2019

Education of Clinic Providers to Promote Improved Diabetes Management

Olubunmi Roseline Awe
Walden University

Walden University

College of Health Sciences

This is to certify that the doctoral study by

Olubunmi Awe

has been found to be complete and satisfactory in all respects,
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the review committee have been made.

Review Committee
Dr. Sue Bell, Committee Chairperson, Nursing Faculty
Dr. Marisa Wilson, Committee Member, Nursing Faculty
Dr. Andie Tatkon-Coker, University Reviewer, Nursing Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
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Abstract

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MSN, Walden University, 2014

BSN, Prairie View A & M University, 2008

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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February 2019

Abstract

Diabetes is one of the most common major illnesses in the United States population and can lead to severe complications if not properly managed. Research has shown that over the past 2 decades there has been an increase in the prevalence of prediabetes, Type 2 diabetes, and associated complications and chronic diseases. Diabetes management is an ongoing challenge faced by providers nationally and it is the focus of this staff education development project at the outpatient clinic site. The purpose of this project was to ensure that clinic staff used an evidence-based approach to identify patients with diabetes, manage patients with diabetes, and provide patient education. The health belief model was used to guide this project. The educational intervention with a pretest/posttest design was used to determine if staff members' knowledge of national diabetes management guidelines was improved by the intervention. All but 2 staff members' knowledge related to diabetic management and the national guidelines for diabetes care showed an increase from pretest to posttest. Excluding 2 out of 15 participants with no learner gain, 87% of the participants showed an increase in the percent of correct answers with a pretest mean of 85.7, a posttest mean of 95.1, and a mean gain of 10.1 points. The findings of this project are relevant to advanced practiced nurses and other providers in primary care clinics who can promote social change by following national diabetes guidelines and helping to ensure that patients adhere to evidence-based diabetes self-care management at home. The potential benefits of using a diabetes management educational program with clinic staff are an improved quality of life for patients and the decreased financial burden of health care costs through the prevention of complications of diabetes.

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Dedication

This doctoral project is dedicated to God Almighty for his guidance throughout my Doctor of Nurse Practitioner (DNP) program. My husband, Taiwo Awe for your love, moral, academic, spiritual and financial support, and always believing in me that I can complete this program with ease. Thank you so much, you are the best. Also, to my children Praise and Peace for your love, patience, prayers and for understanding my busy schedule, you are my best cheerleaders. Hope I have motivated you to strive for the best while fulfilling your God's given destinies. My parents, Mr. Francis and Mrs Cecilia Ajayi, and siblings (Mr. Jubril and Mrs Stella Adediran, Dr. Francis and Mrs Nicola Ajayi, Taiwo Ajayi and Kehinde Ajayi) for your prayers, motivation, moral support, making sure that I am doing well trying to balance my studies with family obligations, and helping to take care of my children. My in-laws, Mrs Felicia Awe, Deacon and Deaconess Deleawe and Mr. and Mrs Omolewa for your prayers, support and taking care of my children. My church, The redeemed Christian Church of God (RCCG), House on the rock parish for your prayers and support. My Pastor O.J. Kuye and Pastor Mrs Bisi Kuye has demonstrated a great deal of exemplary leadership which has played a major role in this journey. Finally, to my Next generation youth ministry, the youth teachers and all the teenagers for the motivation to complete this program. The fact that you are looking up to me increased my motivation and made me work harder and strive for the best. To all my colleagues, friends and family, I say thank you all from the bottom of my heart.

Acknowledgements

It is a great privilege and honor to be able to attend Walden University and finally complete my Doctor of Nursing (DNP) program. I would like to thank my committee chair and mentor, Dr. Sue Bell, PhD. for your support, motivation, always taking time to talk to me on the phone, providing answers to all my questions and your constructive feedbacks throughout this process. I also want to thank Dr. Marisa Wilson, DNSc for your assistance and sitting through my oral defenses. Also, thanks to my URR, Dr. Andrea Tatkon-Coker, DBA for reviewing my study. To Dr. Sara Witty, PhD for the reviews and constructive feedbacks. Dr. Jan Garfield, PhD. and Dr. Eric Riedel, PhD. for the final review of my study. Thanks to all my Walden University faculty and advisors for impacting my life and giving the best instructions.

I would like to thank Dr. Theresa Stretch, MD. for taking her time to precept and guide me through the project. To Dr. Lizzie Owonikoko, PhD. and Dr. Stella Olaleye, PhD. for their words of advice that guided me through this journey. This project would not have been completed on time without this support system. Once again, I say thank you all as I continue to make a difference in my community as an agent of social change.

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Section 1: Introduction

Introduction

An estimated 30.3 million people of all ages or 9.4% of the United States population had diabetes mellitus (diabetes) in 2015. More African Americans are affected by diabetes than Hispanics and Caucasians. Among all persons living with diabetes, 7.2 million were undiagnosed or in denial (Centers for Disease Control and Prevention [CDC], 2017). Research conducted by Thompson (2014) revealed that the burden of diabetes has increased rapidly. Nearly 21 million (20.9 million) people had been diagnosed in the United States with diabetes in 2010. The estimated diabetes burden was 366 million individuals worldwide, and this number of affected persons is expected to increase to 552 million by 2030.

Diabetes is the leading cause of kidney failure, nontraumatic lower limb amputations, heart disease, stroke, and new cases of blindness among adults in the United States (CDC, 2017). The complications of diabetes are costing the U.S. economy $245 billion in total medical costs and lost wages. As nurses and other health care professionals continue to explore the management of diabetes, much more emphasis will be necessary on identifying how providers can educate patients in prevention of diabetes and also find more effective ways to support patients who have the disease already. Providers should ensure that the patient's plan of care contains vital information about diabetes such as the lack of cure at present, the possibility of irreversible complications, and also that management requires frequent monitoring (Alasaarela & Oliver, 2009).

In this project I explored whether staff education can improve use of evidence-based best practices, including use of national practice guidelines in an outpatient clinic

setting. Providers serve a very important role in the management of diabetes. The premise of the project was that the disease self-care management approach of the clinic staff will help determine the patients' outcomes. Research in the area of diabetes management from the providers' perspective is important because diabetes is the seventh leading cause of death in the United States, and it is one of the most prevalent chronic illnesses for which patients are seen in outpatient clinics. In this project, I focused on how clinic staff members can provide better education to patients based on use of up-to-date and evidence-based information.

Patient education is critical in diabetes management but, unfortunately, clinic staff have limited time in office visits, which can make it difficult to achieve adequate patient education at every visit. When caring for patients, providers can easily ignore the significance of patient education. Providers need to consider their responsibility as not just to prescribe the appropriate medications, but also to ensure that the affected patients understand the management of diabetes in the context of their daily routines. Lifestyle modifications must be taught and reinforced because diabetes impacts the lives of patients 24 hours a day and 7 days a week (Hill, 2017).

In this project, I supported Walden University's social change mission because providers will be better equipped to create awareness about the appropriate self-care management of diabetes in communities, local hospitals, nursing homes, and outpatient settings through education on and compliance with best practices and national guidelines for diabetes care. According to Marin, Risso, Sbatella, and Haag (2015), taking care of patients with diabetes causes a financial burden on the society, but having to care for patients with complications of diabetes causes a greater financial burden. Therefore, a

substantial positive evidence-based effect on patients' hemoglobin A1C (HbA1C) and reduction of the financial burden on the economy is expected if providers deliver education with appropriate follow up as a result of the project.

Problem Statement

The clinical practice problem I addressed was the high HgbA1c levels among patients with diabetes that was seen at the clinic. Providers at the project site noticed a high level of noncompliance with self-care management and elevated HbA1C levels (above 7.0%) in over 30% of their diabetic patients over the last year despite the providers' interventions at clinic visits to impact individual's compliance through patient education.

Management of diabetes has been an ongoing challenge in the United States partly due to compliance issues on the part of providers, including lack of application of guidelines, lack of teaching skills and resources, and lack of time to provide adequate patient education. The issue of diabetes is significant for the field of nursing, as nurse practitioners (NPs) are often the direct providers of care in outpatient primary care clinics and nurses (RNs) are tasked with patient education and follow up. The nurse providers need to identify the need for specialists to improve patient safety and increase the chances of patients' understanding of what has been taught related to their obligations in disease management (Hill, 2011).

Due to these factors, there was an immediate need for the clinic staff (medical assistants, RNs, and providers (including physicians and NPs) to emphasize diabetes prevention and diabetes management education in order to control this disease and improve the outcomes for patients already afflicted with the disease. There should also be

awareness that the minority populations served by the clinic may require more comprehensive diabetic care due to the lack of or decreased access to ongoing care. It was important for providers to understand the proper management of diabetes, so they can teach patients with a variety of self-care management compliance issues. One of the important aspects of diabetes education according to Healthy People 2020 (2010) is an emphasis on lifestyle modifications that have been shown to be effective in delaying the onset of diabetes and diabetes-related complications in high risk individuals (U.S. Department of Health and Human Services, 2010).

As a Doctor of Nursing practice (DNP) student searching for scholarly articles, I found it beneficial to keep in mind that the target audience for the project was providers, not patients. However, I anticipate that the application of current evidence-based resources by the providers will directly or indirectly have a positive impact on the patients' outcomes. The project included clinic staff member education and knowledge data collected before and after the education.

Project Purpose

The purpose of this project was to ensure that the staff members at the outpatient clinic knew how to educate patients and ensure that patients understood the diabetes disease process, the importance of lifestyle changes, and could manage the condition at home. This project addressed the challenges faced by staff. Tools that can be used in providing education to patients for better management and ways to support diabetic patients outside of the regular office visits was explored.

There was a gap in diabetes management because many diabetes cases were left undiagnosed, untreated, or undertreated, leaving patients at high risk for complications

and associated medical and indirect costs. Little research had been done to estimate the population with undiagnosed diabetes by age, gender, insurance type, and geographic location. To bridge this gap, providers needed to be committed to monitoring their patients closely and conscientiously by following the national standards of care (Dall et al., 2016).

Project Question

The practice-focused question I addressed was: In an outpatient clinic setting, will an in-service staff education intervention that emphasizes evidence-based practices, early screening, and following national standards of diabetes care have a positive effect on providers' knowledge as measured by a pretest and posttest comparison? I derived the project question from the challenge faced by providers in the outpatient setting for management of diabetes. There was a need for consistent informed diabetic teaching at every consultation and patient follow up to make sure that patients understood and could adopt the diabetes plan of self-care management.

The majority of individuals with diabetes are between the ages of 40 and 59, and about 80% of them live in low- and middle-income households. Because diabetes is difficult to manage, elderly patients may still end up with complications despite having excellent glycemic control (Shamshirgaran, 2017). Diabetic management approaches should be reviewed by the providers to determine the challenges that this age group is facing and the associated barriers impacting patients' compliance at home. The focus of care should be expanded beyond patients age 40 to 59 by increasing the patient age range for intervention from age 30 to age 80 or beyond.

For example, the providers at the clinic where the project was conducted placed emphasis on performing yearly diabetic eye examinations, so complications can be caught early before they progress to diabetic retinopathy and blindness. Research has shown that failure to perform routine eye examinations can lead to cataract, glaucoma, and diabetic neuropathy, which can easily go undetected and could cause loss of visual field, damage to blood vessels in the retina, and destruction of central vision (Harvard Health Letter, 2012). A study published in the Journal of the American Medical Association (JAMA) Ophthalmology in 2016 stated that there will be a diabetes-related increase in vision impairment and blindness in people age 40 and older in the next 35 years (Harvard Health Letter, 2016). It is, therefore, essential for providers to start diabetic screening at an early age to avoid complications (Conlin et al., 2017).

Nature of the Doctoral Project

I utilized the EBSCO host, CINAHL, ProQuest, and Medline, the CDC, the American Diabetes Association (ADA), the American Association of Clinical Endocrinologists and the American College of Endocrinology (AACE/ACE), and the Texas Department of Health and Human Services to search for peer-reviewed articles and guidelines to identify current best practices in diabetes management. Another vital source of evidence I used was the comparison of the pretest and posttest staff knowledge about evidence-based approaches to outpatient diabetic patient management, state and national guidelines related to diabetes management and patient education, and current facts about diabetes from the CDC.

Research has been conducted by nurses, doctors and healthcare associations which are available to guide providers regarding the best practices for managing diabetes.

However, it is not possible to review all this information in a single office visit or for patients to retain all the information at once. Therefore, I reviewed articles to identify the information that would be useful for teaching and developing a short, easy-to-use diabetes management guide. The target audience were the staff members in the outpatient clinic setting; the information was kept short and straightforward in order to be readable in and applicable for the busy clinic environment.

In this quasi-experimental project, I delivered in-service education to the five medical assistants (MAs), two RNs, five providers (physicians and NPs), five front desk staff, two laboratory technicians, one billing and coding specialist, and the clinic manager. The information presented was based on the literature reviewed for best practices and the clinic quality reports. The education session consisted of an in-service for all staff, including a knowledge pretest and posttest to determine if the education improved staff knowledge of best practices in diabetic patient management and how to document diabetes care and education in the health record. Emphasis was on compliance with the Texas Department of Health and Human Services preventive care practices for diabetic patients:

1. Two or more HgbA1c tests in the last year
2. A diabetic foot examination in the last year
3. Attendance in a diabetic care self-management class
4. A dilated eye examination in the last year
5. Patient's daily self-monitoring of blood glucose and logging of results

While successful knowledge improvement does not necessarily translate into new staff behaviors, information about current evidence-based diabetes care was expected to improve staff compliance with state and national guidelines for diabetic patient care.

Significance

The stakeholders I identified at clinic site were the 21 staff members, the patients with a diagnosis of impaired fasting blood sugar and diabetes, family members of diabetic patients, and me. I focused on teaching the clinic staff ways to improve their management and documentation of care provided to patients with diabetes in the outpatient clinic setting. The changes made to the management of diabetes may directly or indirectly impact the stakeholders. The medical assistants needed to improve their knowledge about diabetes and ask more questions regarding patients' lifestyle modifications when they roomed patients. The physicians and nurses needed to schedule more frequent telephone calls and follow up with patients, including thorough medication reconciliation and review of blood sugar logs. Patients due for diabetic eye examinations were identified by the providers, and the clinic administration considered the possibility of offering eye examinations in the office during clinic visits. The management of best outcomes for diabetic patients was a team effort that included the clinic staff and the patients and their families.

I expected the project to make a positive contribution to nursing practice and social change as staff members were expected to review and make changes to their current approach to diabetic patient management. Providers were encouraged to view the diabetes disease process from the patient and family's point of view, which increased empathy and awareness to improve better management. According to Dall et al. (2016),

the U.S. Preventive Services Task Force recommended screening for adults who are at risk for diabetes, including overweight or obese adults between 40 and 70 years of age or adults with other risk factors and a family history of diabetes. The dedication of staff members to screening will help to decrease the rate of undiagnosed cases of diabetes among the clinic population. The deliberate effort and action of the clinic staff to teach patients and family members about the need to follow their disease process closely has helped to increase clinic visit compliance. As a result, there may be a reduced rate of hospital admissions and decreased health care costs. Nuti et al. (2015) stated that providers should be encouraged to schedule routine checkups and engage patients to show up for their appointments because patients with high no-show rates have more negative disease-related outcomes.

Summary

Diabetes can either be simplified or complicated based on the provider's approach to diabetes management and how they present information about the disease to patients. Medical management of diabetes is primarily done by the health care team in outpatient clinic settings. Therefore, clinic staff should ensure that patients understand how to manage their condition as self-care has been shown to reduce HbA1c levels and increase quality of life (Nuti et al., 2015). Providers cannot continue to manage diabetes the same way it was handled 10 to 20 years ago and expect to get better results. The educational approach that was used to improve staff member medical management of diabetes and prevention of complications was briefly introduced in this section of the proposal and will be further explained in Section 2.

Section 2: Background and Context

Introduction

The clinical practice issue that I addressed in this project was the challenge faced by providers in an outpatient clinic setting to provide disease management assistance for people with diabetes. The practice-focused question was based on whether in-service education for the staff will have a positive effect on providers' knowledge as measured by a pretest and posttest (see Appendix A). The purpose of this project was to ensure that the staff at the outpatient clinic understood best practices and state and national guidelines for management of diabetic patients as well as how to educate the patients and follow up with patients regarding their understanding of the disease process and how to manage the condition at home. Marin et al. (2015) reported that taking care of patients with diabetes causes a financial burden on the health care system. There is a need for consistent, accurate, evidence-based diabetic teaching at every consultation and follow up to make sure that patients understand and can carry out the plan of diabetes self-care.

Concepts, Models, and Theories

I explored the Iowa model of research-based practice and Rosswurm and Larabee's model for EBP change for the purpose of this project. The Iowa model serves as a guide for nurses to use research findings for quality improvement and uses clinical or new knowledge triggers for EBP. The Iowa model guided the providers to adopt state and national guidelines for diabetes outpatient practice. According to Lloyd, D'Errico, and Bristol (2016), the Iowa model of research in practice is focused on leadership strategies

and realistic and practical methodology for translating research evidence into practice. This model proved to be effective in educating providers at this outpatient setting.

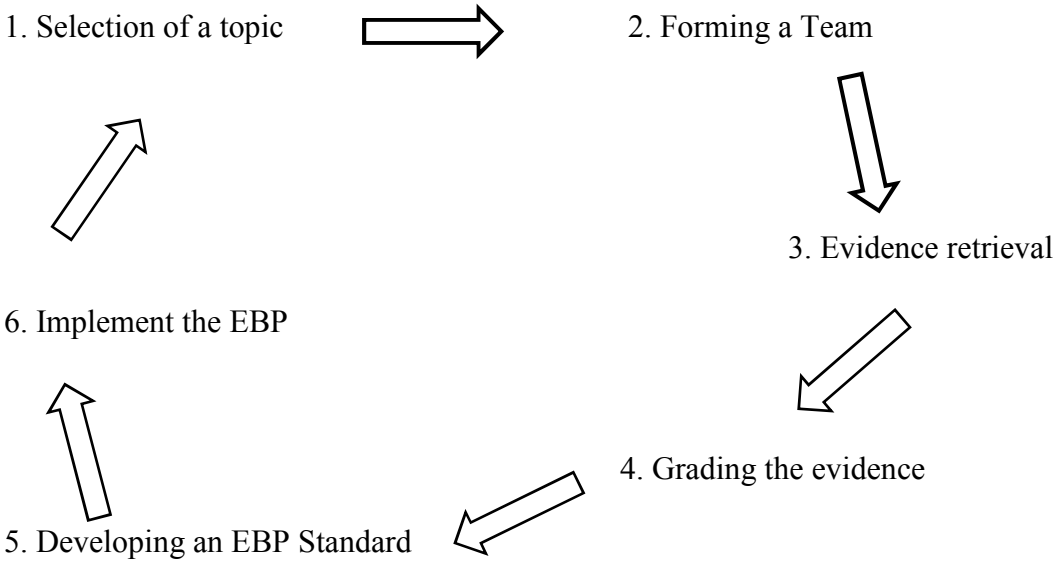

Figure 1. Seven steps of Iowa model

Rosswurm and Larabee's model is a six-step approach to implementing EBP in primary care settings by elucidating the relationship between the problems identified within the practice and the approach taken by the providers to solve the problem. In addition, the steps evaluate the change process and incorporate what is learned into the implementation process (White, Dudley-Brown, & Terhaar, 2016). This model helped the providers to continue to use appropriate evidence for patient care and also strive for continual yearly evaluation to determine how the process is working. With input from the staff, the barriers that could prevent the providers from making certain changes within the organization were identified and addressed. I made sure that the providers understood the purpose of using this theory in the project as it involves teaching behavioral and self-care management skills in daily encounters with patients (Facchiano, Snyder, & Nunez 2011).

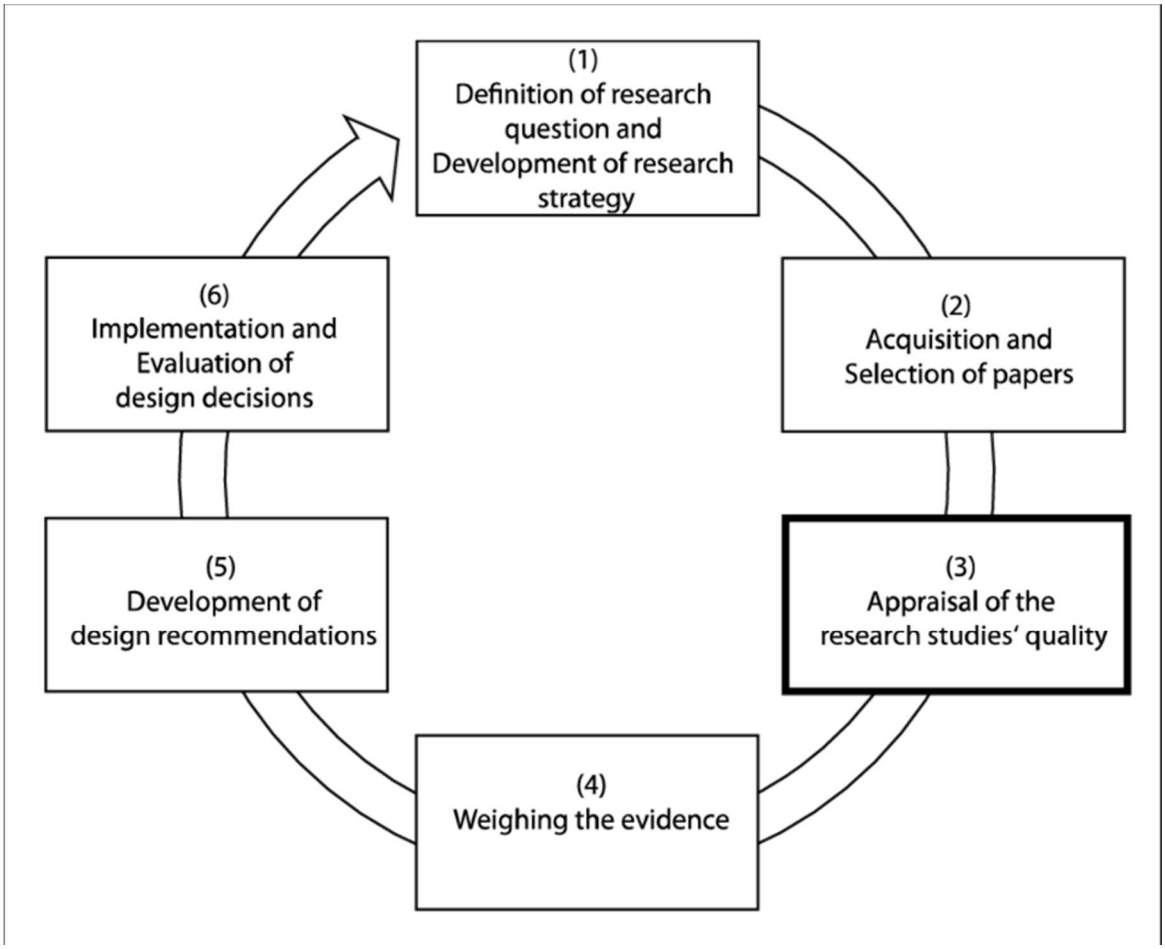

Figure 2: Rosswurm and Larabee Model (1999)

I included the health belief model (HBM) in this project because it holds providers accountable for providing quality care in education and adhering to best practices. According to Hodges and Videto (2011), the HBM is based on individuals' perceptions of recommended health action. Therefore, providers will encourage patients to have a positive perception of their disease process and their role in addressing barriers to self-care management. The HBM can be incorporated with the Chronic Care Model (CCM), which provides an opportunity to intervene in the disease process by switching the focus of care from acute to proactive care through teaching self-management skills to

patients and families or caregivers. The CCM has been shown to be effective in the management of diabetes by reducing the average hemoglobin A1C (HbA1C) (Barletta et al., 2017).

Relevance to Nursing Practice

The theories were relevant to the practice issue that I identified at the clinic site and promoted ways to address the issue through application of best practice evidence and team work. After using these theories to support translation of evidence into practice and in facilities, there were more individualized care and consistency in teaching across the board. I encouraged the providers to use evidence-based resources rather than their own experience or tradition to promote best patient outcomes (White & Spruce, 2015). Staff at this clinic now can promote diabetes care based on state and national guidelines and identify the factors that may be contributing to patient inability to follow recommended diabetic management including blood glucose testing and reporting, compliance with laboratory tests and eye examinations, and attending return visits.

Local Background and Context

The prevalence of diabetes in Texas increased from 10.2% in 2011 to 11.4% in 2015 compared to the national average of 9.5% in 2011 and 9.9% in 2015. The number of deaths attributed to diabetes in Texas was concerning as there was only a 1% decline in the number of deaths in 2015 compared to 2011. Statistics showed that 24.6% of men died of diabetes compared to 19.3% of women. It was reported that 36.3% of African Americans, 32.3% of Hispanics, and 1.3% of Caucasians died of diabetes between 2011 and 2015 (CDC, 2017). Men had a higher incidence of diabetes in Texas compared to women. Nationally, an estimated 13% of male adults had diabetes versus 11% percent of adult females (Caylor, 2015). In Texas, 67% of diabetic patients had high blood pressure,

63.6% had high cholesterol, 23.7% had cardiovascular disease, 10.8% had heart disease, and 8.8% had suffered a stroke (CDC, 2017). These comorbidities can increase the likelihood of severe complications in diabetic patients if not managed appropriately. These data demonstrated that diabetes self-care management needs to be paramount both on the part of the providers and the patients. I completed this project in an outpatient internal medicine clinic in Texas that serves an adult population age 17 and older. The providers at the clinic found that there has been a rise in the patients' HgbA1c levels over the past year and patient compliance with teaching for diabetes self-care management and follow up was low. Educating providers about appropriate lifestyle modifications such as exercise and diet modifications can minimize these complications.

Role of the DNP Student

I focused on how to impact diabetic patient management in the facility. My background with medical patients while working as a RN and the transition to a NP has provided me with broad experiences that helped in educating staff members about evidence-based diabetic patient management. For example, when a patient is being discharged from an acute setting, the notion is that he or she will get adequate follow up from their primary care provider. A problem might occur if there is a gap in follow up care. My nursing background helped me to view diabetes from a caring and nurturing perspective, which in turn provided an avenue for understanding the plan of care from the patients' perspective. Therefore, I was able to explore the current clinic processes and teach current evidence-based interventions to the staff to encourage best practices. I reviewed the case studies with the staff to identify the best approaches to diabetes management in each case. The methods include encouraging providers to have open and

prompt communication with patients, to individualize their plans of care, and to support patient self-care management (Nuti et al., 2015). The providers were also taught how to properly document in the Electronic Medical Records (EMR).

I was motivated to promote social change by working with the providers and other staff to create an environment in the clinic conducive for implementing change. The project provided an opportunity to establish a consistent, accurate, and evidence-based approach to clinical care of diabetic patients with opportunities for modifications in the future based on outcomes evaluation.

Role of the Project Team

The project team included the providers, nurses, medical assistants, front desk staff, the coding manager, and the clinic manager. The mission of the organization is focused on preventive medicine and education. Therefore, each member of the team was included in the education intervention to ensure that diabetic patients are monitored according to national guidelines and provided with education and appropriate resources at every clinic contact. At least one staff member from each department served on the project implementation team for effective communication about project information and inclusion of ideas from all clinic stakeholders. For example, the medical assistants were trained to update the patients' charts with current data at every clinic visit, including a review of challenges to adherence to the self-care management plan and other concerns related to their health and compliance. The team identified from patient records, the diabetic patients who have not been getting their routine laboratory tests and eye examinations completed or who have a HgbA1c above 7%. These patients may be candidates for closer follow up through telephone calls and increased office visits.

Summary

In this section, I explored the importance of diabetes management and the ways that providers can better communicate with their patients and families to meet the goals for outpatient clinical diabetes management and patient self-care management. The staff members' commitment to using translation of evidence to practice models mentioned above played a major role in improving patient outcomes and evaluating what is working and what is not working. My presence at the clinic was an advantage because I was committed to identifying barriers and teaching evidence-based solutions that could improve clinic outcomes.

Section 3: Collection and Analysis of Evidence

Introduction

The purpose of this project was to educate the clinic staff on how to manage patients with diabetes more consistently and to determine if staff education helped to increase knowledge related to best practices and evidence-based national diabetes guidelines to prevent disease-related complications among the patients served by the clinic. The goal of the project was to equip the providers to educate patients on how to manage diabetes at home and increase patient compliance, which can help to improve HgbA1c levels. The clinic staff participated in an in-service to communicate the evidence-based research on outpatient diabetes patient care. The in-service included a pretest and posttest to determine if the in-service education intervention increased staff members' knowledge about current diabetes care management recommendations.

Putting a concrete plan into place helped the staff to combat the epidemic of diabetes and its complications. The outcome of this project provided an opportunity for providers to gain more knowledge about diabetic teaching and learn new methods to help the patient understand the necessity of diabetes self-care management. This section includes identification of the focused project question, the sources of evidence for the project, and a description of the analysis and synthesis of the evidence for the project.

Practice-Focused Question

The problem identified for the purpose of this project was the challenge faced by staff members in managing diabetes at the outpatient clinic. This project helped to bridge the gap in care for diabetic patients by increasing staff members' knowledge and awareness of the appropriate evidence-based interventions. The question answered by

this project was: In an outpatient clinic setting, will an in-service staff education intervention that emphasizes evidence-based practices, early screening, and following national standards of diabetes care have a positive effect on providers' knowledge as measured by a pretest and posttest comparison?

Sources of Evidence

The two sources of evidence for the project were information from a literature review on outpatient clinic best practices for diabetic patients and a comparison of pretest to posttest diabetes knowledge of staff members who attended an in-service education intervention. The practice manager made sure that schedules were planned to accommodate the in-service education of the staff. The in-service included information on the use of diabetic assessment tools and presentation of other educational resources, including a summary of best practices for care of outpatient diabetic clinic patients. The issue of clinic compliance with diabetic state and national best practices and guidelines also was addressed during the in-service.

The evidence-based resources were aligned with the purpose of the project, which was to provide information for the staff to better manage diabetic patients. I used current research evidence to promote adherence to national standards of care, which included regular diabetic eye examinations; laboratory tests for HgbA1c, lipids, and urinary microalbumin; foot examination; and monofilament examination (Philis-Tsimikas & Walker, 2001).

The databases that I used to retrieve research articles and national guidelines were EBSCO host, CINAHL, ProQuest, Medline, the CDC, the ADA, the AACE/ACE and the Texas Department of Health and Human Services. The key search terms *management of*

diabetes, *prevention of diabetes in the elderly, providers approach to diabetes management, diabetes quality measures,* and *compliance with diabetes treatment* were used alone and in combinations in the search engines to retrieve the literature evidence.

The pretest and posttest questions I used for the education intervention were obtained from the Diabetes Initiatives and National Institute of Health (NIH) websites. I chose these websites because they provided an inclusive view of diabetes management both from the perspectives of the providers and the patients. Research shows that it is good to emphasize the importance of quality measures regarding diabetes management with focus on lifestyle modifications and use of metformin as a cost-effective way of treating diabetes (O'Connor et al., 2011).

Evidence Generated for the Doctoral Project

The only data collected for the project were from the pretest and posttest of the clinic staff knowledge before and after the education in-service. The in-service included information about the clinic's current performance on the state and national diabetes quality measures. Insurance companies provide a breakdown of the diabetes-related quality measures from the previous year, which help staff to identify guideline compliance areas that need improvement. The quality reports measure how well the clinic's care of patients with diabetes adheres to the national standards of care and follow up with providers and specialists. This information is sent to the providers at the end of each year.

I presented the quality measures from 2017 and explained to the staff and it served as the basis for group discussions on how to improve the quality outcomes in 2018. I communicated the progresses toward meeting quality measures with the staff on a

monthly basis. One of the limitations of the usefulness of these data was that staff members were not fully aware of how the reporting agencies came up with the measures. The in-service included education on the quality measures and the clinic staff were encouraged to ensure accurate reporting of the completed measures through improved documentation.

The individual participants in this project were the staff members at an outpatient clinic who have direct contact with the patients. The staff were informed that the project focused on how the staff members as a team could improve compliance in diabetic patients through better adherence to best practices, better patient education, and more frequent follow-up visits. The staff played a vital role in this project because they were receptive to the education and started to recommend best practices, diabetes assessment tools, and processes to ensure incorporation of quality measures documentation into the patients' plans of care. The staff members were educated about the use of evidence-based information to improve their knowledge about diabetic self-care management goals, so they could communicate this information to the patients and families at clinic visits.

I designed this project to follow the Health Insurance Portability and Accountability Act (HIPAA). I completed the National Institutes of Health human subjects' protection training before the start of my clinical practicum. I reported the pretest and posttest data in aggregate so that no individual staff member could be identified. The project commenced upon approval by the Walden University IRB (approval number 09-18-18-0413629). I completed the pretests and posttests questionnaires in paper format prior to and just after the education intervention was presented. I also obtained informed consent from the staff participants by notifying them

about the purpose of the project and that they were free to opt out of the project at any time. Completion and return of the pretest and posttest questionnaires were considered consent to participate.

Analysis and Synthesis

The statistical analysis appropriate for this project was descriptive and included number of participants, percentage of correct scores on the pretest and posttest questionnaires, and the mean gain in percentage of correct scores. A statistical package was not be necessary for this analysis. Because of the small sample size, a *t*-test statistic was not useful to compare the staff members' knowledge of diabetes management before and after the in-service education intervention. I analyzed the pretest and posttest scores to determine if there were any change in the percentage of correct answers after the in-service.

Summary

The focus of this section was to describe the setting for the project including the clinic staff, the type of patients seen, and the data collection and analysis process for the project. During the implementation phase of the project, data were collected before and after the staff in-service to determine whether there was an increase in staff knowledge. Project deliverables included a copy of the education in-service materials, a table showing pretest and posttest knowledge scores, a plan for implementation of processes to improve workflow and compliance with state and national outpatient diabetes management, and recommendations for additional changes to ensure clinic compliance with best practices in diabetic patient care. The level of enthusiasm and commitment of the project team indicated that the project is off to a good start. Section 4 includes the

findings and recommendations related to the purpose of the project and the practice-focused question.

Section 4: Findings and Recommendations

Introduction

One of the challenges faced by health care providers in primary care is diabetes management. This challenge was also identified by the providers at the project site, and it was attributed to a high level of noncompliance with self-care management. Despite the providers' interventions at clinic visits to impact individual's compliance through patient education over the past year, elevated HgbA1c levels (above 7.0%) were seen in over 30% of the diabetic patients. Further investigation into the possible cause of this problem revealed the gap in practice could be due to not providing an individualized plan of care to patients. This assumption led the providers to look into investing in onsite diabetic education or another way to provide patients appropriate support based on their needs.

The practice-focused question addressed in the project was: "In an outpatient clinic setting, will an in-service staff education intervention that emphasizes evidence-based practices, early screening, and following national standards of diabetes care have a positive effect on providers' knowledge as measured by a pretest and posttest comparison?"

The target group for this project was clinic staff who volunteered to participate in education related to the use of evidence-based information for diabetes management. The purpose of this project was to equip the staff members with the knowledge to educate, screen, and refer patients to control disease progression. In addition, patients would consider the providers as readily available for support and further education as needed. This enhanced patient support and education was initiated through more frequently scheduled visits for diabetic management (at least every 3 months), as well as care

coordination follow-up calls between the scheduled appointments. Furthermore, the implementation of extensive diabetic education was expected to help patients work toward achieving self-care management goals.

Sources of Evidence

The sources of evidence for the education of the clinic staff included peer-reviewed articles and guidelines from CINAHL Plus with Full Text, CINAHL & MEDLINE Combined Search, the American Diabetes Association (ADA), the American College of Endocrinology (ACE), the Centers for Disease Control (CDC), Healthy people 2020, and the Texas Department of Health and Human Services (TDHHS) website. These sources provided extensive information about how providers could manage diabetes better in a primary care setting and how patients could be equipped to take charge of their health.

Findings

Table 1 shows the results of the needs assessment questionnaire, which revealed that each provider sees an average of 20 diabetic patients weekly, representing a large percentage of patients in a clinic with five full-time providers and one part-time provider who works 2 days per week. Responses also revealed that all the providers preferred that patients get their diabetic eye exam done at the clinic to ensure compliance and prevent further diabetic retinopathy. They would prefer to refer patients with Type 1 diabetes or uncontrolled Type 2 diabetes to an endocrinologist. However, if there were an opportunity for more frequent monitoring of patients with Type 2 diabetes, there could be improvement in HgbA1c without the need for referral. Most providers preferred to use evidence-based information when providing diabetic care, while some prefer a

combination of both evidence-based information and their professional experience. Providers also made it known that metformin was their first drug of choice for diabetic management and there was evidence to support this choice. According to Schlender et al. (2017), metformin is better than sulfonylureas as it not only helps with reduction of HgbA1c, but also reduces cardiovascular outcomes, mortality, hospitalizations for hypoglycemia episodes and falls. Furthermore, the evidence has suggested the addition of a statin to the diabetic regimen. The providers have gradually adopted this practice by encouraging their patients to start on a low dose statin to prevent cardiovascular conditions that could develop from diabetes. According to de Vries et al., (2012), treatment with statins can have a beneficial effect in the primary prevention of major cardiovascular and cerebrovascular events in diabetic patients and may reduce all-cause mortality. Providers at this clinic were open to the use of recent evidence to better improve diabetic management. The providers identified the following to help with diabetic management: close follow up with phone calls and through the patient portal, diabetic education, discussions and education on the consequences of elevated HgbA1c, and referral to a dietician and an endocrinologist if needed. The providers noticed an improvement in their patient's HgbA1C levels within a span of three to six months after implementing the new management techniques.

Table 1
Survey Results from 6 Providers

Questions (variable)	Provider responses (n)
Average number of diabetic patients encountered by each provider in one week	20
Preference for diabetic eye exam in office	6
Preference for evidence-based resources	5
Preference for both evidence-based and professional experience	3
Metformin as first drug of choice	6

Note: N=20.

I developed a binder that consists of the pretest, PowerPoint presentation (see Appendix B), posttest, and other educational resources used during meetings and corresponding with the ongoing practice evaluation.

All participants completed a pretest and a posttest before and after the project education intervention. The pretest was used to assess the provider's previous knowledge of diabetic management, while the posttest included the same questions to assess if there had been knowledge gain after the presentation. I calculated the pretest and posttest to compare the results of the participants. The findings of this project revealed that the in-service staff education intervention, which emphasized evidence-based practices, early screening, and following national standards of diabetes care, had a positive effect on providers' knowledge as measured by a pretest and posttest comparison. The results demonstrated that participants' knowledge improved by an average of 10% after the

education. Confidence to include changes in practice varied from 50% to 100% of providers indicating that they were completely confident after the education (see Appendix C).

Table 2

Pretest to Posttest Comparison

Subject	Pretest Percent Correct	Posttest Percent correct	Change percent
1	80	93	13
2	86	93	7
3	80	76	-4
4	93	96	3
5	73	93	20
6	76	96	20
7	83	100	27
8	86	96	10
9	90	100	10
10	96	100	4
11	80	93	13
12	86	100	14
13	93	90	-3
14	93	100	7
15	90	100	10

Note: N=151

Implications

Encouraging providers to take a special interest in diabetic management will help patients to prevent complications that could arise from poor management. Furthermore, diabetes places a financial burden on the health care industry, patients, employers, and the society. Prevention is paramount and includes a yearly physical, screening, and diagnostic tests to detect health problems before they become a burden. The findings of this project helped the clinic staff to determine where they need to improve patient care,

so they can meet the quality measures for the year. When patients see their blood sugar ranges and trends on paper, they may pay more attention to the diabetic education and use the information as a guide for diabetes control.

Social change was made possible by adopting a standardized process for managing patients with diabetes. For example, the clinic used *Up-to-Date* software to support and guide their plan of care. This resource helped to ensure uniformity in practice, which in turn can help achieve better outcomes. The providers also kept in mind that there will still be some patients who might fall outside the target management range despite the use of standardized plans of care. Staff members can try other management options including changing medications to achieve target blood sugar range or referring to nutritionists or endocrinologists for specific management issues.

Strengths and Limitations of the Doctoral Project

The strength of the project was the fact that the staff at the clinic embraced the initiative from the onset. They were very supportive in working with the patients and families to ensure patient compliance and the success of the project. Some of the patients were also very eager to try the new education approaches. Another strength was the willingness of the medical assistant with a diabetic education certification to work with the DNP student in ensuring that most of the patients with diabetes received diabetic education during the project. The *Up-to-Date* software that is used at the clinic was also an advantage to the project as it supported consistency in application of evidence-based practices. The patient education materials provided were concise and easy for patients to read.

I identified some limitations including availability of staff to continue with the implementation of the initiative, transportation issues, and communication barriers. Another limitation was related to reimbursement. There is a need to consider if the insurance companies will pay for the increased frequency of diabetic education visits. According to Roberts (2017), barriers to optimal care of diabetes patients included shortage of health care workers, distance to services, level of organization, lack of affordability, and awareness of services offered.

During the project, I identified that lack of patient compliance can limit progress toward self-care management if patients are not fully aware of the benefit of frequent clinic visits. It helped to give patients information about the need for more frequent follow-up visits as a way to monitor blood glucose and HgbA1c closely to prevent complications and premature death. Patients found it beneficial to see their actual numbers and compare them with the normal or target range. The providers provided a diary to patients and instructed them to complete the diary and bring it to each their follow-up appointments.

Another limitation was the issue of side effects experienced by some patients with the use of metformin. Some patients with diabetes verbalized that they got diarrhea while on metformin and there was evidence that supports the use of other antidiabetics if metformin is not tolerated. According to Schlender et al. (2017), recommendations support the discontinuation of metformin in patients over the age of 80, those with gastrointestinal symptoms and those with a GFR <60ml/min. Further barriers included the use of low dose angiotensin converting enzyme (ACE) inhibitors for kidney protection in patients with diabetes. Some patients were hesitant to take these

medications because they did not understand the full benefit and questioned why they had to be taken if their blood pressure was within the normal range. According to Trietley et al. (2017), the use of ACE inhibitors prevents new onset of microalbuminuria or macroalbuminuria and even death from any cause. After further discussion and understanding, some patients were started on this regimen and will be monitored to determine response.

A further limitation was the time frame for patients with diabetes follow-up in relation to the duration of the project. For example, patients are usually scheduled for follow up every 3 months. However, more frequent follow-up will be needed in patients with uncontrolled HgbA1c. There must be strong evidence to convince patients to schedule more frequent follow up and the need for phone calls between visits. These visits take patient, family, provider, and clinic time that must be viewed as beneficial by all stakeholders. Another limitation is feasibility of allocating the medical assistant to make the phone calls amidst her already busy schedule.

Recommendations

There are several ways to address diabetic management and there will be differences depending on each clinic's financial situation, staffing, and technology. Face-to-face patient education and follow-up telephone calls are the best practice models of management currently. However, there were examples in the literature that demonstrated use of audio recordings for diabetic management. There also is the possibility that telehealth and bringing patient education to the patient's home will be implemented for all patients with diabetes as requested due to transportation or time problems, and not just for Medicare home-bound patients. It would be cost-effective if insurance companies

approved more frequent follow up with primary care providers or an endocrinologist for better management of diabetes. It is very important to implement these recommendations early because of the complications that arise from improper self-care management. I plan to become involved in determining which insurance plans provide a reimbursement plan for diabetes prevention. The clinic administration plans to determine if hiring an additional staff member to manage follow-up with diabetic patients to maintain better blood sugar control would be cost-effective. An evaluation of project costs will help in making the determination.

Summary

My purpose for conducting the DNP project is to emphasize to providers to educate patients with diabetes to achieve desirable blood glucose and HgbA1c level. I emphasized the importance of using evidence-based information for patient education. The findings revealed that providers at the clinic were receptive to receiving and implementing the education materials. There is a possibility of positive social change impact on the patients, providers, and the clinic. I have a significant role to play in the management of diabetes both in inpatient and outpatient settings. The transition of patients from the inpatient setting can either improve or decrease compliance after discharge. More emphasis should be placed on care coordination with case managers, family, and primary care providers. This project has helped to discover that providers are on board with diabetes management. The inpatient facilities need to be aware of this development and be educated on medication reconciliation and proper transition to primary care clinic. DNP prepared nurses can be a good resource for implementation of diabetes treatment and following in primary care settings.

Section 5: Dissemination Plan

Dissemination Plan

The purpose of the dissemination at the clinic was to make sure that the individuals involved in the project understood their roles and were equipped with adequate information and evidence-based knowledge needed to achieve individualized plans of care for the patients with diabetes. The audience for the project outcomes were the clinic providers (both medical doctors and nurse practitioners), nurses, medical assistants, and the front office staff supervisor. The front office staff were included so they would understand the purpose of the project and would be able to answer basic nonclinical questions from patients or family members. To increase the adoption of evidence-based information, active and multimodal strategies are needed, which could include in-person workshops or supplemental webinars (Parks et al., 2017). The PowerPoint presentation I created for the project will be available at the clinic for this purpose, but someone at the clinic will need to be tasked with keeping the content updated. All the materials, including some evidence-based articles were compiled in a folder and handed to the providers for future quick reference.

The evaluation of patient-level data will determine if HgbA1c and blood glucose levels have improved due to provider efforts to manage patients with evidence and consistency. I gave the pretest to assess the baseline knowledge of the participants, the education was delivered, and I also conducted the posttest. The responses on the posttest demonstrated that staff members understood the education materials and were willing to implement changes in practice. Feedback and further recommendations were provided to help the clinic achieve their goals in the future.

Analysis of Self

As a nurse practitioner, I have been privileged to care for compliant and noncompliant patients with diabetes. Based on my experience with patients with diabetes, I have realized that individuals do not understand the complications of diabetes, which could result in irreversible organ damage and even death. It is obvious that people take a cancer diagnosis more seriously than a diagnosis of diabetes. Some individuals with diabetes survive cancer diagnosis while some die from complications of diabetes. Therefore, the diagnosis of diabetes should not be taken lightly. It was for this reason that I developed evidence-based education for staff members as the focus of this project. Providers need to emphasize to patients that complications of diabetes can kill silently if not properly managed. Based on my previous experience and the knowledge gained from this project, I look forward to collaborating with other health care providers and endocrinologists to enhance the dissemination of diabetes education.

As a scholar, it was initially a challenge to get providers to see the positive impact of this project. In addition, it was a difficult task to get them to make changes to the way they are used to practicing. The knowledge gained from Walden University as an agent of social change propelled me to find ways to present the idea to the providers in an acceptable and meaningful way. An important factor that helped was to use their human and technological resources to work them through the change process. For example, the clinic uses the up-to-date software and some of the nurse practitioners also use the FP notebook. Therefore, because the providers were already familiar with these resources, calling attention to the content helped to gain their support for the importance of the project. Additional resources were made available to them for easy access.

As a project manager, my goal was to oversee the project and ensure that the purpose was well understood by the participants. In addition, I wanted to ensure that the project continued to be successful beyond my involvement with the clinic. The staff liked the idea that the project was easy to implement.

This project has helped me to view diabetes management from a different perspective. It has helped me to grow professionally by getting more involved in my patient care. I have found myself taking a special interest in my patients with diabetes and making more frequent phone calls to determine how they are coping with management at home. I was able to gain understanding of how they cope with checking blood sugars and injecting insulin on a regular basis. I hope that I can become more involved with the community in the future and educate both providers and patients on diabetes management. In addition, I hope to be a big part of preventing individuals from converting from the prediabetes to the diabetes stage of the disease.

Summary

The purpose of this project was to educate the participants on ways to care for diabetic patients based on the evidence. The idea was to shift from the old-fashioned way of managing this chronic condition to more intentionality with the patients when it came to support in their day-to-day activities and ability to comply with self-care management. Individuals in the United States have gradually shifted from consuming natural and home-grown foods to more processed foods, which is increasing exposure to chronic conditions. Therefore, providers need to be more intentional with patient education and should ask questions to get a detailed history of each patient's day-to-day activities at work and at home. Health care providers must have an idea of the barriers their patients

face in compliance with self-care management expectations. Overall, the project made a difference for the clinic, the health care professionals, the patients and their families, and me.

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Appendix A: Diabetes Pretest and Posttest

Circle one answer for each question. Thank you.

1. Risk factors for developing Type 2 diabetes include:

a. Family members with diabetes

b. Gestational diabetes

c. Stress of an illness or injury

d. All of the above

2. Which is NOT a cause of diabetes?

a. Use of steroids

b. Eating sugar

c. Insulin resistance

d. Pancreatic gland failure

3. Which is NOT a sign of hyperglycemia?

a. Thirst

b. Fatigue

c. Shakiness

d. Frequent urination

4. Insulin is made in the:

a. Liver

b. Stomach

c. Kidneys

d. Pancreas

5. Symptoms of Hypoglycemia include:

a. Weakness

b. Sweating

c. Shakiness

d. All of the above

6. ADA recommendations for blood glucose levels before meals is:

a. 50-70 mg/dL

b. 80-120 mg/dL

c. 125-160 mg/dL

d. 180-240 mg/dL

7. The A1c Glycohemoglobin test is:

a. Best under 7

b. Tells how blood has been controlled for 6 months

c. Can be tested with urine

d. Should be kept from the patient

8. With intensive insulin therapy, monitoring should be done:

a. Before meals

b. After meals

c. After evening snack

d. Several times a day

9. Monitoring should be done more often:

a. On sick days

b. When traveling

c. When meals and exercise change

d. All of the above

10. Nighttime hypoglycemia should be treated with:

a. Carbohydrate

b. Protein

c. Fat

d. First carbohydrate and then carbohydrate with protein

11. Diabetes pills

a. lower blood glucose

b. increases the release on insulin

c. correct insulin resistance

d. All of the above

12. The preferred site for an insulin injection is

a. Abdomen

b. Hips

c. Buttocks

d. Arm

13. Insulin should be injected in the same site:

a. True

b. False

14. When you travel, your medication and supplies should:

a. Be checked with your luggage

b. Carried onto the plane with you

c. Mailed to your destination

d. Left at home

15. Lantus is an insulin that will last:

a. 2 hours

b. 6 hours

c. 12 hours

d. 24 hours

16. After taking a rapid acting insulin, the patient should:

a. Wait 30 minutes before eating

b. Have food present for eating before injecting

c. Exercise to maximize the effect of the insulin

d. Finish income taxes

23. Oral medications work directly on the areas of the body except:

a. Heart

b. Pancreas

c. Cells

d. Liver Meal Planning

17. Which nutrient significantly increases blood sugar?

a. Fat

b. Water

c. Sodium

d. Carbohydrates

e. Vitamin A

18. A good source of complex carbohydrates is:

a. Eggs

b. Juice

c. Whole-grain bread

d. Hamburger

19. The amount of carbohydrate should be eaten:

a. Greatest at breakfast

b. Greatest at lunch

c. Greatest at dinner

d. Evenly distributed throughout the meals

20. Blood sugar can be accurately tested by:

a. Urine

b. Blood

c. Saliva

d. All of the above

21. Regular exercise may

a. Lower blood glucose

b. Reduce the amount of insulin needed

c. Reduce the amount of oral diabetes medication needed

d. All of the above

22. Fit patients with diabetes should exercise for:

a. 15 minutes once a week

b. 1 hour once a week

c. 20-30 minutes 3 times a week

d. 1 hour every day

23. If blood glucose is less than 80mg/dL during exercise, the patient should:

a. Lie down

b. Eat a snack

c. Call the doctor

d. Ignore it and keep exercising

24. If blood glucose is over 250 mg/dL, exercise should be delayed.

a. True

b. False

25. Any sore on the foot should be reported in:

a. One day

b. One week

c. At the next scheduled appointment

26. Feet should be inspected:

a. Every day by patient or caregiver

b. Only when there is pain or pressure

c. After going barefoot

27. Diabetes patients are more at risk for infections or illness because:

a. The immune system may be impaired

b. Bacteria thrive on higher glucose levels

c. Blood vessels may be damaged

d. Neuropathy may prevent detection of a problem

28. Patients with diabetes have greater risks for all of the complications except:

a. Heart Attacks

b. Strokes

c. Fractures

d. Blindness

29. Routine eye exams are done because:

a. Styles in eyewear change all the time

b. Early treatment may prevent progression of eye disease

c. Only needed when there is trouble

30. Woman with diabetes may have more:

a. Pregnancies

b. Vaginal and bladder infections

c. Blindness

d. Headaches

Reference:http://www.diabetesinitiative.org/resources/tools/ToolsStaffTraining.summary14-PROV.html

Appendix B: Providers' Diabetes Power Point

DIABETES MANAGEMENT

Olubunmi Awe, APRN, FNP-C

Slide 1

INTRODUCTION

- Diabetes is one of the most common major illnesses in the United States (US). Therefore, providers should ensure that its management is adequately understood by both the patients and their caregivers in order to prevent severe complications.

Slide 2

PROBLEM

- There has been a noticeable high level of noncompliance with self-care management and elevated hemoglobin A1C levels based on the patient's charts reviewed.

Slide 3

- Are more than 25 years old (type 1 diabetes)
- Have a family history of type 2 diabetes
- Have a hormone disorder called polycystic ovary syndrome (type 1 diabetes) CDC.gov

Slide 4

PURPOSE

- This project is focused on ensuring that providers further understand the mode of diabetic education, identify the challenges faced by providers, and also provide the tools and resources that the providers need to better manage and support diabetic patients.

Slide 5

COMMON RISK FACTORS FOR DIABETES

- Overweight
- 45 years or older
- Have a parent, brother, or sister with type 2 diabetes
- Physically active less than 3 times a week
- Have ever had gestational diabetes (diabetes during pregnancy) or given birth to a baby who weighed more than 9 pounds
- African American, Hispanic/Latino American, American Indian, or Alaska Native (some Pacific Islanders and Asian Americans are also at higher risk)

Slide 6

STATISTICS

- According to Centers for Disease Control
- **Total:** 30.3 million people have diabetes (9.4% of the US population)
- **Diagnosed:** 23.1 million people (76.2% are already diagnosed)
- **Undiagnosed:** 7.2 million people (23.8% of people with diabetes are undiagnosed)

Slide 7

Based on the statistics above, there are still quite a number of individuals that are undiagnosed. In addition, we need to ensure that the individuals that are already diagnosed are getting appropriate diabetic management and follow up.

Slide 8

COMPLICATIONS OF DIABETES

Retinopathy
Cardiovascular disease
Nephropathy
Neuropathy

Slide 9

The progression of these complications can be slowed with interventions such as

- aggressive management of hyperglycemia, blood pressure, and lipids to prevent cardiovascular disease and neuropathy
- laser therapy for advanced retinopathy
- administration of an angiotensin-converting enzyme (ACE) inhibitors or angiotensin II receptor blockers (ARBs) to prevent nephropathy.
- Treatment with statins to reduce cardiovascular and cerebrovascular events (de Vries et al., 2012).

Slide 10

SIGNIFICANCE

- This project is significant to nursing practice as it will encourage providers to shift from the traditional patient education to individualized education and treatment. In addition to motivating the patients to be an active participant in their plan of care.

Slide 11

SIGNIFICANCE TO SOCIAL CHANGE

- The significance to social change is that providers and staff will strive for early diabetic screening. According to Dall et al. (2016), the U.S. Preventive Services Task Force recommended screening for adults who are at risk for diabetes, including overweight or obese adults between 40 and 70 years of age or adults with other risk factors and a family history of diabetes. The dedication of staff members to screening will help to decrease the rate of undiagnosed cases of diabetes among the clinic population.

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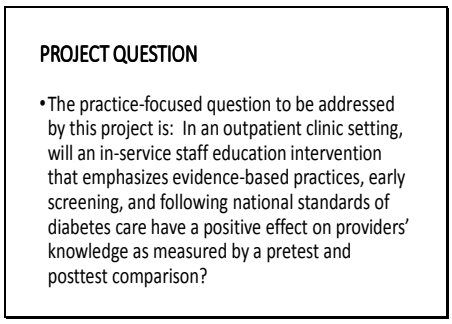

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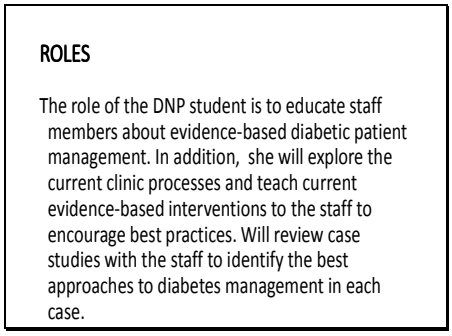

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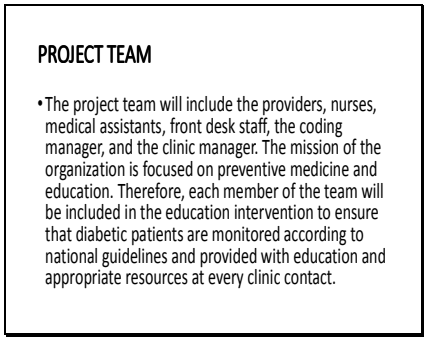

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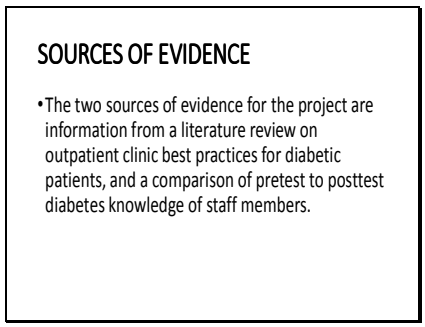

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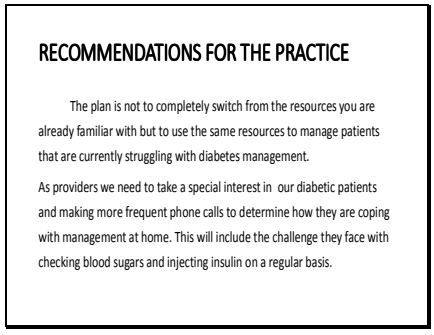

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- Identify possible barriers to diabetes management
- Schedule follow up with patients every 6 weeks to 3 months.
- Make follow up phone calls in-between appointments.
- Consider switching to a different antidiabetics and/or once a week injectables if blood sugar is not improving with the current regimen.
- Investing in a diabetic educator to meet with patients regularly and make the follow up calls as needed.

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Research has revealed that diabetes program which includes education on disease management and lifestyle modifications has helped with blood sugar control.
An example is the adoption of diabetes programs at primary care practices in Rio Grande Valley Accountable Care Organization Health Providers, LLC (RGV ACO). This program started in 2012 in Texas as part of Medicare Shared Savings Program. This program aims to facilitate coordination and cooperation among providers to improve the quality of care for Medicare Fee-for-Service beneficiaries and reduce unnecessary costs. The mission of RGV ACO is to "[improve] the quality of life and health [of patients]

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- RGV ACO providers conduct outreach to patients with an HbA1c greater than 8 and newly diagnosed patients to encourage their participation in one of RGV ACO's diabetes programs. Across RGV ACO, providers are reaching approximately 80% of the target patient population, and of the patients targeted, approximately 70% participate in at least 1 of the diabetes programs. Through their diabetes initiatives, RGV ACO has seen an increase in the number of patients who were successfully controlling their diabetes, from 23.29% in 2012 to 49.17% in 2014

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- Successful control of diabetes as measured by the Composite Measure of ACO measures 22–26, which is comprised of the following measures: Hemoglobin A1c Control <8%; Low Density Lipoprotein <100mg/dL; Blood pressure <140/90; Tobacco non-use; and Aspirin Use (Healthy people, 2010).

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DIABETES EDUCATION PEARLS

ADA recommendations for blood glucose levels before meals is 80-120 mg/dL

The preferred site for an insulin injection is the Abdomen

Lantus is an insulin that will last 24 hours

A good source of complex carbohydrates is Whole-grain bread, oatmeal, pasta, beans

Blood sugar can accurately be tested by blood

Fit patients with diabetes should exercise for about 20-30 minutes 3 times a week

Diabetes patients are more at risk for infections or illness because the immune system may be impaired, bacteria thrive on higher glucose levels, blood vessels may be damaged, and neuropathy may prevent detection of a problem

Routine eye exam should be emphasized to prevent retinopathy

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SIGNS AND SYMPTOMS OF HYPERGLYCEMIA

Frequent urination, Increased thirst,
Blurred vision, Fatigue, Headache

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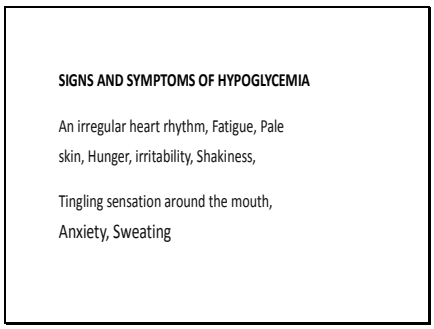

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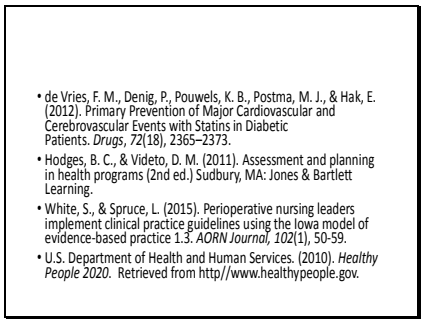

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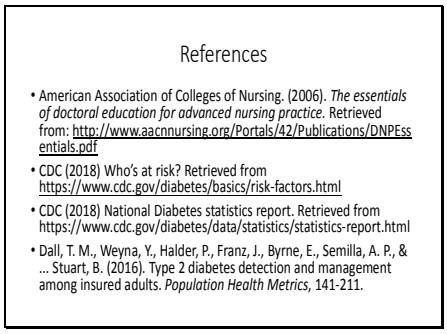

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Appendix C: Evaluation Form

On the scale of 1-10

- How confident are you with managing your patient with Hemoglobin A1C levels above 8%?

  Not at all confident: 0: 0%; somewhat confident: 0: 0%; completely confident: 6: 100%

- How confident are you with educating your patients about signs and symptoms of diabetes and lifestyle modifications?

  Not at all confident: 0: 0%; somewhat confident: 0: 0%; completely confident: 6: 100%

- How confident are you with using evidence-based information for patient education?

  Not at all confident: 0: 0%; somewhat confident: 2: 33%; completely confident: 4: 66%

- How confident are you with encouraging patients to use insulin if A1C is elevated?

  Not at all confident: 0: 0%; somewhat confident: 2: 33%; completely confident: 4: 66%

- How confident are you in making more frequent phone calls to patients in between their appointments?

  Not at all confident: 0: 0%; somewhat confident: 2: 33%; completely confident: 4: 100%

- How confident are you in bringing patients back for follow up sooner than every 3 months

Not at all confident: 0: 0%; somewhat confident: 3: 50%; completely confident: 3: 50%