actualization

Role Impact

The impact of the role of the DNP is to become a leader of leaders. The past several years I have been involved in increasing patient access to care while working to improve diabetic foot care protocols. Providing patient access to care in rural, urban and suburban locations is needed now more than ever due to provider shortages. I have had the opportunity to be part of the development and partnership of a new kind of Mobile healthcare alliance. This program development incorporates medical and mental healthcare strategies. By implementing a system of integrated care, the DNP leader can change and improve outcomes for those with limited availability while improving overall quality of life for the affected communities.

Becoming a Texas Nurses Association DNP Policy Fellow had significant impact on my role as a DNP student. This increased my ability to discuss significant issues with others on Legislative committees while addressing Texas Policy issues necessary for the advancement of nurses and nurse practitioners in the State. This role gave me the opportunity to meet State officials who can vote on important issues that can improve patient care and nursing roles. Most recently I was given the opportunity to represent the Texas Nurse Practitioners (TNP) organization as a Legislative Ambassador. This position will allow me to continue working for and advocating for advancement of practice issues, while taking part in targeted assignments including visits to the Senatorial and House of Representative chambers and attending legislative events on behalf of the TNP.

Summary

The purpose of this project was to provide Diabetic Self-Management Educational instruction to healthcare providers, patients and their families at the Community Healthcare

Clinic in McKinney, Texas. Information on best care practices disseminated to all CHC providers establishing a new standardized protocol of care by providers to be initiated in patients with Type II diabetes.

Utilizing strengths has been an important aspect of completing this journey. Having "Responsibility" has allowed me to continue to be diligent with the delivery of my project. Partnering with others along the way who shares the same level of responsibility to projects is critical to success. This includes those with discipline or focus Aligning with others who share the same sense of responsibility, and level of commitment helps everyone involved flourish.

Belief in a project or implementation is one of the most important strengths to have when tackling a change process. Implementation can prevent foot complications and reduce hospitalizations for many who suffer with diabetes. This project has taken many turns along the way implementing change can be difficult, but even the busiest healthcare providers find it difficult to ignore a protocol when there is strong evidence showing reductions in complications. Diabetes is a complex disease requiring numerous daily decisions, learning the necessary skills to be an effective self-manager is a critical component to laying the foundation to proper patient education.

It is possible to design a plan for keeping the feet as healthy as possible by educating providers and empowering patients to learn the necessary skills while being proactive in medical decisions. Everyday foot care plays the biggest role in preventing foot complications before they start.

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Appendix A. Ethics Review

Faculty Attestation of Compliance with the UTT DNP EPIP Ethics Form

I attest that I have reviewed the **UTTYLER DNP EPIP ETHICS FORM** that the DNP student has completed based on justification using the **UTTYLER DNP PROGRAM IRB DISCERNMENT FORM**. I agree that the need for ethics review determination is correct and this DNP EPIP requires:

- ☐ FM Review Only
- ☐ -HIPAA ethics review by DNP Ethics Board
    - ☐ HIPAA review form completed
- ☐ Organizational IRB review (based on policies of the organization in which the EPIP will be implemented)

Ellen Fineout-Overholt_____ April 14, 2019

Faculty Mentor Signature Date

Appendix B. Letters of Support

Letters of Support B1: Community Health Clinic

COMMUNITY HEALTH CLINIC
Caring for Families in Need

MEMBER OF:
Volunteers in Medicine
National Association of Free and Charitable Clinics
Lone Star Association of Charitable Clinics
North Texas Association of Charitable Clinics

March 22, 2019

The University of Texas at Tyler - College of Nursing & Health Sciences
Doctor of Nursing Practice Program
3900 University Blvd.
Tyler, TX 75799

On Behalf of: Barbara Chapman

RE: Letter of Support for Educational Endeavors

To Whom It May Concern:

This letter is to confirm our organization's support for Barbara Chapman's educational endeavors in the Doctor of Nursing Practice program at The University of Texas at Tyler over the next three years.

This support will include on-campus visits by the student as well as the implementation of an evidence-based practice project in our organization during Year 2 & 3 of the student's doctoral work.

Sincerely,

Jackie Rakowski
Executive Director
Community Health Clinic of McKinney
jackie@chc-mckinney.com
972-547-0606

Appendix B. Letters of Support

Letters of Support B2: UT Tyler Letterhead

The University of Texas at TYLER School of Nursing

Date: 3/22/2019

On Behalf of Barbara Chapman
The University of Texas at Tyler - College of Nursing & Health Sciences
Doctor of Nursing Practice Program
3900 University Blvd.
Tyler, TX 75799
Ph: 903.566.7320
SONGrad@uttyler.edu

Jackie Rakowski

RE: Letter of Support for Educational Endeavors

This letter is to confirm our organization's support for Barbara Chapman's educational endeavors in the Doctor of Nursing Practice program at The University of Texas at Tyler over the next three years.

This support will include on-campus visits by the student as well as the implementation of an evidence-based practice project in our organization during Year 2 & 3 of the student's doctoral work.

Sincerely,

Sincerely,

Jackie Rakowski
Executive Director
Community Health Clinic of McKinney
jackie@chc-mckinney.com
972-547-0606

Appendix C Industry Mentor Agreement

Industry Mentor Agreement C1: Page 1

SCHOOL OF NURSING – DOCTOR OF NURSING PRACTICE PROGRAM

Industry Mentor Biographical Data

(**Please note** that an updated resume or curriculum vitae is also required in addition to this form)

Name: Virginia Holter, DNP, APRN, FNP-BC

Current Agency Community Health Clinic of McKinney

Position or Title: Volunteer FNP, Vice president of the Board of DIrectors

Office Address: 120 S. Central Expy #102
(street)
McKinney, TX 75070
(city) (state) (zip)

Office phone with area code 972-547-060-

Fax number 972-547-0851

Email (personal or office) gholter@tx.rr.com

Alternate email virginia.holter@ttuhsc.edu

Preferred Method of Contact: _____ Phone ✓ Email

Type of position you currently hold Volunteer FNP, VP of Board of DIrectors

Designated rural health site? _____yes ✓ no

Designated health professional shortage area? _____yes ✓ no

Designated medically underserved area? _____yes ✓ no

Student Signature: B M

Date submitted: _____

The UTTYLER School of Nursing complies with all federal and state laws related to the confidentiality of patient medical information including the Privacy Regulations issued pursuant to the Health Insurance Portability and Accountability Act of 1996. Students are required to comply with such laws and the medical record confidentiality policies and procedures of any health care facility where they are

Appendix C Industry Mentor Agreement

Industry Mentor Agreement C2: Page 2

SCHOOL OF NURSING – DOCTOR OF NURSING PRACTICE PROGRAM.

DNP INDUSTRY MENTOR AGREEMENT

I have reviewed the industry mentor guidelines. I can provide the student with advanced experiences that meet the DNP Scholarly Project (EPIP) goals as agreed upon by the student, the faculty mentor, and me. I understand that there will be no remuneration for this service. I will facilitate and review the student's learning activities and will submit the required evaluations to the DNP Program.

I, Virginia Holter, agree to serve as an Industry mentor for the DNP student, Barbara Chapman
(name of industry mentor) (name of student)

from _____ to _____
(beginning date of mentorship) (anticipated end of mentorship)

OR

☑ For ALL Semesters

OR

For specifically indicated semesters: ____Fall _____Spring _____Summer

Please indicate if UTTYLER may disclose your contact information for future students seeking mentors?

☐ yes

☑ no

Industry Mentor Signature Virginia Holter Date 12/26/2018

For office use only:

Reviewed by _____Date _____

Approved as a DNP Industry mentor _____ yes _____ no

Appendix D. EBP and Change Models

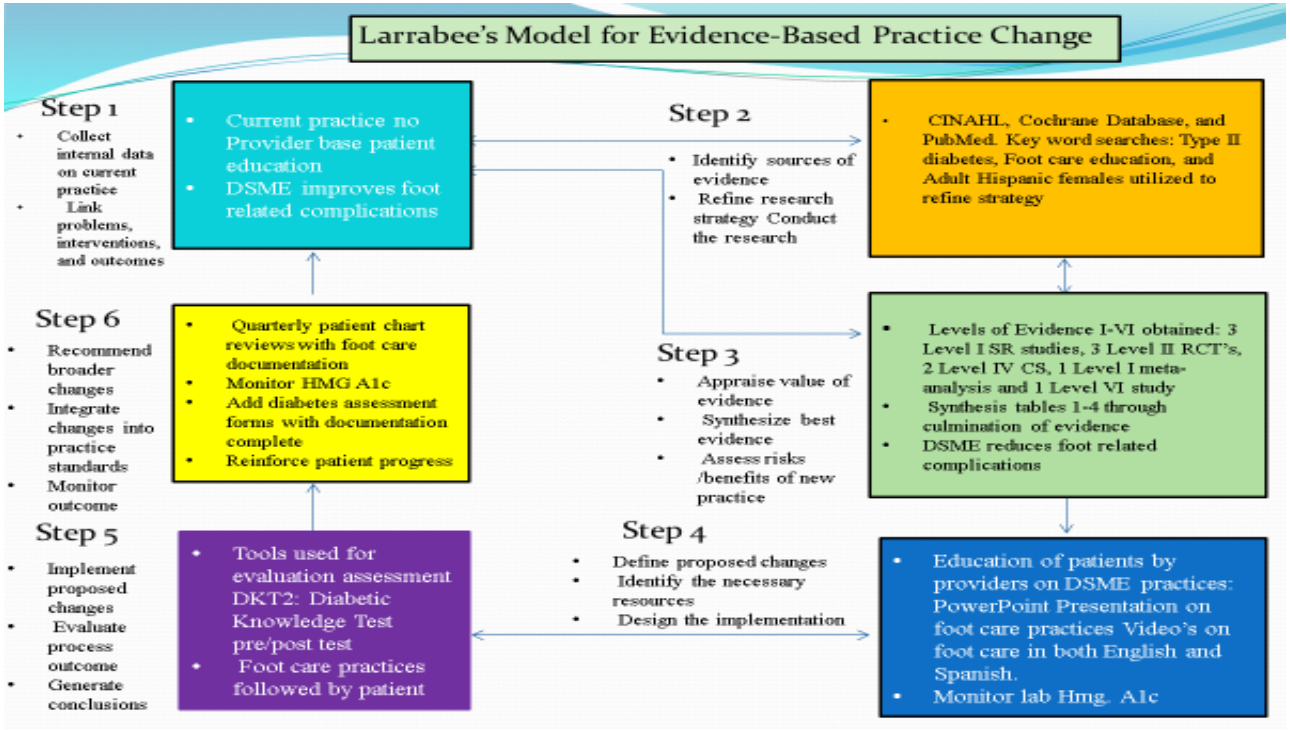


Figure D1:Larrabee's EBP Model: Applied to DNP Project

Appendix D. EBP and Change Models

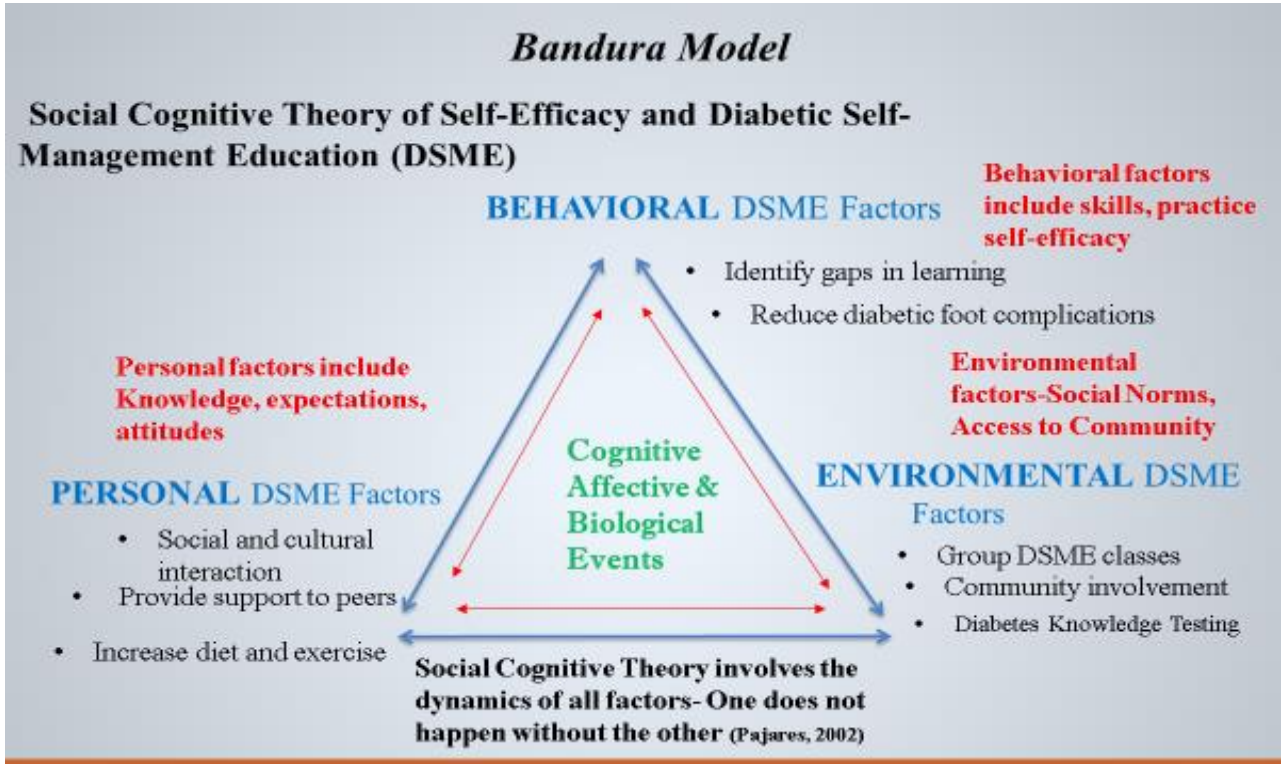


Figure D2: Change Model: Bandura's Social Cognitive Theory Applied to DNP Project

Appendix D. EBP and Change Models

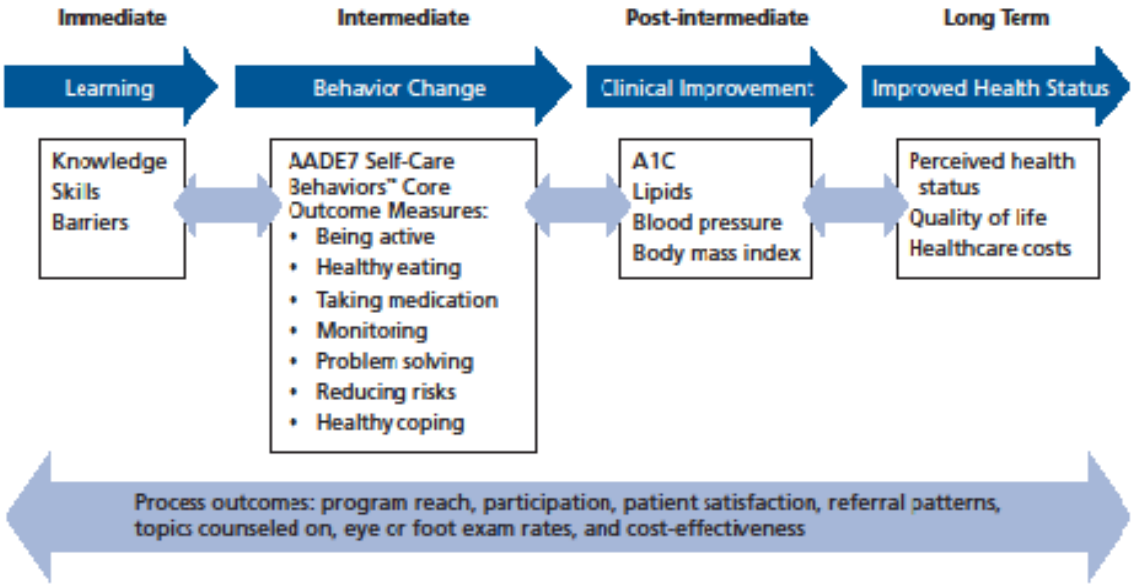


Figure D3: AADE 7 Self-Care Model

Appendix E. Systematic Search

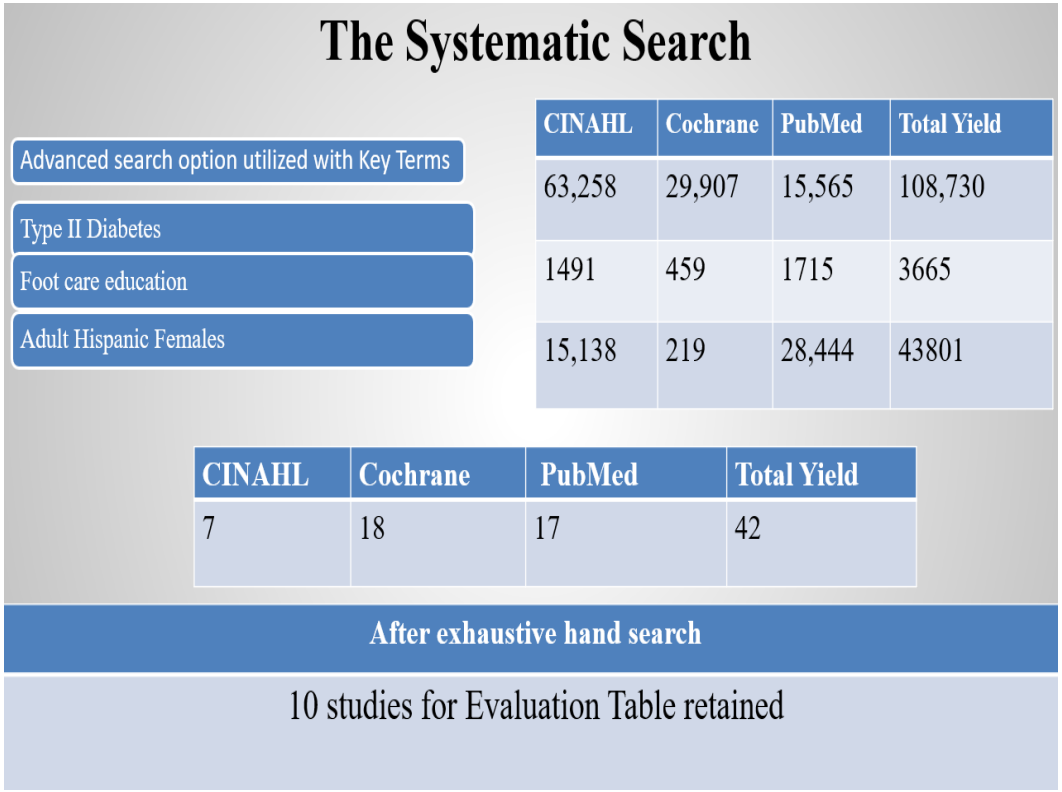


Figure E1: The Systematic Search of Evidence

Appendix F. Critical Appraisal

Table F1: Levels of Evidence Table

	1	2	3	4	5	6	7	8	9	10
Level I: Evidence from a SR of all relevant RCT's, or EBP clinical guidelines	X					X				
Level II: Evidence obtained from at least one well-designed RCT		X		X	X					X
Level III: Evidence obtained from well-designed controlled trials without randomization, quasi-experimental										
Level IV: Evidence from well-designed case-control and cohort studies			X				X	X	X	
Level V: Evidence from SR of descriptive and qualitative studies										
Level VI: Evidence from SR of descriptive and qualitative studies										
Level VII: Evidence from opinion of authorities and/or reports of expert committees										
Level VII: Evidence from opinion of authorities and/or reports of expert committees										

1-Bonner et al. (2016) 2-Dinh et al. (2013) 3- Ren et al. (2014) 4- Behador et al.(2017) 5- Didarloo et al. (2016) 6- Flodgren et al. (2015) 7- Dorresteijn et al. (2014) 8- Rayman et al. (2011) 9- Attridge et al. (2014) 10- Hwee et al. (2014)

FC: ↓ - Foot care decreased incidence of complications

Appendix G. Synthesis

Table G1: Study Design/ Sample Size / DSME Outcomes Synthesis Table

Study	Design & Sample	DSME Intervention	Outcome
1	**SR- 30 studies classified** **RCT (n=9)** **SD (n=13)** **Cohort studies (n=4), CSS (n=2) Qual. studies (n=2) Case Series (n=1)**	Interventions: shoe checks, foot hygiene, no barefoot walking, appropriate shoes, trimming toenails, avoid abrasive products, early wound care, routine exams	**FC:** ↓
2	**SR- 21 articles** **12 on use of DSME teach-back methods**	Communication improved QOL. adherence to medication, hospital readmit decrease, knowledge increases, self-efficacy increased	**FC:** ↓
3	**Cohort Study- DSME program grouped bases on class attendance (n=12,234) individual counseling(n=55,761) mixture of both (n=9,829)**	Adult with diabetes in group classes= less ED visits/ hospitalizations Increased lab testing and statin use	**FC:** ↓
4	**RCT- 33 RCTs** **7453 participants**	Culturally appropriate health education has short- to medium-term effects on glycemic control knowledge/ QOL	**FC:** ↓
5	**Meta-analysis- 93 trials** **22,047 participants**	TM delivers more frequent health care to pts. With chronic conditions improve access to health care	**FC:** ↓
6	**SR- 12 RCTs**	Short term, tailored education on individual needs compared to standardized education showed decrease in incidence of amputations	**FC:** ↓
7	**Cohort Study- 265 participants**	IpTT positively evaluates at risk feet sensitivities and specificities	**FC:** ↓
8	**Cohort Study- 185 participants**	Nursing teach-back education to effective in diabetic foot ulceration prevention	**FC:** ↓
9	**Cohort Study- 90 female participants**	Culturally appropriate education increase benefits related to health beliefs, behavior, and glycemic control	**FC:** ↓
10	**RCT- 60 participants- 30 male/30 female**	Increases in diabetes management after education, foot ulcerations reduced positive affect of teach-back education	**FC:** ↓

1-Bonner et al. (2016) 2-Dinh et al. (2013) 3- Ren et al. (2014) 4- Behador et al.(2017) 5- Didarloo et al. (2016) 6- Flodgren et al. (2015) 7- Dorresteijn et al. (2014) 8- Rayman et al. (2011) 9- Attridge et al. (2014) 10- Hwee et al. (2014)

FC: ↓ - Foot care decreased incidence of complications

Appendix G. Synthesis

Table G2: Independent and Dependent Variables Synthesis Table

Study	Independent Variables	Dependent Variable
Bonner et al., (2016). *Diabetic Foot and Ankle, 7*(1).	**IV**- foot self-care behaviors: daily foot/ shoe checks, daily foot hygiene, no barefoot walking, appropriate shoes, trimming toenails, avoid abrasive foot products, early care wounds, routine exams	**DV**- reduce risk of injury, infection, amputation reduce ulcers/ ER visits antibiotic, foot operations, amputations, missed work, VD, FT, lower glucose levels, PN, dry skin, ingrown nails, fungal infections
Dinh et al., (2016). *JBI Database of Systemic Reviews and Implemetation Reports, 14*(1), 210-247.	**IV1**: Patient communication **IV2***:* time for consultation	**DV1:** improved QOL **DV2:** adherence, self-management, knowledge, readmission, knowledge retention, self-efficacy and QOL
DorrestDorresteijn, (2014). *Cochrane Database of Systematic Reviews*(12).	**IV1**- Foot care education **IV2**- Self-reported behavior	**DV**- Educational tailored to individual needs will decrease foot ulcerations
Flodgren et al., (2015). *Cochrane.org*	**IV**- face-to-face consultation, or telephone consultation per provider	**DV**-improvement in increased access to health care/ reduction of healthcare costs
Didarloo (2016). *International Journal of Preventative Medicine, 7*(38).	**IV**- received education	**DV**- Increased glycemic control
Attridg Attridge (2014). *Cochrane.org*.	**IV**- Culturally appropriate health education	**DV**- participants received culturally appropriate education
Behador (2017). *Journal of Clinical & Diagnostic Research, 11*(7).	**IV**-2- hour training sessions each week for 3 months	**DV**-Increase self-efficacy rates foot ulcer care/ prevention of new foot ulcerations
Hwee et al. (2014). *Canadian Journal of Public Health, 105*(3), 192-197	**IV**-Participants assessed by participation in group	**DV**-DSME effects on acute diabetes decrease complications, hospitalization, ED visits
Ren et al., (2014). *Diabetes Technology & Therapeutics, 16*(9)	**IV**- patient provided case history, onset of foot complaint, medical history, complications comorbidities and foot ulceration history	**DV**-Reduction in incidence of foot ulcers
Rayman et al. (2011). *Diabetes Care, 34*(7), 1517-1518.	**IV** -Sensitivity, specificity, and predictive values calculated for /MF IpTT - VPT on feet of diabetic patients	**DV**-Diabetics with at-risk feet receive appropriate pressure relief needed to prevent foot ulcers

1-Bonner et al. (2016) 2-Dinh et al. (2013) 3- Ren et al. (2014) 4- Behador et al.(2017) 5- Didarloo et al. (2016) 6- Flodgren et al. (2015) 7- Dorresteijn et al. (2014) 8- Rayman et al. (2011) 9- Attridge et al. (2014) 10- Hwee et al. (2014)

FC: ↓ - Foot care decreased incidence of complications

Appendix G. Synthesis

Table G3: Project Table Summary of Evidence

Study	Sample/Setting	Intervention	Outcome	Process	My Project
1	30 studies classified RCT (*n*=9) SD (*n*=13) Cohort studies (*n*=4), CSS (*n*=2) Qual. studies (*n*=2) Case Series (*n*=1)	Foot self-care behaviors: daily foot/ shoe checks, daily foot hygiene, no barefoot walking, appropriate shoes, trimming toenails, avoid abrasive foot products, early care wounds, routine exams	Reduced risk of injury, infection, amputation reduce ulcers/ ER visits antibiotic, foot operations, amputations, missed work, VD, FT, lower glucose levels, PN, dry skin, ingrown nails, fungal infections	Reviewed 30 case studies on methods used to improve lower extremity complications of T2D through foot care interventions, foot care knowledge/ practices	Foot self-care behaviors listed included into DSME information to be presented to providers, patients and their family members. They include daily foot/ shoe checks, daily foot hygiene, no barefoot walking, appropriate shoes, trimming toenails, avoid abrasive foot products, early care wounds, and routine exams. PowerPoint presentation and video presentations in both English and Spanish given on footcare intervention.
2	SR of 21 articles	Effect of patient communication protocols and time constraints of consultations effect patient outcomes	When communication is improved QOL. Adherence to medication and, self-management, knowledge increases, readmission to hospitals decreases knowledge retention increases, self-efficacy improves	Use of DSME intervention and patient education to improve knowledge of foot care practices and need for adherence to medication/diet in T2D	Use of self-management approaches to assist patients and families with better management of chronic conditions TBM useful in understanding treatment and disease warning signs Improvement in adherence to medication/diet in T2D
3	12 RCT's	Face-to-face consultation, or telephone consultation per provider	Improvement in increased access to health care/ reduction of healthcare costs	They used short term education classes in health care settings and tailored education to meet individual needs compared with standardized education programs. Reduction in incidence of amputations caused by DM. RR of lower extremity amputation 15 x higher with DM than without DM	I will consideration cultural and family needs of individual patients. Such as diet, religious implications to diet changes, positive effects of group meetings based on cultural preferences. Educate providers on influence of short term education because patient can be influenced by education in short term Include tailored individual needs when providing education to provider or patient.
4	93 trials 22,047 participants	Patients received education using telemedicine more frequently than without	Increased glycemic control was seen	TM has potential to deliver more frequent and timely health care to people with	Results provide good indication of likely effect of using telemedicine to deliver health care to people with these

		telemedicine. Provided follow up on care		chronic conditions and improve access to health care Results provide good indication of likely effect of using telemedicine to deliver health care to people with these conditions on health outcomes	conditions on health outcomes. This clinic has been contacted on possible donation of telemedical equipment to be used in patient care. If this is implanted in the clinic I will utilize this service.
5	90 Women	Study applied culturally appropriate health education to diabetes information	Study found that interventional education improved HRQOL and increased glycemic control changes seen in patients' health beliefs, behavior, and glycemic control seen. Participants received culturally appropriate education	Participants who received culturally appropriate education were seen to have increased benefits related to health beliefs, behavior, and glycemic control	The use of culturally appropriate health related strategies must be considered within this clinic when providing education to healthcare providers on ways to increase diabetes management that leads to behavioral changes and improved glycemic control
6	33 RCTs 7453 participants	2- hour training sessions each week for 3 months	Increase self-efficacy rates foot ulcer care/ prevention of new foot ulcerations	Culturally appropriate health education has short- to medium-term effects on glycemic control diabetic knowledge and lifestyle but need to be considered	Important to assess in the Community Health Care clinic. Culturally appropriate healthcare is needed.
7	60 patients divided into groups of 30 patients each	Participants assessed by participation in group settings for improved education on diabetes management	DSME effects on acute diabetes decrease complications, hospitalization, ED visits	Able to raise awareness of diabetes management after education, new foot ulcerations reduced Study indicated positive affect nurses have on assisting in diabetic training programs	Information provided during training sessions like types of training and information provided in education at clinic
8	(n=12,234), individual counseling (n=55,761) or a mixture of both (n=9,829	Patients provided history of onset of foot complaint, medical history, complications comorbidities and foot ulceration history	Reduction in incidence of foot ulcers	Adult patients with diabetes in attended group classes had fewer emergency department visits or hospitalizations for acute diabetes complications, also had higher rates of lab testing greater use of statins than those who attended individual	Results of study will assist in information use of group management, group education as an important method of patient education

9	185 patients at high risk for foot diseases	Sensitivity, specificity, and predictive values calculated for MF/ IpTT - VPT on feet of diabetic patients	Diabetics with at-risk feet receive appropriate pressure relief needed to prevent foot ulcers	Study found intensive nursing education provided to patients was effective in diabetic foot ulceration prevention	This method usable within clinical setting can assist in determination of foot complications due to lack of foot or heel sensation. Nurse led education is a primary form of patient education at this clinic
10.	265 participants	Provided foot care education and included self-reported behaviors in the study	Education tailored to individual needs will decrease foot ulcerations	Study results indicate that the IpTT positively evaluates at risk feet sensitivities and specificities	Test easily used in either the clinical or hospital, results indicate this test closely mirrors the MF test. Use for this in the clinic and in study

Appendix H. Implementation Plan

Table H1: Timeline for EBP Change

<table>
<tr><td colspan="5">PICOT Question: In adult Hispanic females with Type II diabetes (P) how does adding diabetes self-management education with teach-back demonstration to a healthcare regimen (I) compared to no patient education added (C) affect the incidence of diabetic foot complications (O) over a one-year period (T)?</td></tr>
<tr><td colspan="5">Team Leader: Barbara Chapman MSN, APRN, FNP-C, DNP Clinical student</td></tr>
<tr><td colspan="5">Team Members: Virginia Holter DNP, APRN, FNP-BC, Jackie Rakowski, Executive Director, Community Healthcare Clinic, McKinney, Texas</td></tr>
<tr><td colspan="5">Agency Contact/Mentor Contact Info:
Virginia Holter DNP, APRN, FNP-C; Jackie Rakowski mail: Jackie@cchc-vim.org Community Health Clinic 120 S. Central Expressway Suite 120 McKinney, Texas 75070
• Phone 972-547-0606</td></tr>
<tr><td>Preliminary Checkpoint A</td><td>○ Describe the chosen Change model and how it will guide the implementation project</td><td>Notes:
The Larrabee Model for Evidence-Based Change. This model will guide my implementation project and is based on steps established using evidence-based practice interventions focusing on specific elements addressed when implementing a new method of practice into a clinical environment.</td><td>OUTCOMES (Process & Completion):
Process:
1. Assess the need for change: Formulate a PICOT question based on changes needed in current practice.
2. Evaluate and locate best evidence: Obtain sources and assess credibility and relevancy to PICOT question.
3. Synthesis of evidence: Comparing & contrasting evidence found to answer PICOT question evaluate different approaches.
4. Design implantation of change: Apply Synthesis of evidence and create a change method within the practice environment that utilizes best practice protocols.
5. Implementation and Evaluation of change: Implement change within</td><td>• Which studies (external evidence) led you to this plan
• What internal evidence led you to this plan
Diabetic foot care education offered through the Community Health Clinic is often absent, or only first addressed when the patient presents with advanced lower extremity condition. Lower extremity complications can be reduced with earlier intervention in these populations. The Community Health Clinic provides care to an indigent and underserved populations, the average patient has inconsistent follow up. Providing preventative</td></tr>
</table>

			environment and assess changes to acquire new plan **6.** Integrate and maintain changes.  Larrabee Model.docx	services to existing chronic diseases such as diabetes is often non-existent. Attention is needed to address this problem, efforts addressed are more effective when directed toward the providers and clinic staff due to the transient nature of this patient demographic. **Problems addressed:** 1. Provider education on DSME protocols established to prevent foot complications 2.Standardized patient evaluation forms in patient charts and monitoring HMG. A1c levels, lipid levels, diet and exercise, patient daily foot checks. 3.Group classes 4.Pateint telephone reminders on improving lipid levels, foot care protocols
Preliminary **Checkpoint B**	○ **Who are the stakeholders for your project?** ○ **Active** ○ **Identify project team roles & leadership** ○ **Begin acquisition of any necessary approvals for project implementation and dissemination (e.g., system leadership,**	**Stakeholders Roles:** **Influencer:** Dr. Virginia Holter DNP, APRN, FNP-C Jackie Rakowski, Executive Clinical Director CHC Board of Directors **Supporter:** Nurse Practitioners Medical Doctors Nursing Staff	**All stakeholders aware of project & their roles within project** **Buy-in secured** **Letters of approval obtained**  Power Interest Grid.pptx	**Stakeholders:** Nurse Practitioners Medical Doctors Nursing staff Patients CHC Board of Directors

	unit leadership, ethics board [IRB]) ○ ***Consult with Agency Contact/Mentor***	Clerical Staff Patients **Neutral:** City of McKinney City of Collin County Suppliers **Approvals needed/date obtained/posted on BB** **HIPAA regs met?** No IRB needed		
Checkpoint One	○ **Hone PICOT question & assure team is prepared** ○ **Build EBP knowledge & skills** ○ ***Consult with Agency Contact/Mentor***	**PICOT Question** In adult Hispanic females with Type II diabetes (P) how does adding diabetes self-management education with teach-back demonstration to a healthcare regimen (I) compared to no patient education added (C) affect the incidence of diabetic foot complications (O) over a one-year period (T)?	**Stakeholders know PICOT question and WHY it is important.** Stakeholders understand PICOT question and why this is important: Diabetes may cause peripheral neuropathy in the lower extremity combined with atherosclerosis in the lower extremity vessels placing the person with diabetes at risk for foot complication (Peripheral artery disease-legs, 2016; Bonner, Foster, & Spears-Lanoix, 2016).	The clinic sees a significant number of Hispanic and diabetic patients with recent data showing 200 patients with diabetes, of these 97 are female. In Collin County, Texas, 6.74% of the population live below the poverty line (Health Risks, 2015). The most substantial demographic living in poverty in Collin County is the female population between the ages of 25-34. The largest Race and Ethnicity living in poverty in Collin County is Caucasian followed by Hispanic and then Asian (Health Risks, 2015).
Checkpoint Two	○ **Conduct systematic search for evidence & retain studies that meet criteria for inclusion**	**Search Results Synopsis:** Standardized of patient evaluation forms in patient charts, monitoring HMG. A1C levels, lipid levels, diet	**Stakeholders readily see how PICOT question drove systematic search** **Search results (see notes column)**	

		and exercise, patient daily foot checks. Other interventions include group classes and telephoned patient reminders, improved lipid levels, patient monitoring, foot care monitoring protocols	 Search Results-CINAHL, Coch	
Checkpoint Three	○ **Critically appraise literature (including evaluation, synthesis & recommendation)**	I recommend utilizing DSME with teach back practices leading to increased foot management control and improved healthcare outcomes while reducing foot-related complications for diabetic patients.	**Synthesis tables tell the tale Applicability spoken to – feasibility, cost, etc. (MUST INCLUDE SYNTHESIS TABLE IN REPORTS – DISCUSS IN TEXT AS TABLE # AND PLACE AFTER REFERENCES)**  Synthesis Tables -1-4.docx  Evaluation Table.docx	
Checkpoint Four	○ **Meet with group** ○ **Summarize evidence with focus on implications for practice**	**YOUR PLAN FOR IMPLEMENTATION: Provide Protocol Specifics, Dates & Progress Outcomes:** **Who to include in plan:** Executive Clinical Director Facility Mentor	**Baseline data collection planning is important here** 1. Meeting with executive Director and Facility Mentor to discuss needs and planning 2. Patient demographics within the clinic as they address population for implementation **3.** Current practices and changes to improve practices based on BOE	**Initial implementation plans include** Meeting with Executive clinical director and Facility mentor discussion for project implantation. Patient demographics involving the adult Hispanic female population within clinic addressed along with number of overall diabetic patients. The need for practice improvement to initiate change in practices for DSME

			4. Contact Nutritionist for access to classes for patient education 5. Discuss number of times and dates to begin implementation	patient protocol discussed and lack of current standardization of practices. High volume of volunteer practitioners at the clinic. Information on best practice methods such as patient educational video presentations and monthly DSME classes and follow-up care continued reinforcement of knowledge for up to 3-6 months. Monofilament testing during patient visits every six months, healthy diet and exercise and HMG. A1C testing outlined in patient documentation protocols. Possible phone application added t patients existing phone for care reminders discussed, follow up phone call checks discussed. Education on DSME process combined with the existing monthly diabetic diet planning class. Contact the Diabetic Diet class provider. Coordinate times and ways to implement DSME protocol into classes. Alert office staff and providers of class offering and times. Informational flyers are provided to staff and Executive director
Checkpoint Five	○ **Define project purpose- connect the evidence & the project**	**LAUNCH PLAN FOR IMPLEMENTATION:** The purpose of this project is to provide Diabetic Self-Management Educational instruction to healthcare providers, patients and	**Careful collection of baseline data:** Baseline internal data will include information provided by Executive Clinical Director on the total number of diabetic patients who are currently being followed in the clinic and the	**Protocol to Include:** DSME provides healthcare providers in the form of PowerPoint presentation, discussion format and video

		their families at the Community Healthcare Clinic in McKinney, Texas. Information on best care practices are discussed with providers to establish a protocol of care is initiated in patients with Type II diabetes.	number of female diabetic patients. Internal data is gathered in the form of health records chart reviews to establish number of patients who are receiving education on diabetic foot care interventions. A percentage of patients are established to determine the need for this intervention based on lack of evidence of interventions from chart review. Aspects of diabetic patient education established by provider documentation in chart review	presentations in both English and Spanish that can be used for patient education and demonstration. Education protocols are based on interventions related to patient education for foot care practices, maintaining diet and exercise and evaluation of HMG. A1 C levels. This protocol will also address the need to address cultural differences in patients and individualizing patient instructions. Teach-back methods discussed as they pertain to patient education. Utilization of the Monofilament foot tests utilized by providers.is established. A participant pre-test and post-test evaluation is conducted to assess knowledge of educational intervention. ***Approval to be finalized with Executive Director and Facility Mentor***
Checkpoint Six **6/19** **7/19** **8/19**	○ **Meet with implementation group**		**Communicate with key stakeholders:** Inform providers and key stakeholders of times and date to initiate education on DSME for patient care 1. Flyers on scheduling board 2. Reminder calls to providers on dates for education	**6/19:** Data collection of chart reviews completed to establish need for implementation of project. **7/19:** review of timeline and plan with stakeholders, Flyers on what and when education will take place is placed on community bulletin board for

			3. Inform clerical staff of meeting times so they can be included 4. Nursing staff and students included in dates and times **5.** Class times posted on Clinic website **Barriers to Implementation:** 1. Provider time schedules 2. Lack of Electronic health records 3. Difficulty connecting with providers due to scheduling issues 4. Resistance to change methods of care due to increased patient contact time 5. No desire to change methods of care	various healthcare personal to see about upcoming program. Program information will also be disseminated by support staff to various providers. **8/19:** meeting planned with implementation group to discuss need and implementation of project. IRB discussed at UT Tyler with waiver established and copy maintained for records.
Checkpoint Seven **9/19**		○ **Meet with implementation group** ○ **Review pertinent protocol specifics, dates & progress outcomes** ○ **Inform stakeholders of start date of implementation** ○ **Address any concerns or questions of stakeholders**	**Collect data on progress outcomes to date and include in report**	Information on any necessary adjustments made for dissemination plan. Any concerns by stakeholders or support staff addressed.
Checkpoint Eight **10/19**	○ **LAUNCH EBP implementation project**	**Progress Outcomes –**	**Keep a journal of lessons learned and your responses to them** **Launch:** Class two presented Consultation on project progress maintained with Executive Director	**Launch**: Initial Education implementation class

		Flowchart of Project Table Progress and O	and Facility Mentor on various numbers of participants and progress.	launched. This implementation provided in 2 – 3 class times to accommodate as many participants as possible. Journal of lessons and participant responses maintained for any possible adjustments necessary.
Checkpoint Nine **11/19**	○ **Mid-project: Schedule meeting**	**Progress Outcomes – Mid-project:** Schedule meeting with all key stakeholders to review progress outcomes	**Collect data on further progress outcomes to date and include in report** ***Agency Contact/Mentor*** Meeting with Jackie Rakowski-Executive Clinical Director Virginia Holter DNP, APRN, FNP-C	**March 2019:** Meeting with Stakeholders on progress of implementation and outcomes of interventions of provider education skills as seen in patient record documentation of procedures followed as related to patient dietary compliance, HMG A1C lab assessment, and foot care evaluations. Lessons learned journaled.

Appendix H. Implementation Plan

Table H2: Logic Model

Program Name: Evidence-Based Practice Innovation plan- In Adult Hispanic Females with Type II Diabetes, does adding teach - back education reduce the incidence of diabetic foot complications. **Program Goal:** To increase provider knowledge on educational methods of instruction needed to reduce diabetic foot-related complications in clinic patients.

Resources/Inputs		
	Necessities List	**Wish List**
Human Resources	1. Facility providers and managers to assist with implantation of protocols and client classes implementation 2. Community volunteers	1. Supportive volunteer nursing staff member and supportive management leaders
Office Supplies	1. Room kiosk access 2. Waiting room educational television access 3. Office printer 4. Use of Clinic computer	1. Up to date in room Kiosks donated from Medical City McKinney 2. Onsite education room for provider education provided for by Community Health Clinic
Organization Resources	1. Assistance with provider training from staff members 2. Access to patient charts. 3. Access to meeting room at various dates and times for staff and providers education	1. Accurate distribution and placement of flyers regarding dates for provider education within the clinical setting

OUTPUTS	**OUTCOMES**

Activities	Audience(s)	Short-Term	Mid-Term	Long-Term
• Diabetic Self-Management Education (DSME), provided to healthcare providers in the form of PowerPoint presentation, discussion format and video presentations in both English and Spanish to be used for patient education and demonstration. • Education protocols are based on interventions related to patient education for foot care practices, maintaining diet and exercise and evaluation of Hemoglobin (Hgb) A1c levels. • Protocol will also address cultural awareness and individualizing patient instructions.	• Healthcare providers, nurses, administrative staff, diabetic patients and their families at the Community Healthcare Clinic in McKinney	• Increase awareness of benefits of DSME by initiating provider education on protocols to be delivered to patient with diabetes to prevent foot complications. • Included are standardized patient evaluation forms in patient charts and monitoring of Hgb. A1c levels, lipid levels, diet and exercise, patient daily foot checks.	• Re-evaluation of updated EBP protocols for foot care processes • Standardized patient evaluation forms in patient charts and monitoring of Hgb A1C levels, lipid levels, diet in diabetic patients	• Create protocols for diabetic foot care • Communication and education continue for stakeholders on strategic plan for patient education • Staff to educate patients on DSME protocols • Lower A1c levels, foot care implementation, increased exercise and weight loss • Patient performs daily foot checks and implements foot care protocols. • Neuropathy in feet evaluated by monofilament test and pulses. • Precautions given if this exists. No foot complication or ulceration present in patients

Patient education teach-back methods are discussed • Utilization of the Monofilament foot tests by providers established. • A participant pre-test and post-test evaluation conducted to assess knowledge of educational intervention.				

Stakeholders

- Community Health Care Clinic, McKinney, Texas
- Dr. Virginia Holter my project mentor, Nurse Practitioner clinical provider and Board of Directors member at the Community Health Clinic McKinney, Texas
- Jackie Rakowski, Executive Clinical Director Community Health Clinic, McKinney, Texas
- Nursing staff
- Nursing students
- Nurse Practitioner students
- Physicians
- Medical City McKinney, McKinney, Texas

Process Indicators

Process indicators used to determine effectiveness of implementation of Diabetic Self-Management Examination (DSME) protocols

to healthcare provider staff members

- Including foot assessment documentation forms in patient charts for measurement of Hemoglobin A1c levels every 3 months

• Monofilament evaluation on feet every 6 months, • Instruction on diabetic diet classes offered by clinical personnel • Exercise levels, lipid levels., evaluation of skin of feet and pulses on feet and ankles • Evaluation of peripheral pulses, education of foot care protocols such as daily foot checks, proper washing of feet, correct shoe and sock evaluations • Knowledge Pre-test • Likert scale design	
External Influencing Factors	
Environmental/Setting	Outcome indicators will include • Chart documentation of improvement in patient Hemoglobin A1C levels, foot care implementation, increased exercise, weight loss • Patient performs daily foot checks and implements foot care protocols • Any foot neuropathy evaluated by monofilament test and pulses • No foot complication or ulceration present.
Setting	• Provider diabetic foot education and implementation of protocols at Community Health Clinic, McKinney, Texas a free clinic providing healthcare and preventative education to qualifying residents of Collin County, Patients seen at the Community Health Clinic (CHC) of McKinney, Texas are medically uninsured and at least 200% below the poverty line. The CHC of McKinney includes 13 Board Members, professional staff members and volunteers who provide service to the patients • Varied education times and dates offered to encompass as many provides as possible
Times	• 3 class dates and times to include day and evening shifts
Audiences targeted	Include Healthcare providers, diabetic diet education staff to foot care classes • Include front office staff as they are patients first encounter with clinic • 15-20 providers over 3 dates and times • 3 class dates and times/ 45 min presentation • Provide food and drinks for staff during presentation

Influences/Programs	• Possibly inclusion of Project Access of Collin County. Community Health Clinic partners with Project Access for a variety of testing services for community engagement. This partnership can assist in getting the word out to many providers of care.
Assumptions	
• Diabetic patients will automatically take care to their feet and wear appropriate shoes while also watching for any type of wounds that may occur • Awareness of diabetic foot related complications and increased knowledge of necessary factors related to increased knowledge and improving patient knowledge leading to reduction of foot complications leading to possible foot ulceration • Accurate and accessible data are currently available in every patient chart in a format that leads to improved health • Increased understanding of the patient-based community clinic issue resulting in inclusion of patient education practices and utilization of patient foot risk screening questionnaire are currently available and will improve health and lead to the reduction of diabetic foot related complications • Empowering patients to own their own health and (at the individual and community levels) improves health outcomes	

Appendix H. Implementation Plan

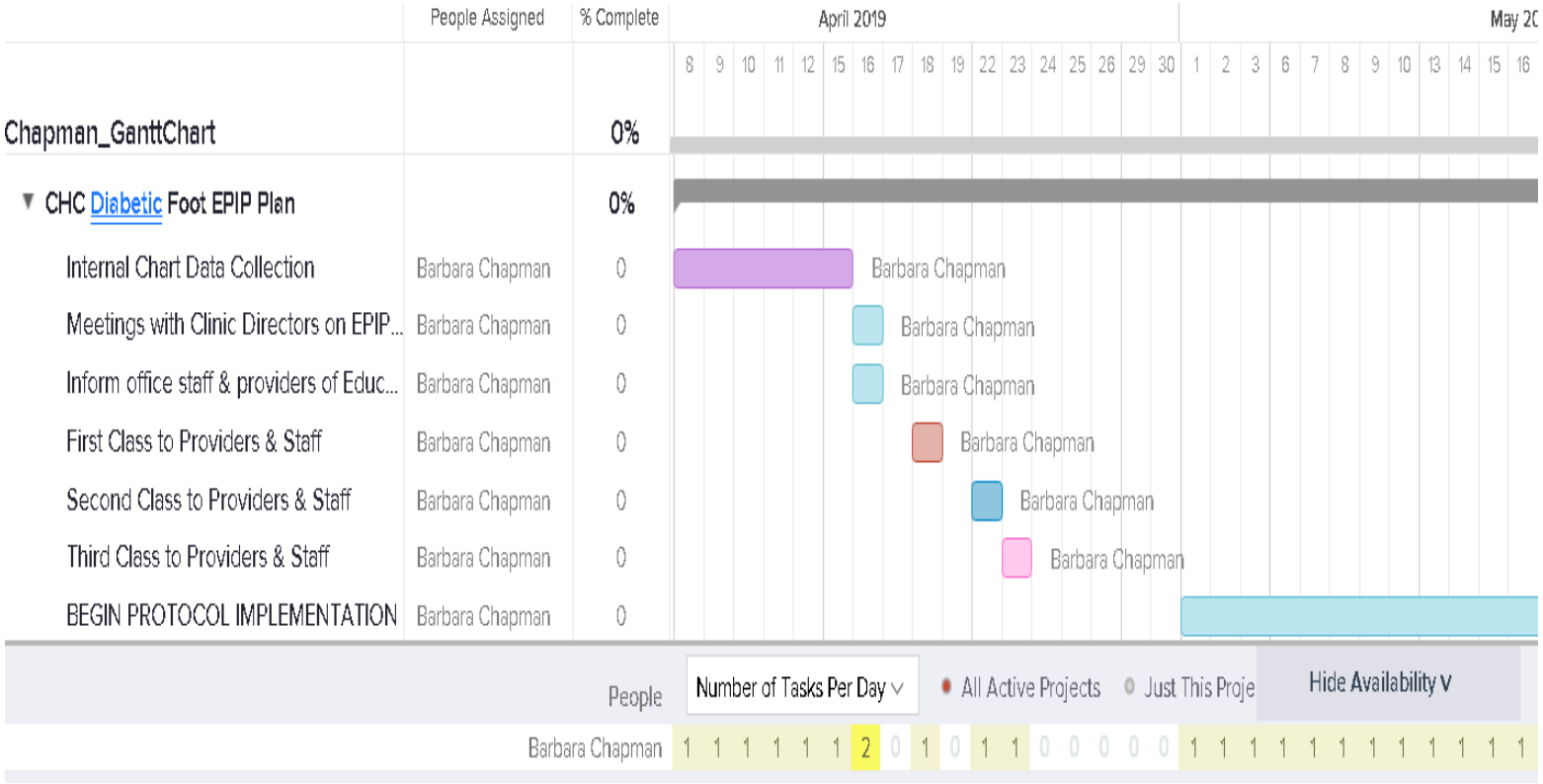


Figure H1: Gantt Chart

Appendix H. Implementation Plan

Table H3: Budget

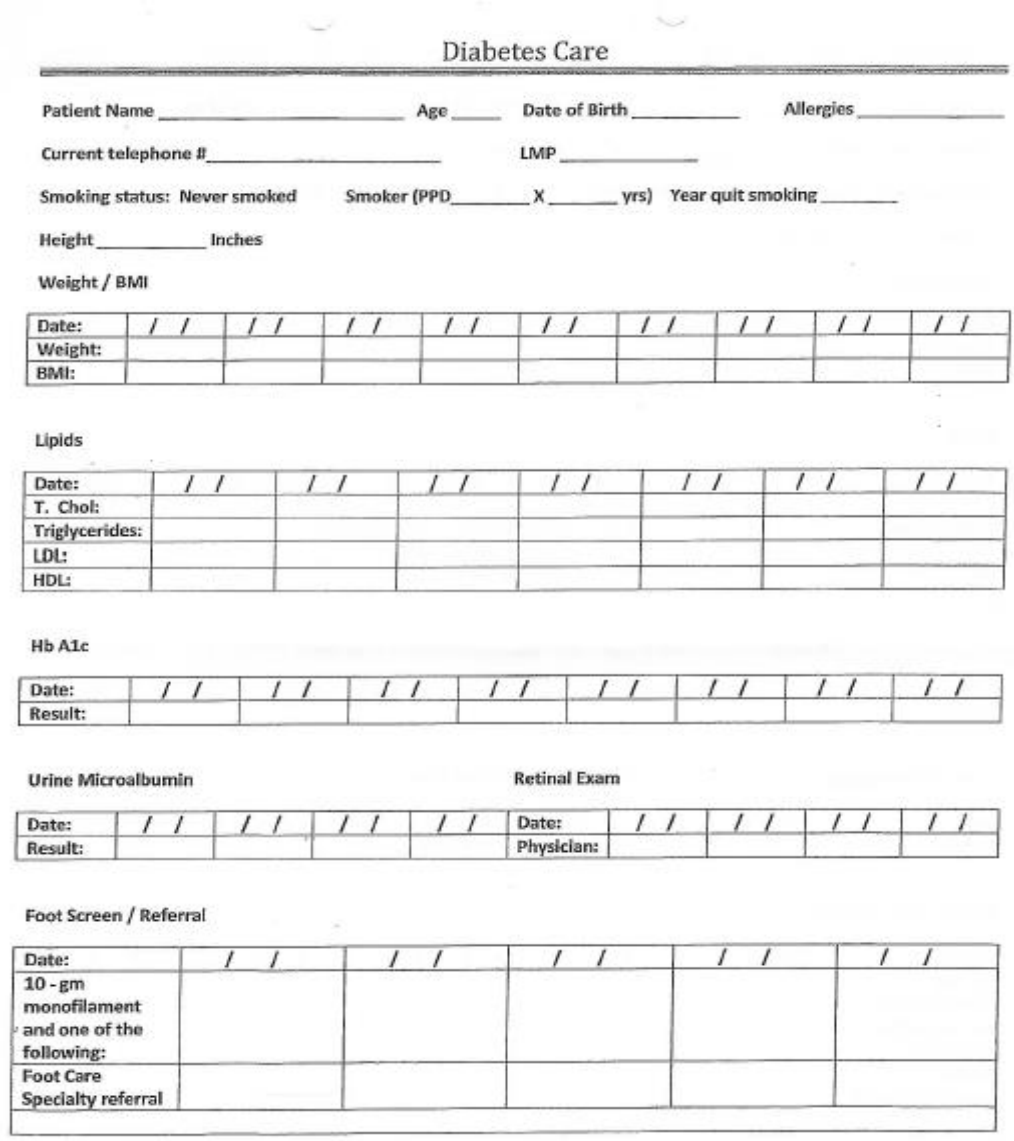
Teams	**Patient visits**	**97 patients**	**Education time**	**RN chart organization time**	**Follow up phone calls**	**Total cost**
Provider cost 6 months	**10** providers 80.00/hour	6 months overall provider care= $43,650	3 hours/ 80.00/ hour= $2400.00	-	3 hours quarterly x 2= 6 hours total= $2400.00	$48,450
RN staff cost 6 months	**3** RN providers 35.00/hour	6 months Patient care= Included in overall provider care total	3 hours/ 35.00/hour= $315.00	10 hours/ $35.00/hour= $350.00	3 hours/ quarter x 2= 6 hours=$630.00	$1295.00
Office staff salaries annual	-	-	-	-	-	$55,000
Hemoglobin A1c Lab cost	2 visits x $15.00/test	2 visits each	-	-	-	$2910.00
Total Cholesterol Lab cost	2 visits x $8.00/test	2 visits each	-	-	-	$1552.00
New Form cost	-	-	-	-	-	$100.00
Grand Total						**$109,307**

Appendix H. Implementation Plan

Figure H2: Plan, Do, Study, Act Model

Appendix I. Data Collection Methods

Form I1: New Clinical Foot Assessment Form page 1



Diabetes Care

Patient Name _____ Age ____ Date of Birth _____ Allergies _____

Current telephone #_____ LMP _____

Smoking status: Never smoked Smoker (PPD_____ X _____ yrs) Year quit smoking _____

Height _____ Inches

Weight / BMI

Date:	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /
Weight:									
BMI:									

Lipids

Date:	/ /	/ /	/ /	/ /	/ /	/ /	/ /
T. Chol:							
Triglycerides:							
LDL:							
HDL:							

Hb A1c

Date:	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /
Result:								

Urine Microalbumin

Date:	/ /	/ /	/ /	/ /
Result:				

Retinal Exam

Date:	/ /	/ /	/ /	/ /
Physician:				

Foot Screen / Referral

Date:	/ /	/ /	/ /	/ /	/ /
10 - gm monofilament and one of the following:					
Foot Care Specialty referral					

Form I2: New Clinical Foot Assessment Forms – Page 2

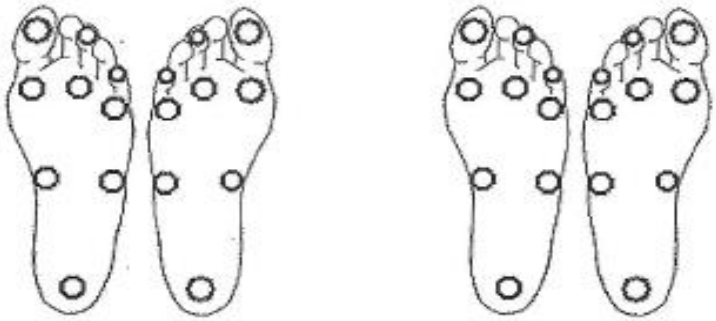
Self Testing Instructions

(You may screen your own feet or ask a relative, friend, or neighbor to do it for you)

1. Hold the red filament by the paper handle, as shown in Step1.
2. Use a smooth motion to touch the filament to the skin on your foot. Touch the filament along the side of and NOT directly on an ulcer, callous, or scar. Touch the filament to your skin for 1-2 seconds. Push hard enough to make the filament bend as shown in step 2.
3. Touch the filament to both of your feet in the sites circled on the drawing below.
4. Place a (+) in the circle if you can feel the filament at that site and a (-) if you cannot feel the filament at that site.
5. The filament is reusable. After use, wipe with an alcohol swab.

Diabetic Foot Screen Test Sites

If you have a (-) in any circle, take this form to your health care provider as soon as possible.



Date _____ **Date** _____

Place Filament Here

Form I3: New Clinical Assessment Forms – Page 3

Foot Screening Mapping Examples

Touch-Test™ Sensory Evaluators

North Coast Medical, Inc.
18305 Sutter Boulevard
Morgan Hill, CA 95037-2845
800 821-9319
www.touch-test.com

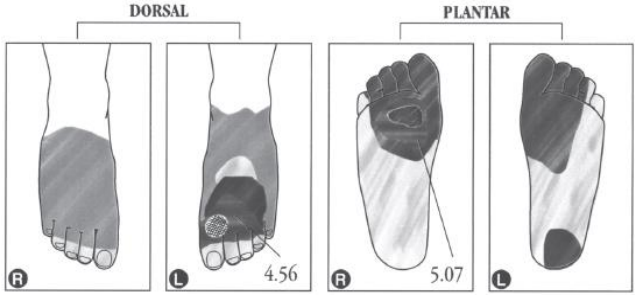
Key	Monofilament Size	Representation	Dorsal Surface Threshold	Plantar Surface Threshold
Callus	2.83	Green	Normal	Normal
Pre-ulcer	3.61	Blue	Diminished light touch	Normal
Ulcer	4.31	Purple	Diminished protective sensation	Diminished light touch
	4.56	Red	Loss of protective sensation	Diminished protective sensation
	5.07	Red	Loss of protective sensation	Loss of protective sensation
	6.65	Red	Deep pressure sensation only	Deep pressure sensation only

Initial Evaluation - Visit #1

RIGHT FOOT: Superficial ulcer on plantar surface over the second metatarsal head.

LEFT FOOT: Pre-ulcer proximal to the first dorsal web space.

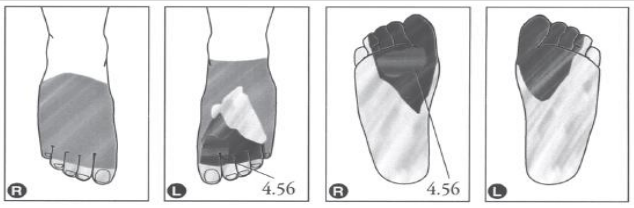
Patient education, treatment intervention and wound care management initiated.



Re-evaluation - Visit #2

RIGHT FOOT: Ulcer healed. Improved to diminished protective sensation on plantar surface over the second metatarsal head.

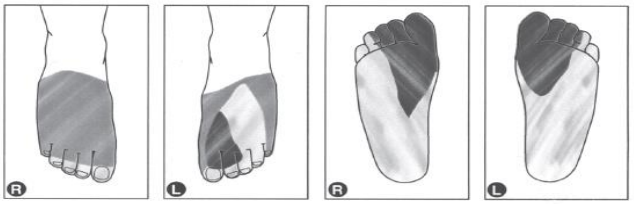
LEFT FOOT: Pre-ulcer healed. Loss of protective sensation proximal to the first dorsal web space.



Re-evaluation - Visit #3

BOTH FEET: Diminished light touch sensation at toes and plantar surfaces.

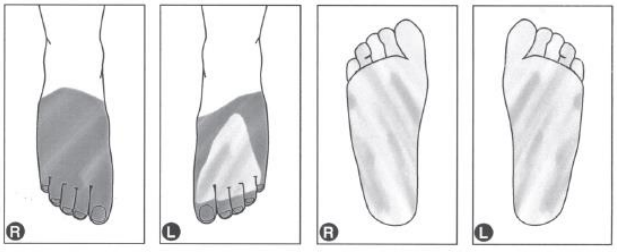
LEFT FOOT: Improved to diminished protective sensation proximal to the first dorsal web space.



Re-evaluation - Visit #4

RIGHT FOOT: Normal throughout.

LEFT FOOT: Improved to diminished light touch ensation over dorsal web spaces.



Appendix I. Data Collection Methods

Table I1: Sample Questions Guiding Patient-Centered Assessment

- How is diabetes affecting your daily life and that of your family?
- What questions do you have?
- What is the hardest part right now about your diabetes, causing you the most concern or most worrisome to you about your diabetes?
- How can we best help you?
- What is one thing you are doing or can do to better manage your diabetes?
- Ask patients with diabetes to “teach back” what you have discussed at the end of each visit.

ICE-My Foot

I Inspect and Identify

C Communication-Teach-back

E Education

M Medication adherence

F Follow-up visits

Figure I5: ICE-MF cards to Provider Protocol

The 5 Daily Do's

1. **DO** you check your blood sugar?
2. **DO** you look at your feet?
3. **DO** you know what to look for?
4. **DO** you practice foot care?
5. **DO** you have any questions?

Figure I2: ICE-MF cards to Provider Protocol

Appendix J. Results

Table J1: Teach back Totals and Time Periods

	TEACHBACK	
ALL Yes	14	20.6%
ALL No	54	79.4%
T-2 Yes	9	25.7%
T-2 No	26	74.3%
T-1 Yes	5	20.0%
T-1 No	20	80.0%
T-0 Yes	0	0.0%
T-0 No	8	100.0%

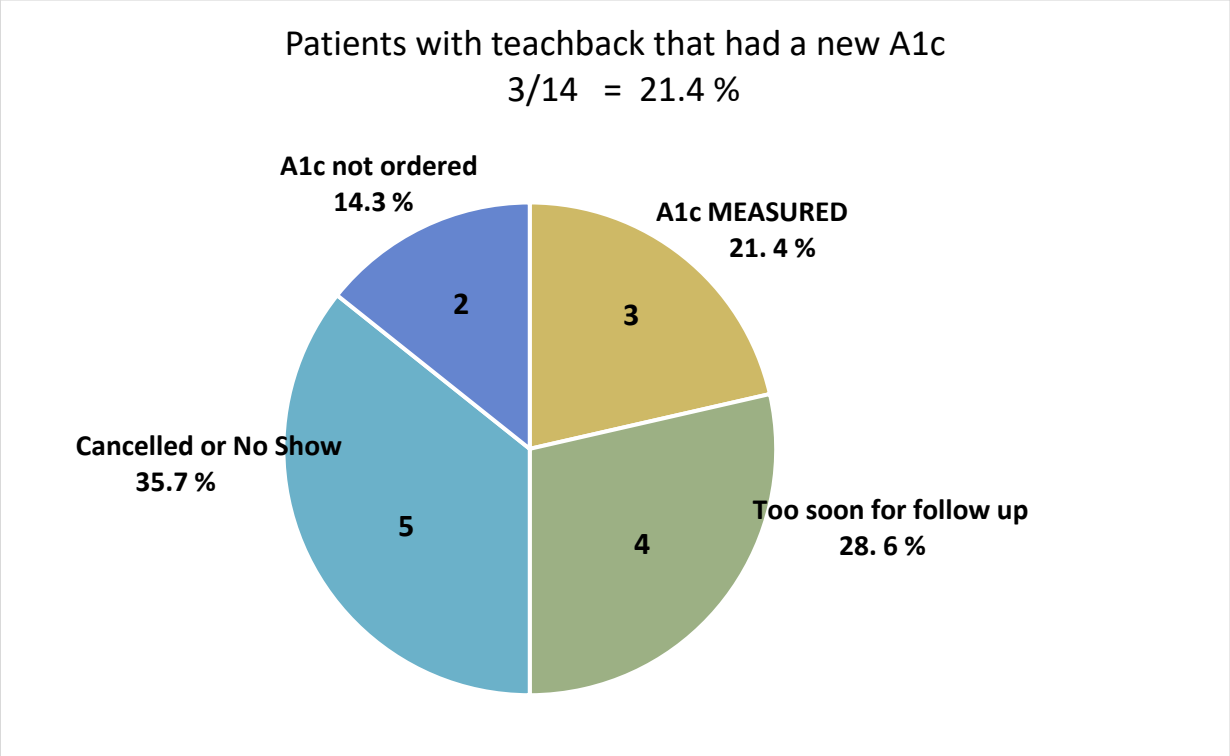


Figure J6: Teach back & A1c levels Across Visits

Appendix J. Results

Table J2: Analysis of Provider Teach back by Time Period

ANALYSIS OF THE TEACHBACK GROUP

	T1	T2			T1	T1+T2
All providers	20	20		Cumulative patients seen	25	60
Educated providers - cumulativ	6	9		Cumulative teachback	5	14
Not educated cumulative	14	11		Cumulative no teachback	20	46
					T1	T2
Providers by period	20	15		Patient seen during period	25	35
Educated providers by period	6	7		Received teachback during per	5	9
Not educated by period	14	8		No teachback during period	20	26

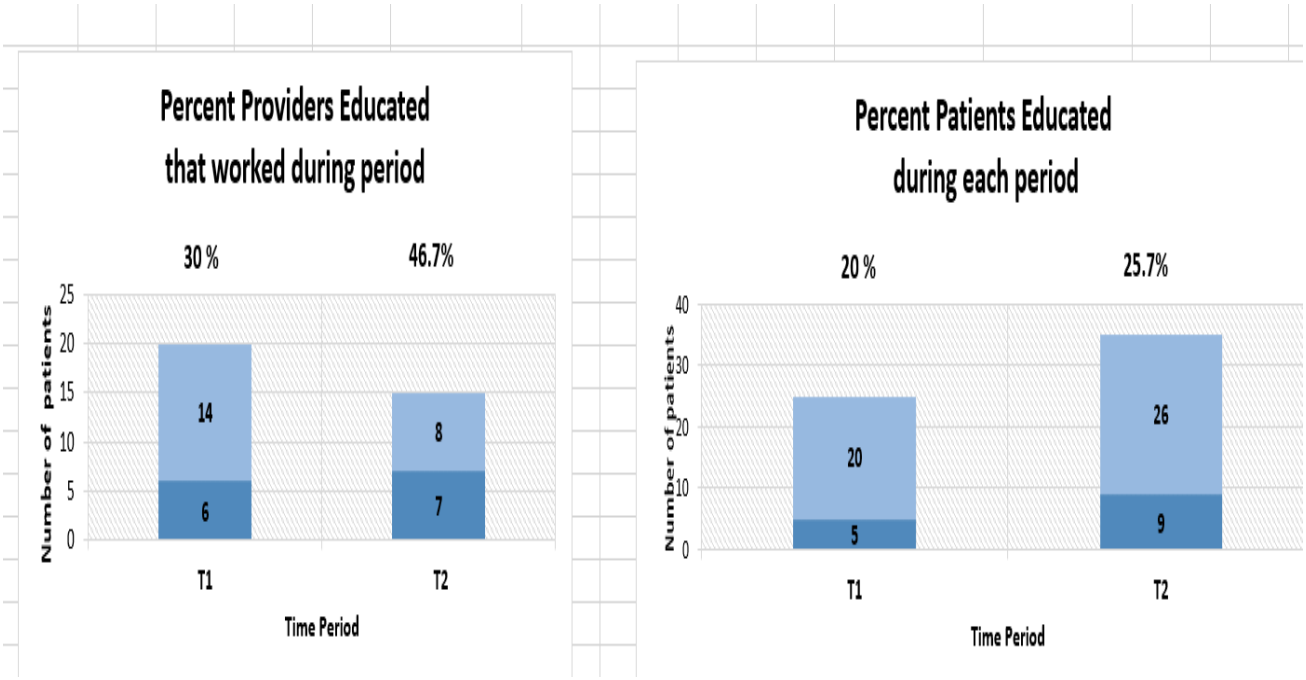


Figure J2: Percent of Providers and Patients Educated per Time Period

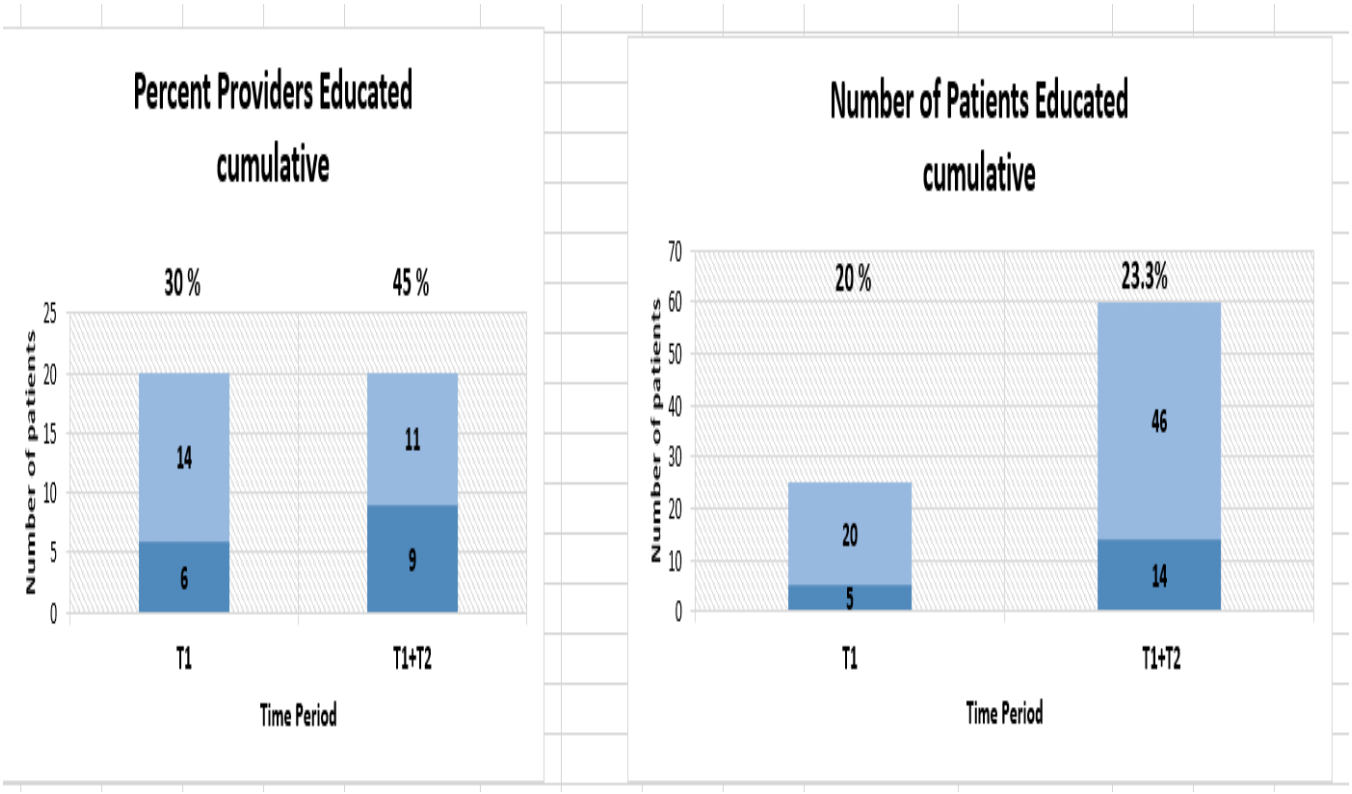


Figure J3: Percent of Providers and Patients Educated Cumulatively

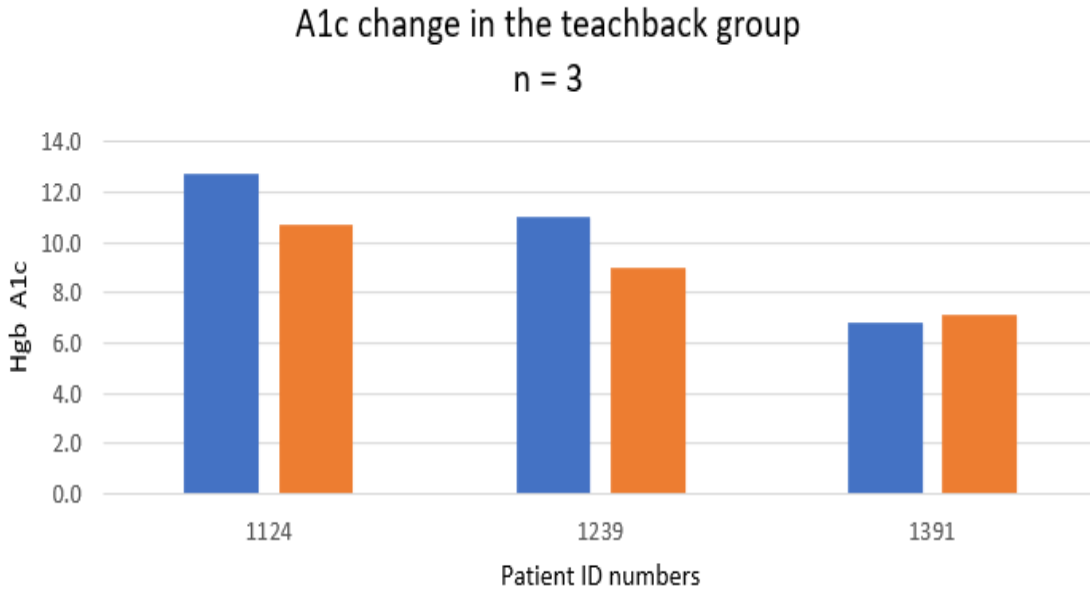


Figure J4: A1c Change in Teach back Group

A NEW PHENOMENON

A look at teachback by the day of week

MON	1
TUE	1
WED	4
THUR	6
FRI	4
SAT	1

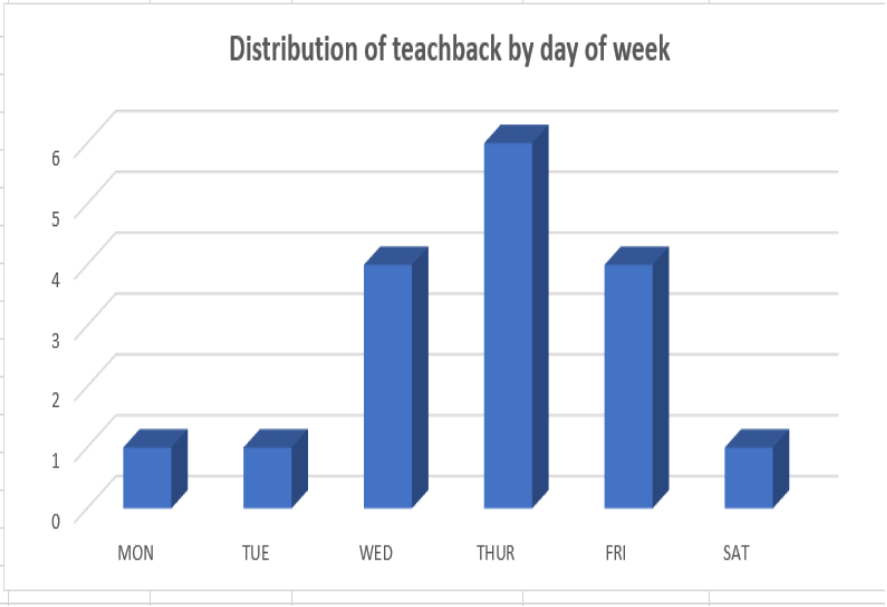


Figure J5: New Phenomenon/ Days of the Week Teach back

Appendix J. Results

Table J3: Days of the Week and Diabetic Champion

					Diabetic Champion	Provider educated		A or B
Appointment dates and days of week					Wed, Thur or Fri			
T-2		T1						
11/15/2019	Fri	8/10/2019	Sat		yes	yes		yes
10/2/2019	Wed	7/10/2019	Wed		yes	no		yes
11/14/2019	Thu	8/8/2019	Thu		yes	no		yes
10/26/2019	Sat	9/13/2019	Fri		yes	yes		yes
10/23/2019	Wed	7/24/2019	Wed		yes	yes		yes
11/8/2019	Fri				yes	yes		yes
10/24/2019	Thu	9/25/2019	Wed		yes	no		yes
10/15/2019	Tue	9/3/2019	Tue		no	yes		yes
10/3/2019	Thu	8/21/2019	Wed		yes	yes		yes
		9/19/2019	Thu		yes	Unknown		yes
		8/9/2019	Fri		yes	yes		yes
		7/25/2019	Thu		yes	Unknown		yes
		9/9/2019	Mon		no	no		no
		9/5/2019	Thu		yes	Unknown		yes
					12 / 14	7 / 11		13 / 14
					85.7%	63.6%		92.9%

Biosketch

Principal Investigator/Program Director (Last, First, Middle):

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
Barbara R. Chapman	Nurse Practitioner
eRA COMMONS USERNAME	

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.*)

INSTITUTION AND LOCATION	DEGREE (*if applicable*)	YEAR(s)	FIELD OF STUDY
University of Texas at Tyler, Tyler Texas	Master of Science	2016	Nursing
Texas Tech University, Lubbock Texas	Bachelor of Science	2014	Nursing
Collin College, McKinney Texas	Associate of Science	2013	Nursing

A. Positions and Honors.

a. Sigma Theta Tau, Iota Nu Chapter
b. Texas Nurse Practitioners Legislative Ambassador 2020-2021
c. Texas Nurses Association DNP Policy Fellow 2019

B. Selected peer-reviewed publications

- Grigsby, S., Chapman, B., Kelley, C. B., Shipley, R., Garrett, C., & Davis, C. (2018). DNP and PhD: Complementary Roles. *American Nurse Today*, *13*(7), 8-13. https://americannursetoday.com/Digital/EducationGuide18-19/#p=10
- Shipley, R., Chapman, B., Davis, C., Garrett, C., Grigsby, S., & Kelley, C. B. (2019). DNPs: Healthcare Change Agents. *American Nurse Today - Education Edition 2019-2020*, 16-18. https://americannursetoday.com/Digital/EducationGuide19-20/#page=18
- Chapman, B. (2019). Texas Nursing Magazine. *93*(3), 14-15. Retrieved from texasnurses.org: https://issuu.com/texasnurses/docs/tna-fall19-digital

PHS 398/2590 (Rev. 09/04) Biographical Sketch Format Page