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Promoting Diabetes Self-Managment Eduaction and Training in Out-patient Clinics

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Walden University
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Abstract

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MS, Middle Tennessee State University, 2010

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Capstone Project Proposal Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Type 2 diabetes mellitus (T2DM) is a long term metabolic disorder characterized by high blood sugar, insulin resistance, and relative lack of insulin. T2DM is a leading cause of cardiovascular disease, blindness, kidney failure, lower-limb amputation, and other complications that are costly to patients and the U.S. health care system. Lack of knowledge and underdeveloped skills for self-management of diabetes continues to be the biggest problem for patients with T2DM. Using a team approach and Rosswurm and Larrabee's (1999) conceptual model as a framework, the purpose of this doctorate of nursing practice quality improvement project was to develop an evidence-based initiative for diabetic self-management that included a practice guideline/protocol for patients, and an educational curriculum plan for staff members including a pretest/posttest. Two nurse practitioners who are specialists in diabetes served as content experts to evaluate the educational curriculum plan. A dichotomous 5-item evaluation revealed unanimous agreement that the objectives of the curriculum were met. The content experts validated each 15 pretest/posttest items using a 4-point Likert scale ranging from 1 (*not relevant*) to 4 (*very relevant*). The content validation index was equal to 1.00 showing each of the test items were *very relevant*. This project will promote positive social change by facilitating staff commitment to evidence-based practice which will impact the physical, psychological, and emotional well-being of patients, families, and communities.

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Dedication

This project is dedicated to all health care personnel who devote themselves to provide and promote evidence-based care to their patients. Your efforts make a great impact on patients' lives. You are heroes to your patients and the United States health care system. Thank you for all that you do.

Acknowledgments

I want to thank God Almighty for His grace and strength. For sure, without God, I would not have made it this far. Thank you, Dr. Moon, for your willingness to teach. You have been very patient with me. Thank you for spending several hours directing and guiding me. I appreciate all you have done for all of us. I also want to thank my two boys (ages 4 and 5) for being extremely patient with me. I pray God to bless my brother Godwin, my niece Emy, and my great friend Angela for contributing to my success. Finally, I want to thank my preceptor, Mark, for his willingness to mentor me. God bless you all.

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Section 1: Overview of the Evidence-Based Project

Introduction

This quality improvement (QI) project relates to the doctorate of nursing practice (DNP) Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking, which focuses on DNP students' leadership roles in identifying health care issues and the application of evidence-based knowledge to improve outcomes (American Association of Colleges of Nursing [AACN], 2006). The DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice focuses on DNP students' ability to translate, disseminate, and integrate research into evidence-based practice (AACN, 2012).

Heisler, Smith, Hayward, rein, & Kerr, (2003) noted that nursing leadership guides health care organizations in the successful application of evidence-based practice (EBP) through strategic approaches by allocating appropriate human and material resources. Applying evidence-based practice (EBP) in primary care settings is long overdue; however, evidence has shown that health care professionals are often unaware of the latest EBP guidelines (National Institute of Clinical Studies [NICS], 2006), and as a result, they continue their practices without using current EBP guidelines and protocols. The lack of available EBP guidelines and protocols in primary care settings (especially in underserved clinics) has led to knowledge and skill deficits in many outpatient clinics (Norris, Engelgau, & Venkat Narayan, 2001). The American Association of Diabetes Educators (AADE) (2012) found that evidence-based clinical practice guidelines

enhanced the ability of health care providers to effectively address the needs of individuals with diabetes. However, the private primary care practice setting in the southwestern United States, for which this DNP project was developed, lacked an EBP guideline and protocol for clinicians (including physicians and advanced practice nurses) to use to meet the self-management needs of the diabetic population. The region comprises approximately 90% of the Hispanic population nationwide, and in 2013 it had an average estimated household income of $39,450 (New Mexico City-Data, 2013). The 2013 clinic's annual report showed that two in three patients in the clinic had type 2 diabetes mellitus (T2DM). A hemoglobin A1C of less than 9% had been achieved in fewer than 50% of these patients (the ideal glycemic control is A1C 7%) (American Diabetes Association [ADA], 2013). Significant knowledge and skill deficits have been reported in 50–80% of individuals with diabetes nationwide (Norris, et al., 2001). Grol and Grimshaw (2003) reported that many patients do not receive appropriate care, and some receive unnecessary or harmful care.

The social impact on patients developing T2DM has been found to include feelings of powerlessness and a lack of self-efficacy, and T2DM impacts the physical, psychological, and emotional well-being of the patients and their family members (Norris et al., 2001).The prevalence and complications of diabetes could be reduced by a large margin through diabetes education and self-management training. This, in turn, could significantly improve the quality of diabetes care and have a positive effect on society by

creating a culture that values good health (Berwick, 2003; Biddle, Fox, & Boutcher, 2012; Bluford, 2011).

Background

Diabetes mellitus (DM) is known as a chronic metabolic disease characterized by macrovascular and microvascular complications due to high levels of blood glucose (Centers for Disease Control and Prevention [CDC], 2013). Diabetes is now the leading cause of morbidity and the largest health care problem in the United States in terms of prevalence, cost, and the burden placed on individuals and the nation as a whole (CDC, 2013). The prevalence of diabetes has increased dramatically over the past few decades, and these numbers are expected to continue to grow due in part to obesity, sedentary lifestyles, and increasing life expectancy (CDC, 2013). While diabetes is equally prevalent in men and women, the risk for T2DM is substantially higher in minority groups.

T2DM constitutes 90–95% of all cases of diabetes worldwide. According to the World Health Organization (WHO) (2014), whereas an estimated 30 million people worldwide had diabetes in 1985, approximately 180 million people suffer from diabetes today. T2DM is projected to affect 300 million people worldwide by 2025 (WHO, 2014). In 2012, the CDC recorded 29.1 million Americans (9.3% of the total population) with T2DM, 11% of whom were 65 years of age or older (CDC, 2012). In all, 8.1% of diabetes sufferers are from the state of New Mexico, for which this project was developed (CDC, 2013).

Complications of T2DM are significant. According to the WHO (2013), 65% of deaths occurring among people with diabetes are attributed to heart disease or stroke, a rate nearly two to four times higher than among nondiabetic adults. Each year, T2DM leads to 12,000–24,000 new cases of blindness. In addition, 44% of patients with T2DM suffer from end-stage renal disease and need dialysis or kidney transplantation, 70% have nervous system damage, and 60% suffer non-traumatic lower-limb amputations (ADA, 2013; CDC, 2013). Today, T2DM continues to be the leading cause of morbidity and the seventh leading cause of mortality in the United States (CDC, 2013).

Researchers and health care providers believe DM is a disease requiring self-care management and that patients must be adequately skilled, dependable, and responsible for taking care of themselves (Dalton, Garvey, & Samira, 2006). Diabetes self-management training (DSMT), or the process of teaching diabetic individuals or patients to manage their condition, has been proven to be a cornerstone in clinical management for T2DM, and DSMT will soon become a vital component of high-quality primary care (Bodenheimer, Wagner, & Grumbach, 2002; Dalton et al., 2006). Self-management is the essential foundation of the empowerment approach. Self-management is necessary component in helping patients manage their diabetes and make appropriate decisions regarding their own care. The primary concept of self-management is self-efficacy, which focuses on an individual's ability to carry out the behavior necessary to reach a desired goal. Self-management training must be achieved to overcome the feelings of powerlessness associated with T2DM. Moreover, while diabetes is a chronic illness with

the potential for several complications, patients must have knowledge of and expectations for the physical, psychological, and emotional effects of DSM (Dalton et al., 2006).

Problem Statement

The practice problem addressed in this QI project was the lack of an evidence-based guideline and protocol for diabetes self-management as evidenced in the clinic's 2013 annual report, which reported that two out of three patients in the clinic suffered from T2DM, with more than 50% of those patients having an A1C of greater than 9%. According to Shrivastava, Shrivastaval, and Ramasamy (2013), poor practices among clinicians have contributed greatly to the knowledge and skill deficits among diabetes patients. The authors found that clinicians were not encouraging self-care activities among their patients. Although the of diabetic self-management care has been well-recognized, the lack of self-management training in primary care practice remains a great concern to health care clinicians (Shrivastava et al., 2013).

Gabbay and le May (2004) noted that clinicians rarely accessed, appraised, or utilized explicit evidence-based research in practice, and as a result, the gap in practice has continued. Health care professionals are often unaware of and lack familiarity with the latest evidence-based guidelines (NICS, 2006). Although clinicians may be aware that new guidelines have been issued, they may not recognize how their current practice needs to change to ensure they provide the best care for patients, in line with the guidelines (NICS, 2006).

According to the AADE (2010), evidence-based clinical practice guidelines enhance the ability of health care providers to address effectively the needs of individuals with diabetes. Guidelines and protocols on diabetes self-management training (DSMT) must be available for all staff who must then utilize them effectively to address the needs of individuals with diabetes and prevent diabetes complications.

Purpose

The purpose of this QI project was to develop an evidence-based clinical practice initiative for diabetic self-management (DSM). The evidence is clear that self-management can facilitate the diabetic patient's physical, psychological, and emotional well-being (Norris et al., 2001). Therefore, the gap between the ideal care indicated by the evidence and the care that is actually provided in the clinical setting can be bridged by the development and implementation of this educational initiative.

Project Question, Goals, and Outcomes

Project Question

Did a comprehensive educational initiative on diabetic self-management training for staff members working in this clinic improve glycemic control among patients with T2DM?

Goal

The goal of this project was to provide clinic staffs the tools to promote self-management education among T2DM patients.

Outcomes

At the conclusion of this educational initiative, the outcomes included the following:

Outcome 1: Literature Review Matrix: Promoting Diabetes Self-Management Education in Outpatient Clinic (see Appendix A)

Outcome 2: Evidence-Based clinical Practice Guideline/Protocol on Diabetes Self-Management Education (see Appendix B)

Outcome 3: Educational Curriculum Plan (see Appendix C)

Outcome 4: Pretest/Posttest (See Appendix F)

Outcome 5: Qualitative Summative Evaluation Stakeholders/Committee Members (see Appendix I)

The implementation and evaluation of the project's outcomes will be conducted after my graduation from Walden University.

Framework

This project utilized Rosswurm and Larrabee's (1999) conceptual model, which incorporates elements of EBP, research utilization, and enforced change theory. The project was guided through a systematic process of bringing change to EBP. The six essentials of this process include (a) assessing the need for practice change, (b) connecting problems with the right interventions and outcomes, (c) gathering all of the evidence, (d) designing a practice change, (e) implementing and evaluating the practice change, and (f) integrating and maintaining the practice change (Terry, 2012).

Nature of the Project

The nature of this project consisted of developing a comprehensive educational initiative. In step 1, the problem was identified following Rosswurm and Larrabee's (1999) framework, and in step 2 the problem was connected with outcomes. In Section 2, steps 3 included gathering evidence; step 4, which is outlined in Section 3, includes practice change. Step 5, implementing and evaluating the practice change, and step 6, integrating and maintaining the practice change, will be completed after my graduation.

The design approach includes the following:

1. Examining the evidence and carefully considering all aspects of the project (Burns & Grove, 2009);
2. Establishing a multidisciplinary team, with myself as the leader of the educational initiative, and composed of a nurse educator, an office manager, a medical director, information technology (IT) personnel, and administrators;
3. Evaluating the process, which will be ongoing and reflected in meeting minutes;
4. Completing a qualitative summative evaluation stakeholders/committee members of the process, the project, and my leadership (Appendix I); and
5. Completing a content validation index, which will be done by experts in diabetes (Appendix F).

Definitions

The following terms are used for the project.

Clinician: A health care practitioner who works as a primary care provider of a patient in a hospital, skilled nursing facility, clinic, or patient's home. A clinician (including physicians, nurse practitioners, and physician assistants) diagnoses, prescribes treatment, treats, and discharges patients from therapy (American Nurses Association, 2015).

Clinical guidelines: Systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances (The Institute of Medicine [IOM], 2010).

Clinical protocols: Precise and detailed plans designed to be user-friendly and a guide for daily clinical care (Primary Care Electronic Library [PCEL], 2007).

Diabetes mellitus: A chronic metabolic disease characterized by macrovascular and microvascular complications due to high levels of blood glucose (CDC, 2013).

Diabetes self-management: The ability of the individual in conjunction with family, community, and health care professionals to manage symptoms; treatments; lifestyle changes; and the psychosocial, cultural, and spiritual consequences of the disease (Wilkinson & Whitehead, 2009).

Evidence-based practice: Meticulous integration of best research evidence with clinical expertise and patient values and needs in the delivery of quality, cost-effective health care (Burns & Groves, 2009).

Assumptions

According to Burns and Grove (2009), assumptions can be defined as statements that are "taken for granted or considered true, even though they have not been scientifically tested" (p. 41). The assumptions of this project were:

1. The primary care clinicians were motivated to improved diabetes self-management through the use of the clinical guideline and protocol.
2. The primary care clinicians adopted and utilized this evidence-based clinical practice guideline and protocol.
3. The selected team members fully participated in developing and implementing this clinical guideline and protocol.

Scope and Delimitations

This project was developed for implementation in a rural clinic in the Southwest United States. The population was T2DM patients. The project is ongoing and evaluated on a yearly basis in the Well Med annual report. This project may not be applicable to other clinic settings, but because the private practice has recently been purchased by a larger corporation, there is potential for implementation in a larger population.

Limitations

Limitations or restrictions in a study may decrease generalization of the findings and are theoretical or methodological in nature (Burns, & Groves, 2009). The limitations of this project included:

1. The possibility that the evidence-based clinical practice guideline and protocol may not be generalized to other settings.
2. The implementation and evaluation plan may not be generalized to other settings.

Significance of the Project

Self-management activities are a cornerstone in clinical management for T2DM and becoming a vital part of high-quality primary care (Bodenheimer, 2002; Dalton et al., 2006). Adherence to self-management training in primary care practices remains crucial for clinicians. Implementing an educational curriculum plan and the EBP guideline and protocol on T2DM self-management training for staffs in this primary care setting will significantly improve the quality of diabetes care and have a positive effect on our health care system. Spearheading a consistent educational initiative among the staffs will contribute positively to social change by promoting better health care, especially among the Hispanic population.

Summary

Section 1 presented an overview of diabetes, diabetes complications, and the importance of the staffs' role in diabetes self-management training. The practice problem addressed in this quality improvement project was the lack of an evidence-based guideline and protocol for diabetes self-management, as evidenced in the clinic's annual report, which reported that two out of three patients in this clinic suffered from T2DM, with more than 50% of those patients having an A1C of greater than 9%. The goal of this

project was to provide clinic staffs the tools to promote self-management education among T2DM patients.

Section 2: Review of Scholarly Literature

Introduction

The purpose of this design-only QI project was to develop an evidence-based clinical practice initiative for diabetic self-management that included the following: (a) an evidence-based clinical practice guideline/protocol on diabetes self-management education (Appendix B), (b) an educational curriculum plan (Appendix C), and (c) a pretest/posttest (Appendix F). The goal of this project was to provide the clinic staffs the tools to promote self-management education among T2DM patients. DM Presents one of the most challenging health care problems in terms of prevalence, complications, cost, and the burden placed on individuals and the United States (CDC, 2013). The lack of a comprehensive education plan or EBP guideline and protocol in the primary care setting have increased the knowledge and skill deficit in many outpatient clinics (Norris et al., 2001).

This section outlines the method of the literature search, which I conducted using terms such as: *diabetes mellitus, self-management education and training, evidence-based clinical guidelines and protocols,* and *R&L's change theory*.

Literature Search Strategy

I performed a literature review for the most current and relevant information related to this project. The following computerized research databases were accessed: The Cumulative Index to Nursing and Allied Health Literature (CINAHL), the Educational Resources Information Center (ERIC), Health Source: Nursing/Academic Edition, MEDLINE/PubMed, the Cochrane Database of Systematic Reviews, and Cochrane Database of Reviews of Effectiveness (DARE). The keywords used to retrieve documents were: *diabetes mellitus, evidence-based diabetes self-management, diabetes self-management education/training, clinical practice, self-efficacy, type 2 diabetes mellitus, effective diabetes self-management, Rosswurm and Larrabee Model, diabetes education, leadership skill, and DNP essentials*. The sources used for the review were foundational and peer-reviewed. The search was limited to articles from 2001–2015; over 100 articles were retrieved, 60 of which were relevant to the project.

Rosswurm and Larrabee Model

The appropriate model for this educational initiative was based on a revised version of the model proposed by Rosswurm and Larrabee (1999). This model consists of six steps (see Figure 1) that focus on processes that improved outcomes (Rosswurm & Larrabee, 1999). The model has been employed for implementing changes based on best practices by the American Stroke Association, intensive care units, and other settings (George & Tuite, 2008; Kavanagh, Connolly, & Cohen, 2006). The steps of this model were suitable for diabetes self-management education and training because the model is

organized, easy to use, and allows for ongoing monitoring of completed projects (Rosswurm & Larrabee, 1999).

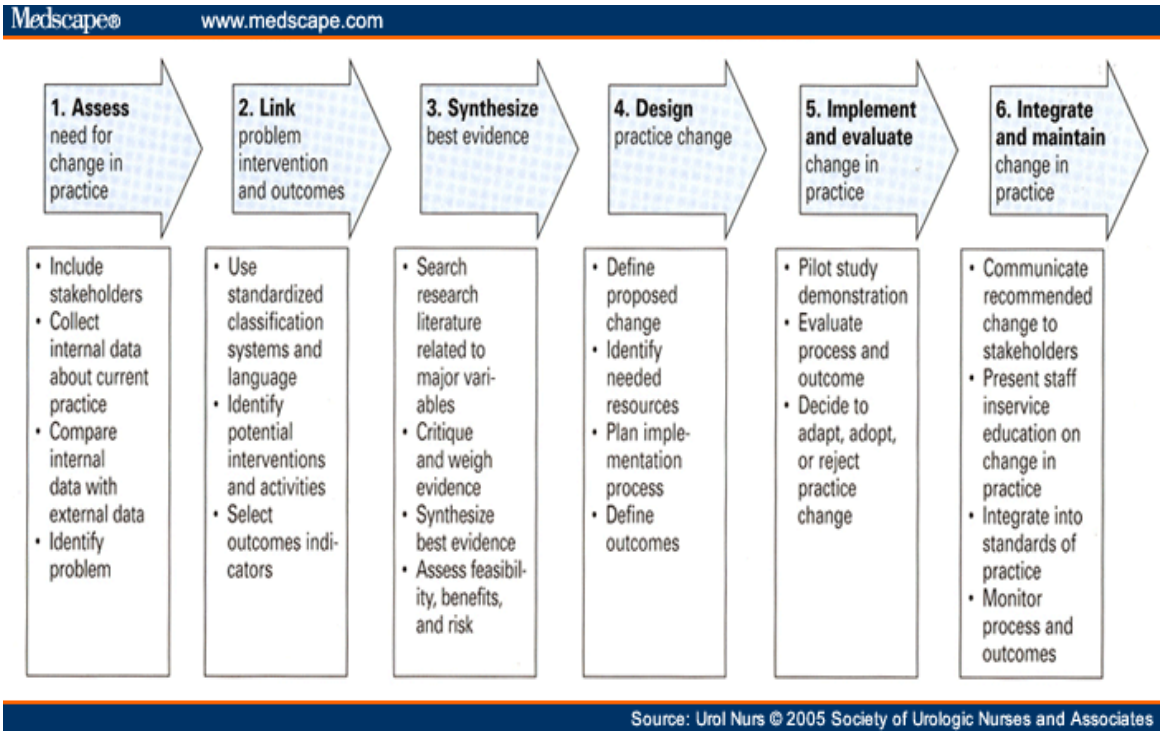


Figure 1. Rosswurm and Larrabee's model (1999).

Clinical Outcomes

Christ-Libertin, Black, Latacki, and Bair (2015) performed a pilot study to describe the effectiveness of an evidence-based guideline designed to prevent catheter-associated urinary tract infection (CA-UTI) in the burn-injured patient population. The Rosswurm-Larrabee six-step process model guided implementation of the practice change. The study utilized a pre- and postbundle implementation comparison design with a sample population that included eight burn-injured patients (7–88 years). Inclusion criteria included burn-injured patients of all ages with an indwelling urinary catheter. The

catheter day range was 1 to 27 days. Each patient had a clear indication for an indwelling urinary catheter. Nurses reported using a bladder scanner to assess bladder volume for postoperative patients with urinary retention, avoiding use of an indwelling urinary catheter in some cases. Integration of the evidence-based guideline in practice resulted in a reduced CA-UTI rate, reduced catheter days, increased days between CA-UTIs, and outperformance of the national benchmark statistic. In 2013, the burn unit reduced catheter days by about 75% and reduced infection incidence by >90% in three quarters after implementation of the practice changes. The unit was able to sustain a CA-UTI rate of zero for 248 days (Christ-Libertin et al., 2015).

Long, Burkett, and McGee (2009) described the process of incorporating evidence into policies and procedures, resulting in the establishment of evidence as a basis for safe practice. This described process included the Rosswurm and Larrabee's model for change to EBP. The model steered the work of EBP mentors in developing a template, system, and educational plan for dissemination of evidence-based policies and procedures in patient care (Long et al., 2009).

Kavanagh, Connolly, and Cohen (2006) conducted a research project in a 300-bed facility with a level two trauma center, examining 49 patients with primary diagnoses of stroke as participants. The purpose of their project was to identify the differences in the outcomes for patients with the diagnosis of stroke before the initiation of evidence-based standards of care and 9 months after implementation of the Acute Stroke Treatment Program. This project described how the model for change to EBP developed by

Rosswurm and Larrabee was used for the effective implementation of the program. The results showed that improvements could be made for disease-specific populations through the use of EBP, interdisciplinary teamwork, planning, and collaboration (Kavanagh et al., 2006). These authors recommended that patients be educated and assessed for self-efficacy related to the management and control of their blood glucose (Kavanagh et al., 2006).

Diabetes Mellitus

Diabetes mellitus (DM) is a group of diseases that includes type 1 DM, type 2 DM, gestational DM, medication-induced DM, and pre-DM; all are characterized by high levels of blood glucose (ADA, 2008). In the United States, 9.3% of the population has diabetes (CDC, 2003). T2DM, in particular, is the most common form of diabetes, accounting for 90–95% of all cases of diabetes (CDC, 2003). In T2DM, the body does not use insulin properly due to either insulin resistance or relative insulin deficiency (ADA, 2007).

According to the American Diabetes Association (2007), an estimated 30 million people worldwide had diabetes in 1985. By 1995, this number had gone up to 135 million. The latest WHO estimate for the number of people with diabetes worldwide in 2000 was 177 million. The number will reach 300 million by 2025 (WHO, 2014). In the United States, 29.1 million people were diagnosed with diabetes in 2012, and it was predicted that 50% of Americans will have diabetes by 2020 ((Pipe, Wellik, Buchda, Hansen, & Martyn, 2005).

Diabetes is a leading cause of cardiovascular disease, blindness, kidney failure, and lower-limb amputation. For instance, 65% of deaths occurring among people with DM are attributed to heart disease or stroke. DM is the leading cause of blindness among adults aged 20–74, and diabetic retinopathy is linked to 12,000–24,000 new cases of blindness each year. In 2000, nearly 130,000 people with DM underwent dialysis treatment and kidney transplantation. Also, 60 –70% of these patients had mild to severe forms of nervous system damage, which impairs sensation in the feet or hands and slows the digestion of food in the stomach. Also, 60% of nontraumatic lower-limb amputations in the United States occur among diabetes patients (ADA, 2007). Diabetes is the seventh leading cause of death in the United States, with heart disease leading the cause of diabetes-related deaths (ADA, 2012).

DM leads to many complications that are quite costly to the patients and the U.S. health care system. Direct medical costs related to DM were $116 billion in 2007 and $173.6 billion in 2012, whereas indirect costs (e.g., disability, work loss, premature mortality) accounted for $58 billion in 2007 and $71.4 billion in 2012. The total costs related to DM in the United States in 2007 were $174 billion, and in 2012, this number had gone up to $245 billion, about a 41% increase (ADA, 2007; ADA, 2012).

Clinical Outcomes

Nalysnyk, Hernandez-Medina, and Krishnarajah (2010) conducted a total of 10 interventional and observational studies in patients with T2DM and reported a measure of glycemic variability and its impact on the development or progression of micro- and

macrovascular diabetic complications. The study's results showed a significant positive association between glucose variability and the development or progression of diabetic retinopathy, cardiovascular events, and mortality in 9 of 10 studies. The authors concluded that a signal suggesting glucose variability, characterized by extreme glucose excursions, could be a predictor of diabetic complications independent of HbA1c levels in patients with T2DM. Better daily control of blood glucose excursions, especially in the postprandial period, may reduce the risk of these complications (Nalysnyk et al., 2010).

Self-Management Training

The burden of DM is quite significant. Researchers, policymakers, and health care providers believe DM is a self-management disease (Dalton et al., 2006). Self-management can be defined as an ability and process that individuals use in conscious attempts to gain control of their disease, rather than being controlled by the disease (Wagner, Austin, Davis, Hindmarsh, Schaefer and Bonomi, 2001). Self-management integrates multiple concepts: self-care, self-monitoring, adherence, health behavior change, patient education, and collaborative care (Kumar, C. 2007).

Clinical Outcomes

Deakin, McShane, Cade, and Williams (2005) conducted randomized controlled trials (RCTs) or clinical controlled trials (CCTs) to compare Group-Based Education (GBE) for adults with T2DM in primary care settings or secondary care settings. The purpose of this study was to determine if the effect of GBE on self-management training improved clinical, lifestyle, and psychosocial outcomes. The authors included more than

six participants in a group, and each session lasted for about an hour. A total of eight RCTs (n = 1260) and three CCTs (n = 272) met the selection criteria. Meta-analysis (using a random effects model) showed that glycated hemoglobin and fasting glucose concentrations were lower in the intervention group than in the control group and that diabetes knowledge scores were greater in the intervention group than in the control group (three trials, n = 432; standardized mean difference 0.95, 95% CI 0.72 to 1.18). More patients in the intervention group than in the control group reduced their use of diabetes medication over 12–14 months (five trials, n = 654; relative benefit increase 825%, CI 202 to 2738). One RCT (n = 314) reported greater total empowerment scores in the intervention group than in the control group throughout follow-up (p values < 0.05; Deakin et al., 2005).

Compeán-Ortiz et al. (2010) conducted a descriptive correlational study using a randomized sample of 105 Mexican adult patients with type 2 diabetes at a community-based outpatient clinic. The purpose of this study was (a) to determine the effect of memory learning on self-care activities in adults with type 2 diabetes moderated by previous education about or understanding of diabetes and (b) to discover the explicative capacity of gender, age, diabetes duration, and glycemic control in memory learning and schooling. The two questionnaires for self-care activities, the Wechsler Memory Scale, and previous education/understanding in diabetes were used to evaluate the glycosylated hemoglobin for glycemic control and memory learning. The study used multiple linear regression analysis and memory learning on self-care activities to evaluate the effect of

moderator capacity of previous education in and understanding of diabetes. Multivariate analysis was used to categorize the capacity of age, schooling, diabetes duration, and glycemic control in memory-learning types. The study showed a significant positive effect of memory learning on self-care activities. Education/understanding in diabetes moderated the relationship between immediate and delayed memory learning and self-care in glucose monitoring and diet. Gender, schooling, and the gender-glycemic control interaction explained memory-learning performance (Compeán-Ortiz et al., 2010).

Norris, Kansagara, Bougatsos, Nygren, and Fu, (2003) conducted a meta-analysis to evaluate the efficacy of self-management education in glycemic control among adults. A total of 31 studies were selected from 463 articles. The purpose of the study was to test the effect of baseline glucose (Ghb), follow-up interval, and intervention characteristics on Ghb. The result showed intervention decreased Ghb by 0.76% (95% CI 0.34–1.18) more than the control group at immediate follow-up, by 0.26% (0.21% increase–0.73% decrease) at 1–3 months of follow-up, and by 0.26% (0.05–0.48) at ≥ 4 months of follow-up. Glucose decreased more with an additional contact time between participant and educator; the study noted a decrease of 1% for every additional 23.6 h (13.3–105.4) of contact. The authors concluded that positive outcomes were linked to diabetes self-management education and training.

Brown, Garcia, Kouzekanani, and Hanis, (2002) conducted a prospective randomized repeated measures study on the Texas-Mexico border to determine the effects of a culturally competent diabetes self-management intervention in Mexican

Americans with type 2 diabetes. They utilized 256 randomly selected persons with type 2 diabetes aged 35-70. In the experimental group, diabetes knowledge was increased by 5.2 items (14.4%) correct on the diabetes knowledge scale and 1.5 items (3.6%) correct from the baseline to the 3-month follow-up and the 3-month follow-up to the 12-month follow-up, respectively. The level of hemoglobin A_{1C} also decreased by 1.2%-age points at 3 months compared to the baseline level; increased by .19%-age points and .09%-age points from the 3-month follow-up to the 6-month follow-up and the 6-month follow-up to the 12-month follow-up, respectively. In the control group, the knowledge was increased by 1.8 items (4.8%) correct from the baseline to the 3-month follow-up and from the 3-month follow-up to the 12-month follow-up. The level of HbA_{1c} decreased by .58%-age points from the baseline to the 3-month follow-up; increased by .98%-age points from the 3-month follow-up to the 6-month follow-up; and decreased by .56%-age points from the 6-month follow-up to the 12-month follow-up. One year after the initiation of the intervention, diabetes knowledge of the experimental and control groups increased by 6.7 items (18%) correct and 3.6 items (9.7%) correct on the diabetes knowledge scale, respectively. The authors concluded that culturally competent self-management education, in both individual and support group settings, improved health outcomes.

Venkat Narayan, Boyle, Geiss, Saaddine, and Thompson, (2006), studied 743 patients in a multicenter cluster randomized controlled trial in primary care. The purpose of this study was to measure whether the benefits of a single education and self-

management structured program for people with newly diagnosed T2DM were sustained at 3 years. Biomedical data were collected from 604 participants (82.6%) and questionnaire data from 513 participants (70.1%). Of the 743 (90.2%) participants who were eligible for follow-up at 3 years, the baseline result at 12 months showed HbA_{1c} levels decreased by −1.49% (95% CI −1.69% to −1.29%) in the intervention group and by −1.21% (−1.40% to −1.02%) in the control group. The overall results showed that the decreases in both the intervention group (−1.32%, −1.57% to −1.06%) and the control group (−0.81%, −1.02% to −0.59%) were sustained at 3 years.

Bodenheimer et al. (2002) noted that programs that teach self-management skills are more effective than information-only patient education in improving clinical outcomes. Piatt et al. (2004) showed that diabetes self-management, when implemented within the context of the Chronic Care Model, can improve clinical and behavioral outcomes in an underserved community. Duncan, Birkmeyer, Coughlin, Li, Sherr, and Boren, S. (2009), indicated that self-management education/training strongly supported cost reduction with high-quality care. Moreover, Glasgow et al. (2008) showed that patients who feel understood and supported by their providers are more likely to have high levels of self-confidence and to succeed at behavior change. Glasgow et al. also stated that improved patient-provider communication and increased involvement of patients in decision-making are associated with improved behavioral, biological, and quality-of-life outcomes. A self-management deficit significantly affects self-

management support (SMS), which is a cornerstone of any chronic disease care (Coleman, Austin, Brach, & Wagner, 2009).

Evidence-Based Clinical Practice Guidelines

EBP is the meticulous integration of the best research evidence with clinical expertise and patient values and needs in the delivery of quality, cost-effective health care (Burns & Groves, 2009). EBP also provides opportunities for nursing care to be more individualized, effective, streamlined, and dynamic, and to maximize effects of clinical judgment (Burns & Groves, 2009). The IOM (2010) defines guidelines as "systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances" (p. 74).

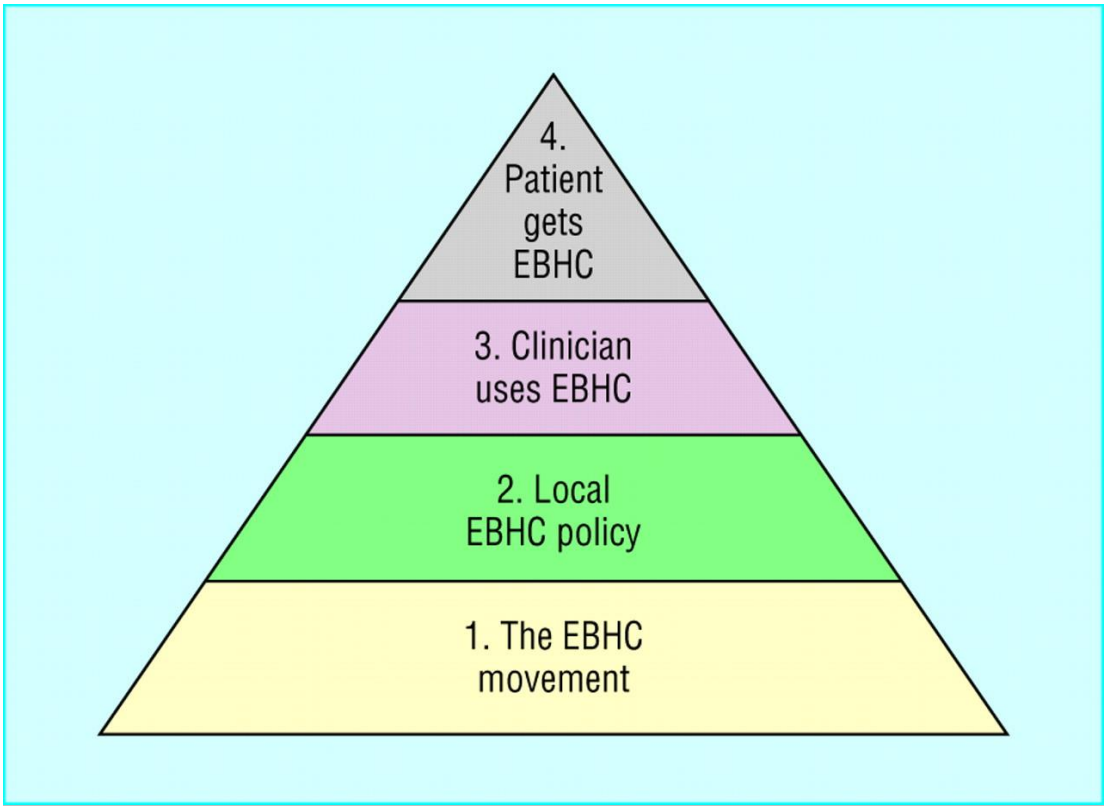


Figure 2. Four levels of evidence-based health care (Gabbay, 2004).

Clinical Protocol

Clinical protocols are precise and detailed plans designed to be a user-friendly guide for daily clinical care (IOM, 2007). Clinical protocols are summaries of the most important sections contained in the relevant clinical guideline. They are practice-area–specific and provide details concerning the treatment and procedure endorsed by the employing agency. The information specified in a clinical protocol builds on that provided in the clinical guideline and directs the care provider on specific elements of the recommended care (IOM, 2010). The design was to determine care provided based on the best available evidence and detailed descriptions of the steps taken to deliver specific care and treatment to patients in the private primary care setting.

Summary

The review of the literature supported that the diabetes self-management training guideline and protocol can reduce and improve T2DM (Norris et al., 2001). The utilization of an evidence-based protocol related to DSMT will result in improved patient outcomes. Section 2 of this project presented a detailed overview of the method of the literature search, using the terms diabetes mellitus, self-management education, evidence-based clinical guideline, protocol, and Rosswurm and Larrabee conceptual model.

Section 3: Approach

Introduction

The purpose of this design-only QI project was to develop an evidence-based clinical practice initiative for diabetic self-management, including (a) an evidence-based clinical practice guideline/protocol on diabetes self-management education (Appendix B), (b) an educational curriculum plan (Appendix C), and (c) a pretest/posttest (Appendix F). The goal of this project was to provide clinic staffs the tools to promote self-management education among T2DM patients.

Section 3 outlines the development process of the initiative. This section discusses the project's approach, the members of the multidisciplinary team, the evaluation process, content validity, and ethical considerations.

Project Approach

The following explains the process of the DNP project**:**

1. A multidisciplinary project team of stakeholders was carefully chosen for the designed-only QI project.
2. The literature was analyzed, synthesized, and presented to the stakeholders (see Appendix A).
3. Collaboration on the QI initiative was undertaken with stakeholders.
4. An evidence-based clinical practice guideline and protocol on diabetes self-management education was developed (see Appendix B).
5. An educational curriculum plan was developed (see Appendix C).

6. The pretest/posttest was developed (see Appendix F)
7. The qualitative summative evaluation stakeholders/committee members was developed (see Appendix I)

Interdisciplinary Project Team

Mitchell, Tieman, and Shelby-James (2008) stated that multidisciplinary care occurs when professionals from a range of disciplines with different but complementary skills, knowledge, and experience work together to deliver comprehensive health care. This quality improvement project consisted of the following team members:

- As project leader, I led all activities. These activities included presenting an analysis and synthesis of the literature to the stakeholders, developing the educational initiative (including the evidence-based clinical practice guideline and protocol), the educational curriculum plan for the staffs, the pretest/posttest (which was validated by two diabetes educators), and a qualitative summative evaluation that was completed by the team members at the conclusion of the meetings. The implementation and evaluation of the guideline and protocol will take place after graduation.
- A nurse educator helped with the QI project development.
- An administrator and office manager helped organize the meetings and group discussions of the QI project.
- The medical director was in charge of validating the content of the evidence-based clinical practice guideline and protocol prior to the

implementation of the protocol into the central database, which will take place after my graduation from Walden University.

- The information technology personnel managed the electronic medical records and will be in charge of implementing the evidence-based clinical practice guideline and protocol into the central database.

Evaluation/Content Validation

An ongoing process evaluation of the project occurred and was recorded in the meeting minutes. After the outcome products were presented to the team members for review and approval and a content validation index was completed by two experts in the field of diabetes. Each team member completed a qualitative summative evaluation of the process and my leadership skills at the end of the project.

Ethical Considerations

Walden University's Institutional Review Board (IRB) approved the project. The IRB-approved record number for the designed-only DNP project is 06-08-16-0386119. With the ethical standards of the university met, I was able to continue with the project.

Budget

The quality improvement project incurred no additional costs for the private primary care clinic or staff members. The meetings were held during lunch breaks. The time spent on in-service training, implementation, and evaluation will be included in the regular working hours after graduation from Walden University.

Summary

Section 3 of this project outlined the approach in developing the guideline and protocol for the evidence-based project. Included in this section was a description of the multidisciplinary team taking part in the project, an explanation of the development of the diabetes self-management training guideline and protocol, and a discussion of content validation, ethical considerations, and the budget. Section 4 will present the findings and evaluation of the project.

Section 4: Findings and Project Evaluation

Introduction

The purpose of this QI project was to develop an evidence-based clinical practice initiative for diabetic self-management to include the following: (a) an evidence-based practice guideline/protocol on diabetes self-management education (Appendix B), (b) an educational curriculum plan (Appendix C), and (c) a pretest/posttest (Appendix F). The goal of this project was to provide clinic staffs the tools to promote self-management education among T2DM patients. With regard to achieving these outcomes, the overall goal of the project was met. This section outlines the evaluation and findings and discusses the implications of the project, the project's strengths and limitations, and my self-analysis.

Evaluation/Findings and Discussion

The project was framed within Rosswurm and Larrabee's conceptual model (1999). Using a team approach, the six essential steps for this process were as follows: In step 1 of the project, the practice problem was outlined (see Section 1); in step 2, the problem was connected with the outcomes (see Section 1); in step 3, all of the evidence was gathered and presented (see Section 2); and in step 4, the practice change was designed and presented (see Section 3). After my graduation from Walden University, steps 5 (implementing and evaluating the practice change) and 6 (integrating and maintaining the practice change) will be conducted.

Evaluation and Content Validation of the Project Outcomes

The team members for this project consisted of myself as the project leader, the nurse educator, the office manager, the medical director, and the information technician. Two diabetic educators with nurse practitioner licenses from outside the clinic served as content experts, and an expert in test assessment critiqued the constructed test items. With the efforts of the team members, the evidence-based clinical practice guideline/protocol, the educational curriculum plan, and the pretest/posttest were developed. After the development, I presented the pretest/posttest to the test assessment expert for an evaluation of the test construction. Then, all of the content was presented to the diabetic educators for content evaluation. The findings, evaluation, and validation of the content are presented in the following subsections.

Outcome 1: Literature Review Matrix Promoting Diabetes Self-Management Education in Outpatient Clinic (Appendix A)

Discussion. The literature review matrix was presented to the team members for review and recommendations. After the approval, the literature review matrix was given to experts on diabetes to use when evaluating the rest of the outcome products.

Evaluation. After the team of experts reviewed the literature review matrix, they agreed that there were several articles that supported the importance of diabetes self-management education in outpatient clinics. The experts also remarked that the level of evidence was satisfactory.

Data. None

Recommendation. None

Outcome 2. evidence-based practice guideline/protocol on diabetes self-management education (Appendix B)

Discussion. The evidence-based clinical practice guideline and protocol on DSME were derived from the guidelines and protocols of the AADE (2012). The guideline and protocol were then revised to meet the clinic's specific needs (see Appendix B). The content was then presented to the team members for approval. After their approval, I presented the content to the diabetes educators for content review.

Evaluation. The team members and the diabetes experts all reviewed and approved the utilization of the evidence-based clinical practice guideline and protocol in this outpatient clinic.

Data. None

Recommendations. None

Outcome 3. Educational Curriculum Plan (Appendix C)

Discussion. The educational curriculum plan for staffs was developed with the intent that the educational project be taught to staff members. The objectives were assessed using a *met* or *unmet* scale with met = 2 and unmet = 1. At the conclusion of the project, the curriculum plan the participants should to be able to achieve the following five objectives:

- Describe T2DM and the impacts on the population;
- Identify four statistical overviews of diabetes mellitus in the general population;

- Identify three reasons the Hispanic population is more affected by T2DM than the general population;
- Discuss five comprehensive evidence-based non-pharmacological treatment plans for T2DM; and
- Identify evidence-based pharmacological interventions.

Evaluation. The two diabetes experts completed the evaluation on the educational curriculum plan using a met or unmet scale.

Data. The content experts' responses revealed that the educational curriculum plan's objectives were met (Content expert evaluation score = 1.00) (see Appendix C).

Recommendation. None

Outcome 4. Pretest/Posttest (See Appendix F)

Discussion. The pretest/posttest was created with 15 multiple-choice/true/false questions designed to validate the clinicians' knowledge before and after the training. The pretest/posttest was first presented to an expert in educational psychology and test assessment for review of the construction of the test items. After this review, the pretest/posttest was given to the content experts, who had received copies of the literature review matrix, the evidence-based clinical practice guideline and protocol, and the educational curriculum plan, in order to complete the validation of each test item.

Content Validation. The content experts validated the pretest/posttest using a four-point Likert Scale, with 1 = not relevant, 2 = somewhat relevant, 3 = relevant, and 4 = very relevant.

Data. Content Validation Index = 1.00 (**Appendix F**)

Recommendation. The assessment expert made the recommendation to revise the pretest/posttest to decrease the number of true/false questions to two and to rely more heavily on multiple choice questions.

Outcome 5. Qualitative Summative Evaluation Stakeholders/Committee Members (see Appendix I)

Discussion. At the conclusion of the last project meeting, the team members (*n* = 5) were asked to complete a seven-item open-ended qualitative summative evaluation questionnaire, which focused on the team approach, the meeting outcomes, and my role as the team leader. They were asked to complete the form without identifying their names and to return the form to me through Walden University's e-mail service. However, all team members left the form on my desk at work rather than using email.

Evaluation. There were a total of seven open-ended questions. Three of the questions related to the evaluation of the project team approach, two questions evaluated the outcome of the project, and two questions evaluated me as the project team leader (Appendix I)

Data. The evaluation theme words used by the team members to evaluate the project's outcomes included the following:

Project Team Approach. The team members described the project approach as being characterized by a detailed project plan, frequent meetings, open communication, ensured group participation, and guaranteed participant

availability in all meetings. One member wrote that "the team leader frequently seeks feedback to ensure continued team support."

Outcome Products. With regard to the project's products, the team members emphasized a well-organized product, an adequate literature review, superior data gathering and sharing, useful information, stimulating, and educational discussions.

Project Team Leader. The words commonly used by the team members with regard to the project team leader included the following: "effective leadership skill," "open communication," "data sharing," "adequate preparation," "drawing upon other members' knowledge/skills," "frequent project up-dates," and "cross-examining the team."

Suggestions for Improvement

The main suggestion for project improvement involved time management. The team members expressed concern that the scheduling of the lunch meetings did not allow for sufficient breaks before they needed to return to regular duty. Meetings lasted 45 minutes and were held in the employee lounge during lunch breaks; the participants were able to eat lunch during the meetings.

Applicability to Health Care

Diabetes self-management education (DSMT) has been proven to be a cornerstone in clinical management for T2DM, and is soon to become a vital part of high-quality primary care (Bodenheimer, 2002; Dalton et al., 2006). According to the AADE (2010), evidence-based clinical practice guidelines enhance the ability of health care

providers to effectively address the needs of individuals with diabetes (AADE, 2010). The objectives of implementing this evidence-based clinical practice guideline and protocol on diabetes self-management in the clinic for which the project was designed are to (a) improve metabolic control, (b) prevent diabetes complications, and (c) optimize patients' quality of life while keeping health care costs acceptable.

Implications

Practice

Assisting patients in caring for themselves is vital to treating T2DM. By incorporating diabetes education into every visit, such as through a brief explanation of diabetes, diabetes complications, and the prevention of these complications, practitioners can promote healthy outcomes and increase social support. The research has shown that social support, through family, friends, and community involvement, is also needed to promote healthy outcomes for diabetic patients (AADE, 2010). An evidence-based clinical practice guideline and protocol on DSME is a necessary tool for staffs to assess self-management deficits among all patients and intervene as needed to promote diabetes self-management behavior. Self-management behaviors are learned from the sociocultural environment and may be altered by staffs through the acquisition of knowledge. Diabetes patients, their families, and the greater community need to be encouraged to learn more about diabetes and diabetes complications via an evidence-based guideline and protocol on DSME.

Research

Research is the key to improving the quality of care for diabetes patients. The call for evidence-based quality improvement and health care change emphasizes the need for redesigning care that is effective, safe, and efficient. Incorporating this project into clinical practice will promote the use of evidence-based research by staffs, thus resulting in better care for diabetic patients. Through a number of evidence-based research projects, this out-patient clinic will also advance their policies and promote increased commitment to evidence-based practices among staffs in all aspects of patient care.

Social Change

Patients who have developed T2DM often report feelings of powerlessness and a lack of self-efficacy (Berwick, 2003). T2DM impacts the physical, psychological, and emotional well-being of the patients and their family members (Berwick, 2003). The evidence-based clinical practice guideline and protocol on self-management education has been shown to bring about social change with regard to diabetes and to decrease the prevalence of and complications associated with the disease (AADE, 2010). The development of a consistent educational curriculum plan among staffs contributes positively to social change by promoting better health among T2DM patients. The evidence-based clinical practice guideline and protocol on DSME significantly improves the quality of diabetes care and has a positive effect on society by creating a culture that values good health.

Strengths and Limitations of the Project

Strengths

The strengths of this DNP project stem from the multidisciplinary nature of the team members. Multidisciplinary care occurs when professionals from a range of disciplines, with different but complementary skills, knowledge, and experience, work together to deliver comprehensive health care (Mitchell et al., 2008). The influence, expectations, and interests of the stakeholders became a strength to this project as well. The team members stayed involved, made themselves available, showed interest, and supported the project. As a result, this project has a chance of being implemented in the clinic after I graduate from Walden University.

Limitations

The main limitation of this quality improvement project was obtaining approval from the Institutional Review Board (IRB) in a timely manner. The IRB process delayed the project for an extended period of about five months until I received the approval letter allowing me to continue with my DNP project.

Self-Analysis

As Scholar

As a scholar, my passion for knowledge has grown. Through my perseverance and courage in completing my DNP program, my leadership skills and ability to

contribute to the evolving field of nursing have deepened. I have learned to utilize evidence-based research in practice to contribute to safe patient care. As a result of the DNP project, I have increased my understanding of the design and promotion of evidence-based health care, gained experience in leading professional team members, and learned to integrate project design with best practices.

As Practitioner

My love for the field of nursing led me to pursue my DNP education. As a family nurse practitioner and project developer, one of the many challenges I faced was being an effective leader. Effective leadership is critical in delivering high-quality care, ensuring patient safety, and facilitating positive staff development. With the completion of this program, my knowledge, experience, and leadership skills have increased immensely. I can confidently say that this program and the completion of the DNP project have helped me to become a successful leader.

Project Manager

As a project manager, I ran into several challenges in developing this project. The most difficult aspect of this QI project involved maintaining effective time management and obtaining the Institutional Review Board's (IRB) approval in a timely manner. Through a written plan, the time management issue was effectively resolved. The team members were pleasant, and easy to work with them. The scheduling for the meetings was not an issue since the meetings were held in the employee lounge during lunch time. The team members were quite helpful; they assisted me with assessing, planning,

evaluating, and making other recommendations for the project. As I initially had limited leadership experience, the knowledge and teaching background of several team members were much appreciated.

Implementation Plan

The project implementation will take place after I graduate from Walden University. The nurse educator and I will lead the implementation process by holding five meetings with all the qualified staff members. The developed educational curriculum plan, the evidence-based clinical practice guideline and protocol, and the pretest-posttest on the diabetes self-management training will be presented.

The diabetes self-management pretest/posttest (Appendix F) will be used to record the participants' knowledge before and after the intervention. The participants will be asked to complete the pretest prior to participation in the educational program and to complete the posttest after the program is over. Before and after comparisons will be made to evaluate whether the education positively affects the practitioners' knowledge about diabetes self-management training, blood glucose monitoring, healthy diet, exercise, and family support. Staff will be educated on how to utilize the guideline and protocol on self-management for T2DM.

Implementation Evaluation (to be conducted after graduation from Walden University) (Appendix N)

Following the implementation process described above, staff will be asked to complete another form of evaluation on the educational program. This evaluation will

incorporate five-item Likert scale questions, with the scale ranging from 1 = not at all, 2 = slightly, 3 = moderately, 4 = very, and 5 = extremely. The goal of this intervention is to assess (a) staff knowledge, (b) changed attitudes and skills as a result of this implementation, (c) the effectiveness of my teaching methods, and (d) the effectiveness of my teaching resources (e.g., handouts).

Summary

The purpose, goal, and outcomes of this project were successfully met. The educational curriculum plan and the evidence-based clinical practice guideline/protocol on diabetes self-management education developed during this project were intended to improve health outcomes for diabetes patients by providing improved quality of care and increasing patient safety. The evidence is clear that self-care management will facilitate well-being among diabetic patients. The gap between the care recommended by the evidence and the care that is actually provided in the clinical setting will be closed further with the development of this initiative. Section 5 of this project includes a scholarly product (a poster board) that is intended to disseminate the evidence-based clinical practice guideline and protocol on diabetes self-management education to a broader audience.

Section 5: Poster Board Presentation Abstract

Section 5 is a scholarly product for the dissemination of the QI project. This abstract follows the recommendations of American Diabetes Association Poster Abstract criteria. The poster abstract criteria (Appendix L) presents an evidence-based clinical practice guideline and protocol on diabetes self-management education for T2DM.

Purpose

Problem Statement

The practice problem addressed in this quality improvement project was the lack of an evidence-based guideline and protocol for diabetes self-management, as evidenced in the clinic's annual report, which reported that two out of three patients in suffered from T2DM, with more than 50% of those patients having an A1C of greater than 9%.

Purpose

The purpose of this QI project was to develop an evidence-based clinical practice initiative for diabetic self-management.

Project Goal

The goal of this project was to provide clinic APRNs the tools to promote self-management education among T2DM patients.

Project Outcome

Comprehensive evidence-based APRN education plan to include: a). an educational curriculum plan for APRNs, b). an evidence-based practice guideline and protocol, c). a pretest/posttest, and d). a qualitative summative evaluation product

Background/Significance

Diabetes mellitus (DM) is a chronic metabolic disease characterized by macrovascular and microvascular complications due to high levels of blood glucose (Centers for Disease Control and Prevention [CDC], 2013). T2DM constitutes 90–95% of all cases of diabetes worldwide. According to the World Health Organization (WHO) (2014), estimated 30 million people had diabetes worldwide in 1985, today, DM is estimated at 180 million. DM is now projected at 300 million by 2025. According to Centers for Disease Control and Prevention (CDC, 2014), 29.1 (9.3%) million American with DM in 2012. It is predicted that 50% of Americans will have diabetes by 2020. In New Mexico State (where this project will be developed) 8.1% are with DM.

Significance

Adherence to self-management training in primary care practices remains crucial for clinicians (Dalton et al., 2006). Implementing an educational curriculum plan and the EBP guideline and protocol on T2DM self-management training for APRNs, physician and other staff members in this primary care setting may improve the quality of diabetes care and have a positive effect on our health care system.

Method

The project was framed within Rosswurm and Larrabee's conceptual model (1999). Using a team approach, the six essential steps for this process were as follows: In step 1 of the project, the practice problem was outlined (see Section 1); in step 2, the problem was connected with the outcomes (see Section 1); in step 3, all of the evidence

was gathered and presented (see Section 2); and in step 4, the practice change was designed and presented (see Section 3). After my graduation from Walden University, steps 5 (implementing and evaluating the practice change) and 6 (integrating and maintaining the practice change) will be conducted.

Data collection

Data was collected using a Professional team members and diabetes educators (Nurse practitioners) to review and made recommendations on evidence-based clinical practice guideline/protocol and Literature reviewed matrix. Pretest/posttest questionnaires was validated by diabetes educators using a four-point Likert Scale. The educational curriculum plan was evaluated by the experts using a met or unmet scale. And the qualitative summative evaluation was completed by the team members using a seven-item open-ended questionnaires.

Result

A. The literature review matrix- Approved
B. The evidence-based clinical practice guideline and protocol –Approved
C. The educational curriculum plan- The content experts average evaluation scores = *2 (met*)
D. The pretest/posttest- Content Validation Index = 1.00
E. Qualitative summative evaluation-

a. Project Team Approach:

Frequent meetings, open communication, ensured group participation

b. Outcome Products:

Well-organized product, adequate literature review, adequate data gathering and sharing

c. Project Team Leader:

Effective leadership skill, open communication, frequent project up-dates, and cross-examining the team.

d. Suggestions for Improvement

Time management

Conclusion

Evidence-based clinical practice guideline and protocol for diabetes self-management education has the potential to improve evidence-based parameters of the diabetes care in the out-patient clinics.

References

American Association of Colleges of Nursing. (2006). *The essentials of Doctoral for Advanced Nursing Practice*. Retrieved from http://www.aacn.nche.edu/publication/position/DNPEssential.pdf

American Association of Diabetes Educators (AADE). (2010). Self-care behaviors. *Diabetes Education, 4(*445). Retrieved from www.diabetes.org

American Diabetes Association. (2013). Standards of medical care for patients with diabetes mellitus. *Diabetes Care,* 2(41).

Bodenheimer, T., Wagner, E., & Grumbach, K. (2002). Improving primary care for patients with chronic Illness: The chronic care model, Part 2. *The Journal of the American Medical Association (JAMA), 288*(15), 909-1914. doi:10.1001/jama.288.15.1909

Brown, S.A., Garcia, A. A., Kouzekanani, K., & Hanis, C. (2002). Culturally competent diabetes self-management education for Mexican American: The Starr County Border Health Initiative. *Diabetes Care, 25*(2), 259-268.

Burgers, J., Grol, R., Klazinga, N., & Zaat, J (2003). Towards evidence-based clinical practice: an international survey of 18 clinical guideline programs. *International Journal for Quality in Health Care, 15*(1).

Burns, N., Grove, S.K. (2009). Strategies for promoting evidence-based nursing practice. In N. Burns & S.K. Groves (Eds.), *The practice of nursing research* (pp. 616-622). St. Louis, MO: Saunders Elsevier.

Centers for Disease Control and Prevention (2013). National diabetes fact sheet. General information and national estimates on diabetes in the United States. Retrieved from *www.cdc.gov/diabetes/data/statistics.*

Coleman, K., Austin, B., Brach, C., & Wagner, E. (2009). Evidence on the chronic care model in the New Millennium. Retrieved from www.healthaffairs.org

Compeán-Ortiz, L., Gallegos, E., Gonzalez-Gonzalez, J., Gomez-Meza, M., Therrien, B., & Salazar, B. (2010). Cognitive performance associated with self-care activities in Mexican adults with type 2 diabetes. *Diabetes Educator, 36*(2), 268-275. doi:10.1177/0145721710361783

Dalton, J., Garvey, J., & Samia, L. (2006). Evaluation of a diabetes disease management home care program. *Home Health Care Management & Practice, 18*(4), 272-285.

Deakin, T. A., McShane, C. E., Cade, J. E., & Williams, R. (2005). Group based training for self-management strategies in people with type 2 diabetes mellitus. *Cochrane Database of Systemic Reviews* 2, 1-84.

Duncan, L., Birkmeyer, C., Coughlin, S., Li, Q., Sherr, D., & Boren, S. (2009). Assessing the value of diabetes education. *The Diabetes Educator. 35*(5), 752-760.

Gabbay, J., & le May, A. (2004). Evidence based guidelines or collectively constructed "mindlines?" Ethnographic study of knowledge management in primary care. *British Medical Journal; 329* doi: http://dx.doi.org/10.1136/bmj.329.7473.1013

Glasgow, R., E., Whitesides, H., Nelson, C., & King, D. (2005). Use of the patient assessment of chronic illness care with diabetic patients: Relationship to patient

characteristics, receipt of care, and self-management. *Diabetes Care, 28* (11), 2655-2661.

Grol R. & Grimshaw, J. (2003). From best evidence to best practice: effective implementation of change in patients' care. *Altimetry*. (P1225–1230).

Heisler, M., Smith, D. M., Hayward, R. A., Krein, S. L., & Kerr, E. A. (2003). How well do patients' assessments of their diabetes self-management correlate with actual glycemic control and receipt of recommended diabetes services? *Diabetes Care, 26*(3), 738-743.

Institute of Medicine [IOM]. (2010). *The future of nursing: Leading change, advancing health.* Retrieved from http://www.nap.edu/openbook.php?record_id=12956

Kumar, C. (2007). Application of Orem's self-care deficit theory and standardized nursing languages in a case study of a woman with diabetes. *International Journal Of Nursing Terminologies & Classifications, 18*(3), 103-110.

Mitchell G. K, Tieman J. J, & Shelby-James, T.M. (2008). Multidisciplinary care planning and teamwork in primary care. *The Medical Journal of Australia, 188*(8), S61–4.

Nalysnyk, L., Hernandez-Medina, M., & Krishnarajah, G. (2010). Glycaemic variability and complications in patients with diabetes mellitus: evidence from a systematic review of the literature. *Diabetes Obes Metab*. 12(4), 288-98.

National Institute of Clinical Studies. (2006). *Identifying barriers to evidence uptake*. Retrieved from www.nhmrc.gov.au/nics

Norris, S. L., Engelgau, M.M., & Venkat Narayan, K. M. (2001). Effectiveness of self-management training in Type 2 Diabetes: A systematic review of randomized controlled trials. *Diabetes Care, 24*(3), 561-587.

Norris, S.L., Lau, J., Smith, S. J., Schmid, C. H., & Engelgau, M. D. (2002). Self-management education for adults with Type 2 diabetes: A meta-analysis of the effect on glycemic control. *Diabetes Care. 25*(7), 1159-1171.

Norris, S. L., Kansagara, D. Bougatsos, C., Nygren, B. S. & Fu, B. (2003). Screening for Type 2 diabetes mellitus: Systematic Evidence Review for the U.S. Preventive Services Task Force. *Evidence Syntheses, (61)*.

Piatt, G. A., Orchad, T., Emerson, S., Simmons, D., Songer, T., & Brook, M. (2006).Translating the chronic care model into the community: Results from a randomized controlled trial of a multifaceted diabetes care intervention. *Diabetes Care, 29*(4), 811-817.

Pipe, T. B., Wellik, K., Buchda, V., Hansen, C. K., & Martyn D. R. (2005). Implementing evidence-based nursing practice. *Urologic Nursing, 25*(5), 365-370.

Rosswurm, M.A., & Larrabee, J. (1999). A model for change to evidence-based practice. Image: *Journal of Nursing Scholarship, 31*, 317–322.

Shrivastava**,** S. R., Shrivastava, P. S., & Ramasamy, J. (2013). Role of self-care in management of diabetes mellitus. *Journal of Diabetes & Metabolic Disorders*, *12*,14.

Shojania, K. G. & Grimshaw, J. M. (2005). Evidence-based quality improvement: The state of the science. *Health Affairs 24(1), 138-150.*

Stellefson, M., Dipnarine, K., & Stopka, C. (2013).The chronic care model and diabetes management in US primary care settings: a systematic review. *Preventing Chronic Diseases,* 10: E26. Retrieved from www.cdc.gov/.../12...

Sürücü, H., & Kizilci, S. (2012). Use of Orem's self-care deficit nursing theory in the self-management education of patients with Type 2: A case study. *Self-care, dependent-care & nursing*, *19*(1), 53-59.

Taylor, A. (2012). *Clinical research for the doctor of nursing practice*. Sudbury, MA: Jones & Bartlett Learning.

Titler, M (2005). The evidence for evidence-based practice implementation. *Patient safety and quality - NCBI bookshelf.* (n.d.). Retrieved from http://www.ncbi.nlm.nih.gov/books/NBK2651/

Venkat Narayan, K., Boyle, J., Geiss, L., Saaddine, J., & Thompson, T. (2006). Impact of recent increase in incidence on future diabetes burden. *Diabetes Care. 29*, 2114–2116.

Wagner, E. A., Austin, B. T., Davis, C., Hindmarsh, M., Schaefer, J., & Bonomi, A. (2001). Improving chronic illness care: Translating evidence into Action. *Health Affairs.* Retrieved from www.improvingchroniccare.org/index.ph

Wilkinson, A. L., & Whitehead, L., (2009). Evolution of the concept of self-care and implications for nurses: A literature review. *International Journal of Nursing Studies*, *46* (8), 1143–1147.

World Health Organization (2014). *Diabetes: The cost of diabetes.* Retrieved from www.who.int/mediacentre/factsheets/fs236/en/

Appendix A

Literature Review Matrix Promoting Diabetes Self-Management Education in Outpatient Clinic

Full Reference	Theoretical/ Conceptual Framework	Research Question(s)/ Hypotheses	Methodology	Analysis & Results	Conclusions	**Grading the Evidence**
Deakin, T. A., McShane, C. E., Cade, J. E., & Williams, R. (2005). Group based training for self-management strategies in people with type 2 diabetes mellitus. *Cochrane Database of Systemic Reviews* (2), 1-84.	Self-management intervention; None Orem's safe care deficits theory	To assess the effects of group-based, patient-centered training on clinical, lifestyle and psychosocial outcomes in people with type 2 diabetes	Describing Studies Study involve about 1532 participants.	The results showed reduction on glycated hemoglobin at four to six months at 12-14 months and two years; reduced fasting blood glucose levels at 12 months; reduced body weight at 12-14 months, improved diabetes knowledge at 12-14 months and reduced systolic blood pressure at four to six months There was also a reduced need for diabetes medication	Group-based diabetes education programs for adults with type 2 diabetes result in clinically important improvements in health outcomes for glycated hemoglobin, fasting blood glucose levels and diabetes knowledge at four to six months' and 12 months' follow-ups	Level 3

Bodenheimer, T., Wagner, E., & Grumbach, K. (2002). Improving Primary Care for Patients with Chronic Illness: The Chronic Care Model, Part 2. *The Journal of the American Medical Association (JAMA)*, 288(15):1909-1914. doi:10.1001/jama.288.15.1909.	Chronic Care Model	To what extent the chronic care model can improve the management of chronic conditions (using diabetes as an example) and reduce health care costs	Peer Reviewed, Thirty-two of 39 studies was reviewed	Result showed that interventions based on chronic care model components improved at least 1 process or outcome measure for diabetic patients.	Even though the chronic care model has the potential to improve care and reduce costs, several obstacles hinder its widespread adoption.	Level 3
Lung, T., Jung, W., & Chang, S. (2006). Nursing experiences of caring for type II diabetes patient with candidal vaginities [Chinese]. *Tzu Chi Nursing Journal*, *5*(3), 127-136.	Orem's self-care deficit	To estimate the accuracy of the clinical diagnosis of the three most common causes of acute vulvovaginal symptoms among type 2 diabetes patients	Comparative study 535 active duty United States military women	The findings showed that the patient had several health problems; knowledge deficiency, nutrition altered: more than body requirements and anxiety.	The patient had better diet control, decreasing level of anxiety, and increasing perception in disease control. In addition, the patient improved personal hygiene, and knowledge to candidal vaginitis	Level 3
Dalton, J., Garvey, J., & Samia, L. (2006). Evaluation of a diabetes disease management home care program. *Home Health Care*	Orem's self-care deficit theory	Diabetes disease management home care programs provide education,	Nursing; Peer Reviewed 166 participants Group 1 (n	A clinically significant finding was that approximately 50% of patients in	OASIS admission scores and discharge scores were used independently in the analysis;	Level 3

Management & Practice, 18(4), 272-285		promote self-care, and empower patients.	= 50) and 2 (n = 51) participants received traditional diabetes home care. Group 3 (n = 65) participants received experimental diabetes disease management.	each group were discharged with glucose levels that did not meet American Diabetes Association criteria.	change scores (if the patient improved, remained the same, or declined) used by CMS (Shaughnessy &Crisler, 1995) were not used.	
Compeán-Ortiz, L., Gallegos, E., Gonzalez-Gonzalez, J., Gomez-Meza, M., Therrien, B., & Salazar, B. (2010). Cognitive performance associated with self-care activities in Mexican adults with type 2 diabetes. *Diabetes Educator*, *36*(2), 268-275. doi:10.1177/0145721710361783	Orem's self-care deficit theory	The purpose of this study was to determine the effect of memory-learning on self-care activities in adults with type 2 diabetes moderated by previous education/understanding in diabetes and to explore the explicative capacity of age, gender, schooling, diabetes duration, and glycemic control in memory-learning.	Randomized sample, 105 Mexican adult.	Immediate and delayed verbal and visual memory-learning were important for the patient to carry out self-care activities, and this relationship can be moderated by previous education/understanding in diabetes	A significant positive effect of memory-learning on self-care activities was found. Education/understanding in diabetes moderated the relationship between immediate and delayed memory-learning and self-care in glucose monitoring and diet.	Level 3
Brown, Garcia, Kouzekanan & Hanis, C. (2002). Culturally	Descriptive theory	To determine in Mexican Americans with type 2 diabetes	Prospective, randomized, repeated measures	Experimental groups showed significantly	The study confirms the effectiveness of culturally	Level 3

Competent Diabetes Self-Management Education for Mexican American: The Starr County Border Health Initiative. *Diabetes care.* 25(2) 259-268		the effects of a culturally competent diabetes self-management intervention.	study Study was conducted on the Texas-Mexico border in Starr County. 256	lower levels of HbA_{1c} and FBS at 6 months and at 12 months and higher diabetes knowledge scores. At 6 months, the mean HbA_{1c} of the experimental subjects was 1.4% below the mean of the control group	competent diabetes self-management education on improving health outcomes of Mexican Americans, particularly for those individuals with HbA_{1c} levels above 10%	
Burgers, J., Grol, R., Klazinga, N., & Zaat, J (2003). Towards evidence-based clinical practice: an international survey of 18 clinical guideline programs. *International Journal for Quality in Health Care* 15, (1)	Descriptive Theory	To describe systematically the structures and working methods of guideline programs	Descriptive survey using a questionnaire with 32 items.	Most guideline programs were established to improve the quality and effectiveness of health care	International collaboration should be encouraged to improve guideline methodology and to globalize the collection and analysis of evidence needed for guideline development.	Level 3
Coleman, K., Austin, B., Brach, C., & Wagner, E. (2009). Evidence on the Chronic Care Model in the New Millennium. *Health Affairs*	Chronic Care Model (CCM)	To examine the evidence of the Chronic Care Model (CCM's) effectiveness	Peer Reviewed; Based on articles published since 2000 that used one of five key	Accumulated evidence appears to support the CCM as an integrated framework to guide practice	The evidence examined here suggests that the CCM should continue to inform systematic	Level 3

content. Retrieved from healthaffairs.org			CCM	redesign	efforts to improve care and that those efforts should be rigorously evaluated.	
Compeán-Ortiz, L., Gallegos, E., Gonzalez-Gonzalez, J., Gomez-Meza, M., Therrien, B., & Salazar, B. (2010). Cognitive performance associated with self-care activities in Mexican adults with type 2 diabetes. *Diabetes Educator, 36*(2), 268-275. doi:10.1177/0145721710361783	Descriptive Theory	Will the memory-learning on self-care activities in adults with type 2 diabetes moderated by previous education/ understanding in diabetes?	A descriptive correlational study Randomized sample of 105	A significant positive effect of memory-learning on self-care activities was found.	Immediate and delayed verbal and visual memory-learning were important for the patient to carry out self-care activities, and this relationship can be moderated by pre-vious education/understanding in diabetes.	Level 3
Duncan, L., Birkmeyer, C., Coughlin, S., Li, Q., Sherr, D., & Boren, S. (2009). Assessing the Value of Diabetes Education. *The Diabetes Educator*. 35(5) 752-760	Descriptive theory	Diabetes self-management education/training (DSME/T) on financial outcomes (cost of patient care)	Peer Reviewed The review was based on 2 codes (G0108 and G0109).	Patients using diabetes education have lower average costs than patients who do not use diabetes education. Physicians exhibit high variation in	The collaboration between diabetes educators and physicians yields positive clinical quality and cost savings. The analysis indicates that	Level 2

				their referral rates to diabetes education.	quality can be improved, and cost reduced, by increasing referral rates to diabetes education among low-referring physicians, specifically among men and people in disadvantaged areas.	
Gabbay, J., & le May, A. (2004). Evidence based guidelines or collectively constructed "mindlines?" Ethnographic study of knowledge management in primary care. *BMJ;* 329 doi: http://dx.doi.org/10.1136/bmj.329.7473.1013	Orem's self-care deficit theory	To explore in depth how primary care clinicians (general practitioners and practice nurses) derive their individual and collective health care decisions.	non-participant observation, semi structured interviews, and documentary review; Participants include, Nine doctors, three nurses, one phlebotomist, and associated medical staff	Clinicians rarely accessed and used explicit evidence from research or other sources directly, but relied on "mindlines"--collectively reinforced, internalized, tacit guidelines.	These findings highlight the potential advantage of exploiting existing formal and informal networking as a key to conveying evidence to clinicians	Level 3
Glasgow, R., E., Whitesides, H., Nelson, C., & King, D. (2005). Use of the Patient Assessment of	The chronic care model (CCM)	There is a dearth of information on the extent to which diabetic patients receive care congruent	The heterogeneous survey sample	Findings replicated those of the initial Patient Assessment of Chronic Illness Care	The PACIC and the new 5As scoring method appear useful for diabetic patients. Its	Level 3

Chronic Illness Care (PACIC) With Diabetic Patients: Relationship to patient characteristics, receipt of care, and self-management. *Diabetes Care*, 28 (11) 2655-2661		with the chronic care model (CCM) and evidence-based behavioral counseling.		(PACIC) validation study but with a much larger sample of diabetic patients and more Latinos.	use is encouraged in future research and quality improvement studies.	
Heisler, M., Smith, D. M., Hayward, R. A., Krein, S. L., & Kerr, E. A. (2003). How Well Do Patients' Assessments of Their Diabetes Self-Management Correlate With Actual Glycemic Control and Receipt of Recommended Diabetes Services? *Diabetes Care* 26(3) 738-743	Descriptive theory	Although patient diabetes self-management is a key determinant of health outcomes, there is little evidence on whether patients' own assessments of their self-management correlates with glycemic control and key aspects of high-quality diabetes care.	Survey sample, Peer reviewed	Higher patient evaluations of their diabetes self-management were significantly associated with lower HbA_{1c} levels (P0.01) and receipt of diabetes services Those in the 95th percentile for self-management had a mean HbA_{1c} level of 7.3 (95% CI 6.4 – 8.3), whereas those in the 5th percentile had mean levels of 8.3 (7.4 –9.2).	These findings reinforce the usefulness of patient evaluations of their own self-management for understanding and improving glycemic control.	Level 2
Kumar, C. (2007). Application of	Orem's self-care deficit theory	Client's ability to self-manage a chronic illness	Peer reviewed	Nursing theory and standardized	This study can be utilized in several care	Level 3

Orem's self-care deficit theory and standardized nursing languages in a case study of a woman with diabetes. *International Journal Of Nursing Terminologies & Classifications*, *18*(3), 103-110				nursing language enhance communication among nurses and support a client's ability to self-manage a chronic illness	settings. As the number of clients with diabetes increases, the need for experts in the field increases	
Grol R. & Grimshaw, J. (2003). From best evidence to best practice: effective implementation of change in patients' care. *Altimetry*. (P1225–1230)	Orem's self-care deficit theory			The findings show that the patient had several health problems; knowledge deficiency, nutrition altered: more than body requirements and anxiety.	The patient had better diet control, decreasing level of anxiety, and increasing perception in disease control. In addition, the patient improved personal hygiene, and knowledge to candidal vaginitis	
Mitchell G. K, Tieman J. J, & Shelby-James, T.M. (2008). Multidisciplinary care planning and teamwork in primary care. *The Medical Journal of Australia*, 188(8): S61–4	Descriptive Therapy	To examine policy and implementation issues around multidisciplinary care planning (MDP) as a means of improving outcomes for patients with chronic disease and/or complex care needs.	Five systematic reviews	Multidisciplinary care planning (MDP) does improve many functional outcomes. Implementing MDP requires changing patterns of interaction between care providers,	Devising and testing such strategies is a prerequisite for widespread, routine use of MPD in chronic disease management.	Level 3

				alignment of roles and work practices, and changes to organizational arrangements.		
Nalysnyk, L., Hernandez-Medina, M., & Krishnarajah, G. (2010). Glycaemic variability and complications in patients with diabetes mellitus: evidence from a systematic review of the literature. *Diabetes Obes Metab*. 12(4):288-98.	Chronic Care model	The purpose of this review was to assess the published evidence for an association between glycaemic variability and the development of chronic micro- and macrovascular complications in patients with diabetes mellitus (DM)	A systematic review; Total of 18 studies -8	Among type 2 DM studies, a significant positive association between glucose variability and the development or progression of diabetic retinopathy, cardiovascular events and mortality was reported in 9 of 10 studies.	There appears to be a signal suggesting that glucose variability, characterized by extreme glucose excursions, could be a predictor of diabetic complications, independent of HbA1c levels, in patients with type 2 DM.	Level 3
Piatt, Orchad, Emerson, Simmons, Songer, & Brook, M. (2006).Translating the Chronic Care Model into the Community: Results from a randomized controlled trial of a multifaceted diabetes care intervention. *Diabetes Care.29 (4) 811-817*	The chronic care model (CCM)	To determine whether using the chronic care model (CCM) in an underserved community leads to improved clinical and behavioral outcomes for people with diabetes.	Multilevel, cluster-design, randomized controlled trial. Randomized to three groups: CCM intervention (n = 30 patients), provider education only (PROV group) (n =	A marked decline in HbA_{1c} was observed in the CCM group (−0.6%, P = 0.008) but not in the other groups. The same pattern was observed for a decline in non-HDL cholesterol and for the proportion of	These results suggest that implementing the CCM in the community is effective in improving clinical and behavioral outcomes in patients with diabetes.	Level 4

			38), and usual care (UC group) (*n* = 51).	participants who self-monitor blood glucose in the CCM group (non-HDL cholesterol: −10.4 mg/dl, *P* = 0.24; self-monitor blood glucose: +22.2%, *P* < 0.0001), with statistically significant between-group differences in improvement (non-HDL cholesterol: *P* = 0.05; self-monitor blood glucose: *P* = 0.03) after adjustment.		
Pipe, T. B., Wellik, K., Buchda, V., Hansen, C. K., & Martyn D. R. (2005). Implementing Evidence-Based Nursing Practice. *Urologic Nursing, 25(5):365-370.*	Rosswurm and Larrabee (1999) proposed a mode	The purpose was to educate and mentor nurses in this process, with the overarching goal of enhancing professional nursing care.	Systematic Reviewed	The Emphasis of this study is on accurate, timely, and effective patient management, including communicati on between nurses and physicians	The staff nurse is a critical link in bringing research-based changes into clinical practice.	Level 3

Wilkinson, A. L., & Whitehead, L., (2009). Evolution of the concept of self-care and implications for nurses: A literature review. *International Journal of Nursing Studies, 46* (8), 1143–1147.	Orem's self-care deficit theory of nursing	This study explored the relationship between HgbA1c values and healing times of leg and foot ulcers.	Double Blind Peer Reviewed; Forty-one male and 22 female patients. total of 63 participants	It was found that patients with higher $HgbA_{1c}$ levels did experience wound healing, but in a significantly longer period than those with lower $HgbA_{1c}$	Based on the results of this study, health care providers can use these findings to plan care for their diabetic patients with lower extremity ulcers. Further studies regarding $HgbA_{1c}$ levels and healing times are recommended using larger samples and more frequent monitoring of $HgbA_{1c}$ values.	Level 2
Norris, S. Engelgau, M.& Venkat Narayan, K. M. (2001). Effectiveness of Self-Management Training in Type 2 Diabetes: A systematic review of randomized controlled trials. *Diabetes Care,* 24(3) 561-587	Descriptive Theory	To systematically review the effectiveness of self-management training in type 2 diabetes	Randomized controlled trials; A total of 72 studies described in 84 articles.	Positive effects of self-management training on knowledge, frequency and accuracy of self-monitoring of blood glucose, self-reported dietary habits, and glycemic control were demonstrated in studies with	Evidence supports the effectiveness of self-management training in type 2 diabetes, particularly in the short term. Further research is needed to assess the effectiveness of self-	Level 3

				short follow-up (<6 months). Effects of interventions on lipids, physical activity, weight, and blood pressure were variable.	management interventions on sustained glycemic control, cardiovascular disease risk factors, and ultimately, microvascular and cardiovascular disease and quality of life.	
Norris, S.L., Lau, J., Smith, S. J., Schmid, C. H., & Engelgau, M. D. (2002).	Descriptive Theory	To evaluate the efficacy of self-management education on GHb in adults with type 2 diabetes.	Meta-analysis Randomized controlled trials, Total of 31 studies of 463	On average, the intervention decreased GHb by 0.76% (95% CI 0.34-1.18) more than the control group at immediate follow-up; by 0.26% (0.21% increase - 0.73% decrease) at 1-3 months of follow-up; and by 0.26% (0.05-0.48) at > or = 4 months of follow-up.	Self-management education improves GHb levels at immediate follow-up, and increased contact time increases the effect.	Level 3
Norris, S., Kansagara, Bougatsos, C., Nygren, B. S. & Fu, B. (2003). Screening for	Safe care management	To examine the evidence of the potential benefits and harms of screening adults	Randomized controlled trials (RCTs)	There was no clear evidence that persons with DM2 detected by screening	There is evidence that lifestyle and pharmacotherapy can delay the	Level 2

Type 2 Diabetes Mellitus: Systematic Evidence Review for the U.S. Preventive Services Task Force. *Evidence Syntheses, (61).*		for type 2 diabetes mellitus (DM2) and prediabetes in primary care settings in the United States.		would respond differently to specific antihypertensive regimens compared to persons without diabetes, and persons with diabetes and no known cardiovascular disease benefit from aggressive lipid control to a similar extent as persons without diabetes, but with known cardiovascular disease.	progression of DM2 among persons with prediabetes, but little direct evidence that identifying persons with prediabetes will lead to long-term health benefits, although longer-term follow-up of these trials has yet to be completed	
Norris, S., Kansagara, Bougatsos, C., Nygren, B. S. & Fu, B. (2003). Screening for Type 2 Diabetes Mellitus: Systematic Evidence Review for the U.S. Preventive Services	Safe care management	The objective of this review was to assess the published evidence for an association between glycaemic variability and the development of chronic micro- and macrovascular complications in patients with	systematic review	A significant positive association between glucose variability and the development or progression of diabetic retinopathy, cardiovascular events and mortality was reported in 9 of 10 studies.	Better daily control of blood glucose excursions, especially in the postprandial period, may reduce the risk of these complications. Future prospective trials evaluating and	Level 3

		diabetes mellitus (DM).			comparing the effect of the control of glycaemic variability on the development of diabetic micro- and macrovascular complications are needed to further strengthen the evidence base.	
Pal, K. (2013). Computer-based diabetes self-management interventions for adults with type 2 diabetes mellitus. *Cochrane Database Of Systematic Reviews*.	Safe care managemen t (non – Orem's)	To assess the effects on health status and health-related quality of life of computer-based diabetes self-management interventions for adults with type 2 diabetes mellitus.	16 randomized controlled trials with 3578 participants	Small benefits on glycaemic control (pooled effect on glycosylated haemoglobin A1c (HbA1c): -2.3 mmol/mol or -0.2% (95% confidence interval (CI) -0.4 to -0.1; P = 0.009; 2637 participants; 11 trials). The effect size on HbA1c was larger in the mobile phone subgroup (subgroup analysis: mean difference in HbA1c -5.5	limited cost-effectiveness data, small beneficial effect on blood glucose control and the effect was larger in the mobile phone subgroup sample size,	Level 3

				mmol/mol		
Rosswurm, M.A and Larrabee, J. (1999). A model for change to evidence-based practice. Image: Journal of Nursing Scholarship, 31, pp. 317–322	Rosswurm, M.A and Larrabee, J. (1999). A model	To describe a model that guides nurses and other health care professionals through a systematic process for the change to evidence-based practice.	Systematic reviews	Practitioners need skills and resources to appraise, synthesize, and diffuse the best evidence into practice	Patient outcomes must reflect discipline-specific and interdisciplinary accountabilities. Collaboration between researchers and practitioners within and among disciplines will enhance the diffusion of evidence-based practice innovations.	Level 3
Shrivastav, Shrivastava, P. S., & Ramasamy, J. (2013). Role of self-care in management of diabetes mellitus. *Journal of Diabetes & Metabolic Disorders*, 12:14.	Safe care management	Will a multiple demographic, socio-economic and social support factors considered as positive contributors in facilitating self-care activities in diabetic? patients,	Systematic peer reviewed	The result showed that a systematic, multi-pronged and an integrated approach is required in order to promote self-care practices among diabetic patients and avert any long-term complications.	To prevent diabetes related morbidity and mortality, there is an immense need of dedicated self-care behaviors in multiple domains, including food choices, physical activity, proper medications	Level 3

					intake and blood glucose monitoring from the patients.	
Shojania, K. G. & Grimshaw, J. M. (2005). Evidence-Based Quality Improvement: The State of the Science. *Health Affairs 24 (1) 138-150*	Hypotheses about clinical care undergo rigorous evaluation instead of having their effectiveness presumed on the basis of anecdotal experience or pathophysiological arguments.	Clinical trials	Quality improvement research seeks to implement in routine practice the processes and outcomes of care established by the best available evidence.	The result showed establish benefit of some process of care, implementation efforts typically proceed on the basis of awareness, anecdotal stories of success, or studies that exhibit little of the methodological sophistication seen in the research that established the intervention's benefit.	Strategies for implementing EBM require an evidence base of their own	Level 2
Sürücü, H., & Kizilci, S. (2012). Use of Orem's Self-Care Deficit Nursing Theory in the Self-Management Education of Patients with Type 2: A Case	Orem's self-care deficit theory	Diabetes self-management education	Randomized controlled trial	the use of self-care deficit nursing theory in diabetes self-management education be practiced in a randomized controlled	The implementation has demonstrated what can be done to improve self-care behaviors and how to address the subject (education,	Level 3

Study. *Self-Care, Dependent-Care & Nursing, 19*(1), 53-59.				trial	guide etc.). Therefore, it increased the patient's involvement in their own care and brought positive changes	
Venkat Narayan, Boyle, J., Geiss, Saaddine, & Thompson, (2006). Impact of recent increase in incidence on future diabetes burden. *Diabetes Care.* 29:2114–2116. 3.	Incidence-based Markov model	Projections are developed for 808 population subgroups defined by age, sex, and race/ethnicity	The purpose of this study is to diagnosed estimate the number of patient to develop diabetes in 2050 in the U.S.	Increases in the number of individuals with diabetes are projected for both sexes (men by 174%: from 7.59 million in 2005 to 20.81 million in 2050; and women by 220%: from 8.59 million to 27.47 million, respectively) and for all age-groups. These increases are largest for the two oldest age-groups: 220% among those aged 65–74 years and 449% among those aged ≥75 years.	The number of individuals with diagnosed diabetes in the U.S. will increase by 198% from 16.2 million in 2005 to 48.3 million in 2050. This projection for 2050 is 9.3 million people higher than our earlier estimate. Diabetes prevalence is projected to increase by 99% among non-Hispanic whites (from 5.35 to 10.64%), by 107% among non-Hispanic blacks (from 7.39 to 15.29%), by 127% among Hispanics (from 5.47 to 12.39%), and by 158% among other races (from 5.42 to 14.01%).	Level 3

Wagner, E. A., Austin, B. T., Davis, C., Hindmarsh, M., Schaefer, J., & Bonomi, A. (2001). Improving Chronic Illness Care: Translating Evidence into Action. *Health Affairs.* Retrieved from www.improvingchroniccare.org/index.ph	Chronic Care Model (CCM)	Quality improvement activities in out patient clinic	Intensive quality improvement activities with more than 100 health care organizations, and insights gained in the process.	Changing systems of care will. Improvements in the quality of chronic illness care require more than evidence about efficacious tests and treatments.	The Chronic Care Model does improve quality of care.	Level 3

Appendix B

Evidence-Based clinical Practice Guideline/Protocol on Diabetes Self-Management Education

1. The DSME entity will have documentation of its organizational structure, mission statement, and goals and will recognize and support quality DSME as an integral component of diabetes care.

2. The DSME entity shall appoint an advice-giving group to promote quality. This group shall include representatives from the health professions, people with diabetes, the community, and other stakeholders.

3. The DSME entity will determine the diabetes educational needs of the target population(s) and identify resources necessary to meet these needs.

4. A coordinator will be designated to oversee the planning, implementation, and evaluation of diabetes self-management education. The coordinator will have academic or experiential preparation in chronic disease care and education and in program management.

5. DSME will be provided by one or more instructors. The instructors will have recent educational and experiential preparation in education and diabetes management or will be a certified diabetes educator.

6. A written curriculum reflecting current evidence and practice guidelines, with criteria for evaluating outcomes, will serve as the framework for the DSME entity. Assessed needs of the individual with pre-diabetes and diabetes will determine which of the content areas listed below are to be provided:

7. An individual assessment and education plan will be developed collaboratively by the participant and instructor(s) to direct the selection of appropriate educational interventions and self-management support strategies. This assessment and education plan and the intervention and outcomes will be documented in the education record.

8. A personalized follow-up plan for ongoing self-management support will be developed collaboratively by the participant and instructor(s). The patient's outcomes and goals and the plan for ongoing self-management support will be communicated to the referring provider.

9. The DSME entity will measure attainment of patient-defined goals and patient outcomes at regular intervals using appropriate measurement techniques to evaluate the effectiveness of the educational intervention.

10. The DSME entity will measure the effectiveness of the education process and determine opportunities for improvement using a written continuous quality improvement plan that describes and documents a systematic review of the entities' process and outcome data.

Adopted from American Association of Diabetes Educators (AADE). (2008). Self-care behaviors. Diabetes Education, 4, 445. Retrieved from www.diabetes.org

Appendix C

Educational Curriculum Plan

Problem: The practice problem addressed in this design-only QI project is the lack of an evidence-based protocol and guideline for diabetes self-management, as evidenced by two-thirds of the patients having T2DM, with more than 50% of those patients having an A1c of greater than 9%, as shown in the Clinicians Annual Report.

Purpose: The purpose of this design-only QI project is to develop a comprehensive educational initiative on diabetic self-management training for staffs.

Goal: The goal is to promote self-management of the diabetic patient as evidenced by improved A1c scores on the Annual Report.

Objectives:	Content Outline	Evidence	Method of Presenting	Method of Evaluation P/P Item
At the conclusion of this project, the participants will be able to: Describe type 2 diabetes mellitus and its impact on the population	• What is diabetes mellitus • Types of DM • Complications of DM • Purpose for treating DM • DM related health care cost • DM Annual Report card in this clinic	(CDC, 2013). WHO, (2011; 2014)	PowerPoint presentations , open discussion, and online resources	Pretest posttest 6 test items #2,3,4,7,8,15
At the	• Estimated rate of	WHO,	Power-	Pretest

conclusion of this project, the participants will be able to: Identify 4 statistical overview of diabetes mellitus in the general population	DM worldwide in 1985 vs. now • Estimated rate of diabetes in the United State • Death rate cause by DM	(2011; 2014) CDC, (2013)	point/oral presentation	posttest test items #1,12
At the conclusion of this project, the participants will be able to: Identify three reasons Hispanic are affected more by type 2 diabetes mellitus than the general population	Hispanic population: Statistics • Social /economic status • Metabolic factor • Lifestyle choices	Caballero, (2007)	Power-point presentation, open discussion, and online resources	Pretest posttest #9
At the conclusion of this project, the participants will be able to: Discuss 5 comprehensive evidence-based non-pharmacological treatment plan for type 2 diabetes mellitus.	DM self-management education • Routine DM monitoring • Heathy lifestyle choices • Healthy eating habit • Increased patient involvement in decision-making	Coleman et al., (2009 Glasgow et al., (2008) Shrivastava , et al, (2013)	Power-point presentation, open discussion, and online resources	Pretest posttest 3 test items #5,6,10,14

At the conclusion of this project, the participants will be able to: Identify evidence-based pharmacologica l intervention	• Medication regimen • Adverse drug effect	Coleman, Austin, Brach, & Wagner, (2009)	Power-point presentation, open discussion, and online resources	Pretest posttest #11,13

Five Sessions with 1 objective for each session. At the conclusion of this project, the participants will be able to:

1. Describe type 2 diabetes mellitus and its impact on the population
    a. Definition of type 2 Diabetes Mellitus (DM 2)
    a. Characterized by high levels of blood glucose
        i. Pancreas produces insulin
        ii. Body unable to use it because cells of body resistant to action of insulin
        iii. Does not carry the same risk of death from ketoacidosis like type 1 DM
        iv. Does involve many of the same risks of complications as type I
    b. Risk factor for type 1 diabetes Mellitus
        i. Cardiovascular complications
        ii. Nephropathy problems
        iii. diabetic retinopathy
        iv. Nerve damage to the lower extremities
    c. Type of Diabetes Mellitus
        i. Type 1 is where there is a lack of beta cells to produce insulin
        ii. Type 2 DM is common in adults with overweight or obese. Adult onset diabetes
        iii. Gestational diabetes is a form of high blood sugar affecting pregnant women.
        iv. Drug-induced diabetes. A number of drugs have been linked with an increased risk development of type 2 diabetes. These drugs include corticosteroids, thiazide diuretics, beta-blockers, antipsychotics, and statins

v. Pre-DM is characterized by high blood sugar levels in non-diabetic patients. Pre-DM patients are at high risk of developing type 2 diabetes within a decade unless the patients modify their life style.

d. Complications of DM2
    i. Seventh leading cause of death in the United States
    ii. leading cause of cardiovascular disease, blindness, kidney failure, and lower-limb amputation,
    iii. DM complication is due in part to Obesity, sedentary lifestyles, and life expectancy
e. Diagnosis of Diabetes Mellitus
    i. Fasting plasma glucose test (FPG), a standard diagnosis of diabetes is made when two separate blood tests show that a fasting blood glucose level is greater than or equal to 126 mg/dL.
    ii. The oral glucose tolerance test is a medical test in which glucose is given and blood samples taken afterward to determine how quickly it is cleared from the blood. A normal blood glucose level is lower than 140 mg/dL (7.8 mmol/L).
    iii. The hemoglobin A1C test measures what percentage of hemoglobin (a protein in red blood cells that carries oxygen) is coated with sugar (glycated). The result reflects the average blood sugar level for the past two to three months (ranges b/w 4.4 to 6.4%).
f. What is the purpose of treatment
    i. Normalize blood sugar (hemoglobin A1C of 4.4 to 6.4%)
    ii. Minimize complications
    iii. Minimize health care cost
g. Diabetes related health care cost
    i. direct medical costs for DM was $116 billion, 2007
    ii. Indirect medical cost accounted for $58 billion, 2007
    iii. direct medical costs $173.6 billion, 2012
    iv. indirect medical cost $71.4 billion, 2012
    v. Total medical costs related to DM in the United States in 2007 were $174 billion, and $245 billion in 2012
h. Annual Report information for this clinic
    i. Average hemoglobin A1C of < 7%
    ii. Average hemoglobin A1C nationwide (6.5%)

2. Identify 4 statistical overview of diabetes mellitus in the general population

Diabetes mellitus statistics

a) Rate of type II diabetes worldwide
    i. T2DM constitutes 90–95%
    ii. Estimated DM in 1985 vs. now
    iii. DM is projected to be 300 million by 2025

b) Rate of type II diabetes in the U.S.
    i. 29.1 million American has DM in 2012
    ii. 50% of Americans are predicted to have diabetes by 2020

c) Death rate cause by DM
    i. The seventh leading cause of death in the United States
    ii. Heart disease leads the cause of diabetes-related deaths
    iii. The leading cause of cardiovascular disease, blindness, kidney failure, and lower-limb amputation,

3. Identify three reasons Hispanic are affected more by type 2 diabetes mellitus than the general population

Hispanic population: Statistics

a) Social economic status
    i. Evidence suggests that social and economic factors are important determinants of health.
    ii. Annual Personal Earnings of Hispanics average at $ 21,000
    iii. Low income appears to be associated with a higher prevalence of diabetes and diabetes related complications.

b) Metabolic factors
    iv. Prevalence of total diabetes among all Hispanic/Latino groups is roughly 16.9 percent due in part to metabolic syndrome.
    v. The prevalence rate of metabolic syndrome among the Hispanic population is at 32%.
    vi. Metabolic syndrome is a multiplex risk factor that arises from insulin resistance accompanying abnormal adipose deposition and function.

c) Life style choices
    vii. Obesity, sedentary lifestyles, and poor life expectancy (the life expectancy of type 2 diabetes is likely to be reduced, as a result of the condition, by up to 10 years).

4. DM self-management education (Non-pharmacological intervention)

a. Routine DM monitoring

i. glucose check three times daily before meals (normal glucose at 70-120mg/dl; call your doctor if glucose level below 70 or over 300 mg/dl)
i. Blood glucose recording 3 times daily (bring it to the provider on the next f/u apt)
ii. Follow-up appointment every three months

b. Heathy lifestyle choices
i. Weight bearing exercise 30 minutes daily
ii. Group exercise (cardiac exercise)
iii. Available resources (YMCA, etc.)
iv. Smoking cessation
v. Addiction therapy (AAA)

c. Healthy eating habit
i. Reading label (eliminate high sugar/cholesterol containing food)
ii. Eating 3-6 small meals per day (balance meals such as protein, low carbohydrate, low fat, fruit and vegetables)

d. Involving patients in decision-making

5. DM self-management (Pharmacological intervention)

a. Medication regimen
i. Oral glycemic agent such as Biguanides (metformin), lower blood glucose by reducing the amount of glucose produced by the liver. Sulfonylureas and Meglitinides stimulate the beta cells of the pancreas to produce more insulin. Alpha-glucosidase inhibitors block the breakdown of starches and some sugars, which helps to reduce blood glucose levels. (Used with A1C above 7 mg/dl). Persons with type 1 diabetes do not produce insulin, they require insulin and cannot be treated with oral anti-diabetic drugs.
ii. Schedule medications with or without meals; hold if glucose level is below 70 mg/dl; call PCP if glucose is over 300 mg/dl.

b. Adverse drug effect
iii. Stop medication and call provider with any adverse reaction (such as allergic reaction to medications)
iv. Monitor kidney function and discontinue metformin, and Januvia for Glomerular Filtration Rate (GFR) of > 60%.

Appendix D

Expert Evaluation of DNP Project/Outline/Content/Evidence

Title of Project:
Student: Date:
Name of Reviewer:

Products for review: Curriculum Plan, Complete Curriculum Content, Literature review Matrix

Instructions Please review each objective related to the curriculum plan, content and matrix. The answer will be a "yes" or "no" with comments if there is a problem understanding the content or if the content does not speak to the objective.

Met Not Met

Objective 1: At the conclusion of this project, the participants will be able to: Describe type 2 diabetes mellitus and its impact on the population

Comments:

Met Not Met

Objective 2: The participants will be able to: Identify 4 statistical overview of diabetes mellitus in the general population

Comments:

Met Not Met

Objective 3: The participants will be able to: Identify three reasons Hispanic are affected more by type 2 diabetes mellitus than the general population

Comments:

Met Not Met

Objective 4: The participants will be able to: Discuss 5 comprehensive evidence-based non-pharmacological treatment plan for type 2 diabetes mellitus.

Comments:

Met Not Met

Objective 5: The participants will be able to: Identify evidence-based pharmacological intervention

Comments:

Appendix E

Content Expert Evaluation of Curriculum Plan Summary

Not Met = 1 Met = 2

Objective Number	Evaluator 1	Evaluator 2	Average Score
1	2	2	1
2	2	2	1
3	2	2	1
4	2	2	1
5	2	2	1
Total N=5			1

Content Expert Evaluation Score = 2:00

Appendix F

Pretest /Posttest

1. Biguanides, such as metformin, lower blood glucose by reducing the amount of glucose produced by the liver.

a. True
b. False

2. Because persons with type 1 diabetes produces insulin, they do not require insulin and can only be treated with oral anti-diabetic drugs.

a. True
b. False

3. Type 2 diabetes accounts for approximately what percentage of all cases of diabetes in adults?

a. 55%-60%
b. 35%-40%
c. 90-95%
d. 25-30%

4. A common symptom of low blood sugar (hypoglycemia) is:

a. Shakiness.
b. Pain.
c. Burning on urination.
d. Slow healing.

5. Risk factors for type 2 diabetes include all of the following **except**:

a. Advanced age
b. Obesity
c. Smoking
d.Physical inactivity

6. Diabetics are at increased risk of heart disease if patients also are:

a. Smokers.
b. Physically active.
c. Obese.
d. Physically inactive.

7. Blood sugar is well controlled when Hemoglobin A1C is between:

a. 12-15%.
b. 5.7-7.0%.
c. 8.2-10%.
d. None the above

8. Which of the following measures does **not** help to prevent diabetes complications?

a. Controlling blood glucose
b. Controlling blood pressure and blood lipids
c. Eliminating all carbohydrates from the diet
d. Prompt detection of diabetic eye and kidney disease

9. Diabetes is a condition of the body that is a result of:

a. Too much insulin in the body.
b. Not enough or ineffective insulin in the body.
c. Eating too much sugar and other sweet foods.
d. Eating high-fat foods.

10. Numbness and tingling in the feet may be symptoms of:

a. Kidney disease.
b. Nerve disease.
c. Eye disease.
d. Heart disease.

11. According to CDC reports, which population is at highest risk of developing diabetes?

a. Caucasian
b. Hispanics/Latinos
c. Black American
d. Non-Hispanic white

12. Weight loss and increasing physical activity can help patients to prevent all of the following **except**:

a. High blood glucose
b. Obesity
c. Type 2 diabetes
d. Smoking

13. Which statement about diabetes is **false**?

a. The U.S. prevalence of diabetes is decreasing
b. Diabetes is the seventh leading cause of death in the United States
c. Diabetes is the leading cause of blindness among persons age 20 to 74
d. Diabetes is the leading cause of kidney failure

14. What is the first thing you should do after you have a blood sugar <70 (low blood sugar)?

a. Call your doctor.
b. Take some insulin.
c. Eat or drink something that has sugar.
d. Go to the hospital emergency room.

15. Untreated diabetes may result in all of the following **except**:

a. Lower limbs amputation
b. Death
c. Blindness
d. Smoking cessation

Appendix G

Content Expert Pretest/Posttest Content Validation

1. Biguanides, such as metformin, lower blood glucose by reducing the amount of glucose produced by the liver.

a. TRUE
b. FALSE

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__

Comments:

2. Because persons with type 1 diabetes produces insulin, they do not require insulin and can only be treated with oral anti-diabetic drugs.

a. TRUE
b. FALSE

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__
Comments:

3. Type 2 diabetes accounts for approximately what percentage of all cases of diabetes in adults?

a. 55%-60%
b. 35%-40%
c. 90-95%
d. 25-30%

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__

Comments:

4. A common symptom of low blood sugar (hypoglycemia) is:

a. Shakiness.
b. Pain.
c. Burning on urination.
d. Slow healing.

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__
Comments:

5. Risk factors for type 2 diabetes include all of the following **except**:

a. Advanced age
b. Obesity
c. Smoking
d. Physical inactivity

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__

Comments:

6. Diabetics are at increased risk of heart disease if patients also are:

a. Smokers.
b. Physically active.
c. Obese.
d. Physically inactive.

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__
Comments:

7. Blood sugar is well controlled when Hemoglobin A1C is between:

a. 12-15%
b. 5.7-7.0%
c. 8.2-10%
d. None the above

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__
Comments:

8. Which of the following measures does **not** help to prevent diabetes complications?

a. Controlling blood glucose
b. Controlling blood pressure and blood lipids
c. Eliminating all carbohydrates from the diet
d. Prompt detection of diabetic eye and kidney disease

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__

Comments:

9. Diabetes is a condition of the body that is a result of:

a. Too much insulin in the body.
b. Not enough or ineffective insulin in the body.
c. Eating too much sugar and other sweet foods.
d. Eating high-fat foods.

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__
Comments:

10. Numbness and tingling in the feet may be symptoms of:

a. Kidney disease.
b. Nerve disease
c. Eye disease
d. Heart disease

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__
Comments:

11. According to CDC reports, which population is at highest risk of developing diabetes?

a. Caucasian
b. Hispanics/Latinos
c. Black American
d. Non-Hispanic white

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__
Comments:

12. Weight loss and increasing physical activity can help patients to prevent all of the following **except**:

a. High blood glucose
b. Obesity
c. Type 2 diabetes
d. Smoking

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__
Comments:

13. Which statement about diabetes is **false**?

a. The U.S. prevalence of diabetes is decreasing
b. Diabetes is the seventh leading cause of death in the United States
c. Diabetes is the leading cause of blindness among persons age 20 to 74
d. Diabetes is the leading cause of kidney failure

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__
Comments:

14. What is the first thing you should do after you have a blood sugar <70 (low blood sugar)?

a. Call your doctor
b. Take some insulin
c. Eat or drink something that has sugar
d. Go to the hospital emergency room

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__
Comments:

15. Untreated diabetes may result in all of the following **except**:

a. Lower limbs amputation
b. Death
c. Blindness
d. Smoking cessation

Not Relevant__ Somewhat Relevant__ Relevant Very Relevant__
Comments:

Appendix H

Content Validation Index Score Summary by Content Experts

Not Relevant = 1, Somewhat Relevant = 2, Relevant = 3, Very Relevant = 4

Test Item	Evaluator 1 Score	Evaluator 2 Score	Ave CVI Score
1	4	4	1
2	4	4	1
3	4	4	1
4	4	4	1
5	4	4	1
6	4	4	1
7	4	4	1
8	4	4	1
9	4	4	1
10	4	4	1
11	4	4	1
12	4	4	1
13	4	4	1
14	4	4	1
15	4	4	1

Content Validation Index Score = 1.00

Appendix I

Qualitative Summative Evaluation

TITLE OF PROJECT
Student:

Thank you for completing the Summative evaluation on my project. Please complete and send anonymously via interoffice mail to: inemesit.udo@waldenu.edu

A. This project was a team approach with the student as the team leader.

1. Please describe the effectiveness (or not) of this project as a team approach related to meetings, communication, and desired outcomes etc.

2. How do you feel about your involvement as a stakeholder/committee member?

3. What aspects of the committee process would you like to see improved?

B. There were outcome products involved in this project pretest-posttest, curriculum plan, and summative evaluation report

1. Describe your involvement in participating in the development/approval of the products.

2. Share how you might have liked to have participated in another way in developing the products.

C. The role of the student was to be the team leader.

1. As a team leader how did the student direct the team to meet the project goals?

2. How did the leader support the team members in meeting the project goals?

D. Please offer suggestions for improvement.

Appendix J

Qualitative Summative Evaluation Result

A. Project Team Approach

The emerging theme for the project approach included a detailed project plan, frequent meetings, open communication, ensured group participation, and ensured participants availability in all the meeting. One member wrote that "student frequently seek feedback to ensure continued team support."

B. Outcome Products

The emerging theme from the team members on the product outcome include well-organized product, adequate literature review, great data gathering and sharing, useful information, stimulating, and educational.

C. Project Team Leader

The theme word commonly used by the team members on project team leader include, effective leadership skill, open communicate, data sharing, adequate preparation, drawing upon other members' knowledge/skills, up-to-dates with the project, and cross-examining the team.

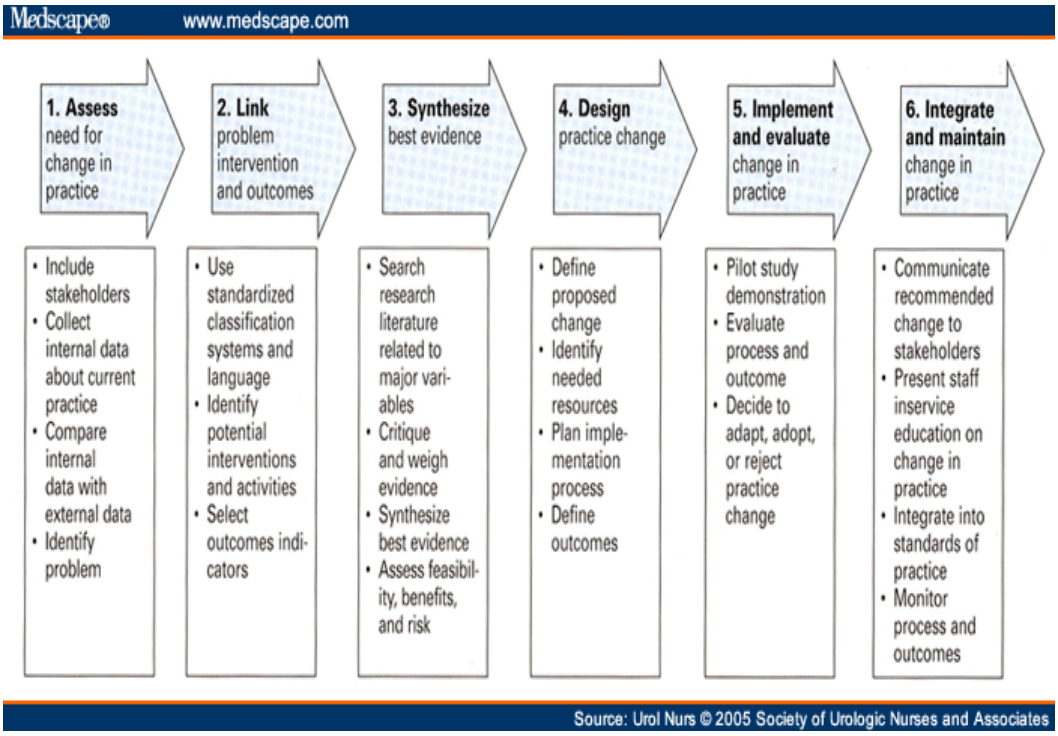
D. Suggestions for Improvement

The theme for the project improvement was on time management. The team members expressed concern that the time of the meeting did not allow enough time to rest prior to returning to the regular duty. The meeting time was 45 minutes during lunch

break in the employee lounge and the participants were able to eat lunch during the meeting.

Appendix K

Framework for Diabetes Self-Management Education



From Rosswurm, M.A and Larrabee, J. (1999). A model for change to evidence-based practice. Image: Journal of Nursing Scholarship, 31, pp. 317–32

Appendix L

Poster Abstract Criteria

American Diabetes Association Research Poster Abstract Criteria

Research poster abstracts may focus on any aspect of the continuum of critical care, including but not limited to patient care, nursing practice, nursing management or nursing education. The research may be original or replicated studies.

Prepare research poster abstracts to include the following key elements:

1. **Purpose** — What was the intent or goal of the study? What did you want to learn? (Limit 500 characters, including spaces)
2. **Background/Significance** — What was the problem and why was it important? What knowledge are you building on? (Limit 500 characters, including spaces)
3. **Method** — What was the design? What was the sample? What instruments were used? How was data collected and analyzed? (Limit 700 characters, including spaces)
4. **Results** — What were the findings? (Limit 700 characters, including spaces)
5. **Conclusions** — What do the findings mean? (Limit 500 characters, including spaces)

Appendix M

Poster Board for Evidenced-based Guideline on Diabetes Self-Management Education

Promoting Diabetes Self-Management Education in the Outpatient Clinic

Inemesit Udo, RN, BSN, MSN, FNP-BC

Dr. Joan Moon, EdD, CNM and Dr. Edna Hull, PhD RN, CNE

Purpose

The practice problem addressed in this DNP project was the lack of an EBP guideline/protocol for DSM, as evidenced in the clinics annual report that 2/3 patients in this clinic suffered from T2DM. The purpose was to develop an EBP initiative for DSM. The goal was to provide clinic APRNs the tools to promote DSME. Outcomes included a) educational curriculum plan, b) EBP guideline/protocol, c) Pretest/posttest, and d) qualitative summative evaluation.

Background/Significance

Diabetes mellitus is a chronic metabolic disease characterized by macrovascular and microvascular complications (CDC, 2013). T2DM constitutes 90–95% of all cases of diabetes worldwide.

Adherence to self-management training in primary care practices remains crucial for clinicians (Dalton et al., 2006). Implementing EBP guideline/protocol on DSME in this primary care setting may improve the quality of diabetes care and have a positive effect on our health care system.

Method

The project utilized Rosswurm and Larrabee's conceptual model (1999). The six essential steps include: a) assessing the need for practice change; b) connecting the problem with the intervention and outcome; c) gathering all the evidence; d) designing a practice change; e) implementing and evaluating the practice change; and f) integrating and maintaining the practice change.

Data Collection - EBP guideline/protocol and Literature reviewed matrix was collected via professional team and diabetes educators (Nurse Practitioners). Pretest/posttest and educational curriculum plan was validated by diabetes educators. And qualitative summative evaluate was completed by team members.

Results

The EBP guideline/protocol and literature review matrix was approved by the team members and diabetes educator (ARNs). The educational curriculum plan was evaluated by content experts and the content experts average evaluation scores = *2 (met)*.The pretest/posttest Content Validation Index = 1.00. The qualitative summative evaluation review focus on the Project Team Approach, Outcome Products, and Project Team Leader. Their result were as followed; open communication, ensured group participation, well-organized product, adequate literature review, adequate data gathering and sharing, effective leadership skill, open communication, frequent project up-dates, and cross-examining the team.

Conclusions

Evidence-based clinical practice guideline and protocol for diabetes self-management education has the potential to improve evidence-based parameters of the diabetes care in the out-patient clinics.

REFERENCES

American Association of Diabetes Educators (AANCY(2008). Self-care behaviors. Diabetes Education, 4, 445. Retrieved from www.diabetes.org

American Diabetes Association. (2013). Standards of medical care for patients with diabetes mellitus. Diabetes Care, 2-41.

Centers for Disease Control and Prevention (2013). National Diabetes Fact Sheet. General information and national estimates on diabetes in the United States. Retrieved from www.cdc.gov/diabe.

Bodenheimer, T., Wagner, E., & Grumbach, K. (2002). Improving primary care for patients with chronic illness: The chronic care model, Part 2. The Journal of the American Medical Association (JAMA), 288(15),1909-1914. doi10.1001/jama.288.15.1909

Dalton, J., Garvey, J., & Samia, L. (2006). Evaluation of a diabetes disease management home care program. *Home Health Care Management & Practice, 18*(4), 272-285.

Institutional of Medicine [IOM] (2010). *The future of nursing: Leading change, advancing health.* Retrieved from http://www.nap.edu/openbook.php?record_id=12956

Rosswurm, M.A & Larrabee, J. (1999). A model for change to evidence-based practice. *Image: Journal of Nursing Scholarship, 31*, pp. 317–322.

World Health Organization (2014). *Diabetes: The cost of diabetes.* Retrieved from www.who.int/mediacentre/factsheets/fs236/en/

Appendix N

Implementation Evaluation (to be conducted after graduation from Walden University)

Please answer questions using the following scale:

1=Not at all 2=Slightly 3=Moderately 4=Very 5=Extremely

To what degree are you able to meet the learning objectives of this activity?

1=Not at all 2=Slightly 3=Moderately 4=Very 5=Extremely

To what degree has your attitude about the topics covered in this learning activity changed as a result of your participation in this activity?

1=Not at all 2=Slightly 3=Moderately 4=Very 5=Extremely

To what degree do you anticipate your skills will change as a result of your participation in this activity?

1=Not at all 2=Slightly 3=Moderately 4=Very 5=Extremely

To what degree were the teaching methods used effectively?

1=Not at all 2=Slightly 3=Moderately 4=Very 5=Extremely

To what degree were the teaching resources (e.g. electronic tools, handouts, etc.) used effectively?

1=Not at all 2=Slightly 3=Moderately 4=Very 5=Extremely