2018

Shared Medical Appointments: An Intervention for Diabetes Management

Cheri Monette

Shared Medical Appointments: An Intervention for Diabetes Management

Cheri Monette

University of Massachusetts-Amherst College of Nursing

Chair: Raeann LeBlanc

Date of Submission: April 20, 2018

Table of Contents

Abstract

Background: Uncontrolled diabetes often develops into complications that are very expensive for both the patient and the healthcare system. Shared Medical Appointments (SMAs) are an evidence-based intervention that has been shown to improve participants' biophysical outcomes and their ability to manage their disease, which can reduce long-term complications and expense. *Project Goal:* This project evaluated biophysical outcomes and self-efficacy among a group of primary care patients with uncontrolled diabetes who attended a pilot SMA intervention. *Study design and Methods*: A pre-test/post-test design utilizing a nonrandomized convenience sample over a 6-month time frame was utilized. Self-efficacy was measured using the Diabetes Empowerment Scale-Short Form (DES-SF). Biophysical measurements included: glycated hemoglobin (HgbA1c), high-density lipoprotein (HDL), low-density lipoprotein (LDL), blood pressure (both systolic and diastolic), weight, and triglycerides. Quantitative data was analyzed using the Wilcoxon-signed rank test to evaluate pre/post effects of the SMA intervention. *Results:* Descriptive analysis showed a significant reduction in LDL with a median difference of 11.8 mg/dL ($p<0.43$), and a significant increase in HDL with a median difference of 3.5 mg/dL ($p<0.43$). HgbA1c, self-efficacy scores, and diastolic blood pressure showed improvements, but were not found to be statistically significant ($p< .128$, $p< .172$, $p< .610$, respectively). There were no changes in weight. Both systolic blood pressure and triglycerides were found to have increased slightly. *Conclusion:* The intervention showed significant improvements in some measurable outcomes, but not in others. A larger sample size would provide stronger evidence of the impact of the SMA. A homogenous format would also help to determine which components are most effective.

Keywords: diabetes, intervention, shared medical appointment, group visits

Background

Nearly twenty-five million Americans have diabetes and it is projected that one in three adult Americans will be diagnosed with diabetes by 2050 (Vazquez-Benitez, et al., 2015). Diabetes is a treatable disease, yet uncontrolled hyperglycemia can have devastating impacts on health. Uncontrolled hyperglycemia contributes to both macrovascular and microvascular complications, which subsequently leads to nephropathy, retinopathy, neuropathy and various cardiovascular diseases such as hypertension and stroke (Molinaro & Dauscher, 2017).

Complications resulting from uncontrolled hyperglycemia affect quality of life and are also very expensive. The American Diabetes Association (ADA) released data indicating 41% increase in total healthcare costs associated with diabetes over a five-year period from 2007-2012 (American Diabetes Association, 2013). People with diabetes incur 2.3 times the amount of medical expense compared to non-diabetics (American Diabetes Association, 2013). There are also indirect costs associated with the disease, including: increased absenteeism; reduced employee work productivity; reduced productivity due to impact on overall workforce; and lost productivity due to early mortality (American Diabetes Association, 2013).

It is imperative that diabetes be managed through primary, secondary and tertiary prevention. Improvements in all three levels of prevention can reduce prevalence, improve quality of life, and reduce overall healthcare costs. Primary prevention of diabetes includes screening, education and lifestyle modifications. Education and screening for risk factors such as obesity, smoking and a sedentary lifestyle take place within the primary care setting as well as various national health education programs. The term ‘pre diabetes’ is used to identify individuals at high risk to develop the disease. The ADA determined individuals who have two serum HgbA1c levels between 5.7-6.4 %, or who have two different occasions of fasting blood

glucose levels above 99 mg/dL have a substantial risk of developing diabetes within five years (American Diabetes Association, 2016). This is a classic example of primary prevention: to screen and identify risk factors so that interventions can be implemented before the disease occurs.

Diabetes is diagnosed when a patient has the following results on two separate occasions: HgbA1c levels above 6.5%, fasting blood glucose levels greater than 125 mg/dL, or a 2-hour plasma glucose levels greater than or equal to 200 mg/dL during an oral glucose tolerance test. Additionally, a person who is exhibiting classic symptoms of hyperglycemia (polyuria, polydipsia, weight loss, blurry vision) and has random plasma glucose greater than or equal to 200 mg/dL also meets the criteria for a diabetes diagnosis (McCulloch, 2018). Secondary prevention includes efforts aimed at ameliorating the impact of diabetes by slowing or stopping its progression. In primary care, secondary prevention includes biannual HgbA1c testing and an increase in visits to the primary care provider, usually biannual. During these visits, the patient receives education for lifestyle modifications such as diet and exercise. The provider may also prescribe pharmacological interventions that reduce HgbA1c levels. Tertiary prevention includes efforts to manage a long-term chronic illness such as diabetes. This includes the treatment goal of keeping HgbA1c levels below 7% to prevent target organ damage and other comorbidities that arise from uncontrolled diabetes. Secondary and tertiary prevention, which utilizes self-management training programs, have been proven to be effective in providing behavior change that reduces uncontrolled hyperglycemia at HgbA1c (Centers for Disease Control and Prevention; National Institutes of Health, 2010).

Problem Statement

The risk of sequelae related to uncontrolled hyperglycemia among adults with Type 2 diabetes is indicated by the high prevalence of co-morbid conditions such as cardiovascular disease, kidney disease, neuropathy and vision loss, and results from missed appointments with healthcare professionals, non-adherence to medication regimen and laboratory schedules, undetected inadequate treatment, and lack of lifestyle modifications. For patients with diabetes, optimal health is achieved when the disease is aggressively managed at the secondary and tertiary levels of prevention that aim to maintain HgbA1c levels below 7%.

Literature Review

Diabetes self-management education (DSME) interventions have been identified in Healthy People's 2020 strategies for improving diabetes outcomes (Johnson, Richards, & Churilla, 2015). These interventions have been shown to reduce diabetes-associated health complications and overall costs. Additionally, individuals who participate in DSME interventions receive more comprehensive care (Johnson, Richards, & Churilla, 2015). SMAs are one type of DSME that has consistently yielded effective results in reducing overall HgbA1c as well as other biophysical outcomes such as lipid levels, hypertension, and weight.

SMAs are a group of participants that share the same chronic diagnosis and meet regularly for comprehensive care (Edelman, Gierisch, McDuff, Oddone, & Willimas, Jr., 2015). Participant groups typically consist of 10-20 participants and the shared appointments range from 60-120 minutes. During the SMA, there is time allotted for participants to obtain and review biophysical markers such as weight, blood pressure, and recent lab results-including HgbA1c and lipid levels. Participants also have an opportunity to meet individually with a provider to confidentially discuss laboratory results, medication management, and individual concerns. The

format of an SMA involves a facilitator who provides patient education and time for group interaction regarding different strategies for self-management. Self-management tools can include, but are not limited to, nutrition, exercise, and medication adherence.

A literature review was conducted using the following databases: CINAHL, PubMed and Ovid. Search terms included shared medical appointment, diabetes, intervention, and group visits. Further search criteria included academic journals with an abstract and publications within the last 10 years. A total of thirteen articles were identified. Seven articles were omitted. Five did not target an adult heterogeneous population with diabetes. Two were opinion reviews and not included. The remaining six articles were reviewed using the Johns Hopkins Nursing Evidence-based practice rating scale to determine strength and quality of the evidence (Johns Hopkins Medicine, 2017). They had well-defined methods with sufficient sample sizes ($n > 30$). Reliable and valid measures yielded reasonably consistent results and recommendations.

Two systematic reviews had similar findings in which diabetics that participated in SMAs had lower rates of emergency department (ED) visits and hospital admission rates (Edelman et al., 2015; Simmons & Kapustin, 2011). Edelman et al. (2015) included 17 original studies, 13 of which were random control trials and four were observational studies with controls. In addition to lower ED use and hospital admission, their findings reveal that SMAs have a significant positive impact on biophysical outcomes, particularly reducing both HgbA1c and systolic blood pressure (Edelman et al., 2015).

Simmons & Kapustin (2011) referred to the term ‘diabetic group visit’ (DGV) in their systematic review of nine studies that utilize the group visit model. Their review of the evidence revealed consistent findings that DGV’s contributed to improved patient satisfaction, which included improved trust in provider, better perception of continuity of care, as well as overall

improvement in quality of life (Simmons & Kapustin, 2011). Furthermore, the financial gain of DGV's are not limited to reduced emergency department visits and hospital admissions. The researchers concluded that providers were able to dramatically increase their productivity of office visits on the days that DGV were conducted (Simmons & Kapustin, 2011). This can be attributed to the fact that diabetes disease management is complex and the provider often must allocate more time per visit for diabetics.

Four level II studies were retrospective quasi-experimental pre-test/post-test designs of SMAs (Dickman, Pintz, Gold, & Kivlahan, 2012; Guthrie & Bogue, 2015; Kirsh, Watts, Pascuzzi, & O'Day, 2007; Watts, Strauss, Pascuzzi, & O'Day, 2015). Though three had a low sample size, they had similar results, which showed a reduction in overall HgbA1c and other cardiovascular risk factors (Dickman, Pintz, Gold, & Kivlahan, 2012; Guthrie & Bogue, 2015; Kirsh, Watts, Pascuzzi, & O'Day, 2007). Kirsh et al. (2007) compared results with a concurrent, though not randomized, control group. Two of these studies utilized the same theoretical framework, the Chronic Care Model (CCM) (Dickman, Pintz, Gold, & Kivlahan, 2012; Kirsh, Watts, Pascuzzi, & O'Day, 2007). SMAs incorporate the same components of the CCM, namely the focus of collaboration among multidisciplinary team members in the delivery of purposeful patient-centered care, as opposed to acute, reactionary medical care. The CCM suggests that improved outcomes are the result of interactions between an informed and active patient and a prepared and proactive healthcare team (Dickman, Pintz, Gold, & Kivlahan, 2012; Kirsh, Watts, Pascuzzi, & O'Day, 2007). There is also the benefit of the interaction among the team members that are group facilitators. In the team setting, providers and other diabetes healthcare professionals learn from each other's area of expertise. This demonstrates how the SMA model

promotes positive behavior change, not just among the patients, but also the healthcare team (Kirsh, Watts, Pascuzzi, & O'Day, 2007).

The study by Watts, Strauss, Pascuzzi, & O'Day (2015) was also a level II retrospective quasi-experimental design. It had a much larger sample size (n=1170), making it one of the largest and highest quality studies that determine the effectiveness of SMAs. Researchers were able to illustrate associations in HgbA1c among individuals that attended three or less SMAs compared to individuals that attended four or more SMAs (Watts, Strauss, Pascuzzi, & O'Day, 2015). Individuals that attended three or less SMAs had a positive trend in their HgbA1c over 1000 days. Individuals who attended four or more SMAs were identified as having a negative trend in their HgbA1c over the same time period (Watts, Strauss, Pascuzzi, & O'Day, 2015).

Evidence Based Theoretical Framework

The Chronic Care Model (CCM) was used as the theoretical framework for this capstone project (Appendix A). The American Diabetes Association (2015) has endorsed the CCM as an effective framework for improving the quality of diabetes management. Two studies in the literature review identified this as an effective model to promote change among both patients and participating healthcare professionals. The CCM was introduced in 1998 as a conceptual guide to develop effective chronic care (Bodenheimer, Wagner, & Grumbach, 2002). This model assumes chronic care takes place within three overlapping entities: community and its resources, the health care system, and the provider organization. Within these entities there are six pillars of the CCM. These are discussed in detail:

1) Community resources and policies -Provider groups have linkages to community resources that promote wellness and health education. Resources can include, but are not limited to senior centers, and community based group

exercise and educational programs. They can also include case managers provided by home care agencies.

2) Health care organization -Providers, insurers and purchasers recognize the importance of chronic care as a priority. Innovations in chronic care improvements are rewarded.

3) Self-management support -Providing patients and families with the skills needed to manage their chronic illness.

4) Delivery system design -Designate and train team members that support patient self-management and routine follow-up tasks.

5) Decision support -Integrating evidence-based guidelines into practice promoted by provider team leader 'champions'.

6) Clinical information system -Using computerized information to improve standards of care and comply with recommendation guidelines.

The goal of the CCM is to address the deficiencies in the management of chronic conditions. These deficiencies include, but are not limited to: clinicians unable to follow practice guidelines due to time constraints; lack of care coordination; lack of best practice follow up; and, lack of patient training in disease management (Improving Chronic Illness Care, 2018). The CCM is particularly appealing because it promotes behavior change among all participants, both patients and providers. Behavior change among healthcare professionals is equally important to patients' behavior change when combating the complexities of chronic illnesses.

Goals/Objectives

This Doctorate of Nursing Practice project involved a program evaluation for a pilot SMA for diabetes patients at a provider group office. The DNP student started observing the

group during a clinical rotation while under the supervision of the Family Nurse Practitioner (FNP) diabetes champion. To continue with the project, the DNP student obtained permission from the provider group as well as informed consent among the SMA participants.

The purpose of the project was to promote behavior change, improve health outcomes, and reduce risk factors for diabetes sequelae among participants. The goals and objectives were determined using the SMART criteria (**S**pecific; **M**easureable; **A**ssignable; **R**ealistic; and **T**ime-specific).

Specific: There were two specific goals of the intervention. 1) Reduce the total HgbA1c by 0.5-1% among all participants; 2) Improve patient's self-efficacy of their diabetes management.

Measureable: Pre-intervention/post-intervention biophysical measurements and DES-SF survey results were compared and statistically analyzed.

Assignable: Laboratory HgbA1c results were obtained and reviewed by both the project facilitator and the DNP student. The DNP student researched and provided the tool to measure self-efficacy. The DNP student statistically analyzed pre-test/post-test results of all variables in the project evaluation.

Realistic: The SMA intervention will take place for 6 months. Several studies have been conducted to determine the efficacy of SMA among chronic disease. Most studies have been conducted within a 2-6 month time frame. Previous studies have utilized similar outcome measures.

Time-specific: The planning stages were approximately three months prior to the intervention. Data collection of laboratory HgbA1c and biophysical measurements took place 12 weeks after the intervention. Data collection of patient surveys took place at the start of the intervention and again at end of the 6th SMA (See Appendix C).

Setting and Resources

The project took place at a private primary care provider group office in Western Massachusetts. In 2016, a collaborative health needs assessment identified social, economic, and community needs for the area in 2016 (Partners for a Healthier Community, 2016). The service area has higher rates of poverty than the state average (Partners for a Healthier Community, 2016). Twenty- six percent of the children in this area qualify for free or reduced lunch. More than one third of the residences are housing cost burdened, meaning more than 30% of household income goes towards housing. Some parts of this community experiences food insecurity. Certain areas have also been identified as food deserts, where low-income communities lack access to grocery stores (Partners for a Healthier Community, 2016).

Barriers to healthcare include primary care provider shortages, lack of providers accepting MassHealth insurance policies, lack of transportation to health-related services, and lack of care coordination. Focus group respondents to a community health needs assessment also cited a need for improvements in health literacy and cultural sensitivity by healthcare providers (Partners for a Healthier Community, 2016). Diabetes has been determined to be the most concerning health need in the area. Thirteen percent of the population has pre-diabetes or diabetes, and over one in five Medicare recipients aged 65 and older had diabetes in 2014 (Partners for a Healthier Community, 2016).

Methods

Participants

Eligible participants for the project were drawn from diabetic patients of two providers, a family nurse practitioner and a physician. These providers reviewed the health records of their diabetic patients and identified diabetics with an HgbA1c>7%, an indication that their disease is

not being managed adequately. Recruitment involved the provider asking an individual during a regular office visit if he or she would like to participate in the intervention. Handouts were also provided which further explained the benefits of a SMA (Appendix B). Recruitment was open to patients with either Type 1 or Type 2 diabetes mellitus. However, only patients with Type 2 participated in the intervention. Participation was voluntary. Eligible individuals were under no obligation to commit to every SMA.

The goal was to recruit at least twenty individuals willing to attend an SMA meeting that met monthly during the 6-month intervention period. Enrollment was ongoing and attendance varied. The first SMA had six participants. The second had twelve, which was the highest attended SMA. Overall there were fifteen participants who attended at least one SMA during the 6-month project period. Four participants attended only once and did not return. One participant attended the first two SMAs, then dropped out. Two participants were new enrollees during the sixth SMA and were not included in the study. One participant was active and present for four SMAs, but did not complete the final DES-SF survey or a HIPAA form, and was therefore omitted. Seven participants were identified as a core group and completed the DES-SF survey during the first SMA they attended, and again at the end of the sixth. Of those seven participants, four started attending in April, three started attending in May. Study participants were Caucasian, whose ages ranged from 56 to 74 years. English was the primary language spoken. There were three males and four females. Socioeconomic factors such as income, education, and family situation were not reviewed.

Materials

The SMA occurred on the third Tuesday of each month from 3-4:30 p.m. Two weeks before the first SMA, reminder flyers were mailed to potential participants. Reminder telephone

calls were made 48 hours before the first scheduled SMA. Participants were reminded to bring their glucometer to the SMA.

The SMA was led by a family nurse practitioner (FNP) who also serves as the provider group's diabetes champion. The core healthcare team members included a diabetes nurse educator, a behavioral health specialist, and a medical assistant. A nutritionist, physical therapist, and an optometrist were invited as guest speakers. The nutritionist attended the SMA regularly after the second meeting. One guest speaker was a current patient of the FNP who had made significant lifestyle modifications, lost a substantial amount of weight through diet and exercise, and regained control of her diabetes.

Prior to each SMA, the FNP reviewed patient records, including labs, medication regimen, and adherence to routine visits such as diabetic feet and eye exams. Participants were encouraged to check-in approximately 15 minutes prior to each SMA. During this time, the medical assistant obtained vital signs and weight from each participant and the diabetes nurse educator began to download data from each participant's glucometer. At the start of each SMA, patients were reminded that they would be sharing personal health information and the facilitator reiterated the confidentiality agreement signed by the participants.

A large room was made available for each SMA and was able to accommodate the size of the group by retractable room dividers. Tables and chairs were set up in a rectangle, to promote interaction. During the first and second SMA, the diabetes nurse educator and behavioral health psychologist were the facilitators while the FNP met individually with each participant to review goals, medications, and any questions or concerns. This individualized interaction occurred in the same room as the SMA, several feet away from the group format. This was found to be problematic. The group was often distracted by the conversations of those meeting individually

with the FNP, particularly if one was hard of hearing. The FNP was also devoting a lot of time to individual concerns and not able to participate in the group discussions. After the second SMA, the team members decided to omit the individualized time with the FNP and to have all subsequent meetings proceed in a group format.

Though SMAs are gaining in popularity, there lacks a homogenous format for facilitators to follow. This can result in loose interpretation of how to implement the intervention for best outcomes. The plan for this pilot SMA involved a check in, and review of goals for the first 15-30 minutes, then time for a guest speaker to present their content, this included time for questions among the participants. The final 15 minutes was devoted to reviewing participants' goals for the next month. Each participant was provided with a folder that included handouts specific to diabetes SMART goals that they be specific, measureable, achievable, realistic and timely (Appendix C). Participants were encouraged to bring this folder to each SMA so that all materials could be kept in one location.

Goal setting was the focus of each meeting. At the start of each SMA, participants were asked to identify a SMART goal for the month. These goals were reviewed at the beginning of the next SMA. Barriers and facilitators to meeting goals were discussed in a supportive environment. One participant identified a goal of testing her blood glucose twice a day. Another participant had a goal to reduce the amount of potato chips she ate. She would often lament that she ate the whole bag in one sitting. A suggestion from the group was that she can still enjoy potato chips, but limit her serving size by pouring herself a small bowl, and leaving the bag in the cabinet in the kitchen. She was happy to report back to the group the next month that she was able to follow through with her goal. She now allows herself a small portion. She doesn't feel

deprived, and she is able to control her portions better. Another participant had the same goal each month: to join the gym. She was able to report during the 6th SMA that she met her goal.

Guest speaker presentations were a significant component of the intervention. The presentation by the physical therapist included special considerations for exercise and the diabetic patient. These included the risk of hypoglycemia during and after exercise and the importance of checking blood glucose levels pre and post exercise sessions. One participant was a regular cyclist and was able to share what appeared to be a hypoglycemic episode after cycling a long distance. The group was able to benefit from the reaching provided by the healthcare team about how to manage and prevent future hypoglycemic post-exercise episodes, such as having 15 grams of carbohydrates available if symptoms of hypoglycemia arise.

The presentation by the optometrist included information regarding the rationale for annual eye examinations. She discussed the impact of the disease process of diabetes on ocular health. This presentation was a classic example of the benefits of more comprehensive care available in a shared medical appointment. Diabetic patients may not have all this information given to them during an individual appointment. Patients may have similar concerns or questions that are able to be addressed at the same time. The other healthcare team members that are present also benefit from the sharing of information. They are able to learn from the teaching of each specialty, thus enhancing their overall knowledge of the disease.

The presence of the nutritionist and the diabetes nurse educator were strong components of each SMA. Dietary strategies and glycemic control are among the greatest concerns of the diabetic patient. These two health professionals were often asked to impart their knowledge to the group throughout each meeting. Again, this learning was for the benefit of both patient participants and healthcare team members. The nutritionist closed each meeting with handouts

for recipes and strategies for better food choices. The diabetes nurse educator answered questions regarding medication regimens, the physiological complexities of diabetes disease management, and provided interactive learning activities such as a conversation map.

Design

This pilot SMA program was evaluated using a pre-test/post-test design. The SMA was the independent variable. Dependent variables were self-efficacy scores and biophysical measurements that included HgbA1c, weight, blood pressure, and a lipid panel (HDL, LDL, and triglycerides).

Psychosocial self-efficacy was measured using a survey form. Permission was obtained by the Michigan Diabetes Research Center to utilize their Diabetes Empowerment Scale-Short Form (DES-SF) survey instrument (Appendix D). The DES-SF is an abbreviated version of the original Diabetes Empowerment Scale (DES), which contains 37 questions that correlate to eight conceptual domains regarding self-efficacy (i.e. assessing need for change; developing a plan; overcoming barriers; asking for support; supporting oneself; coping with emotion; motivating oneself; and making appropriate choices regarding diabetes management) (Michigan Diabetes Research Center, 2017). The DES-SF is an abbreviated version that addresses contains these eight conceptual domains and uses a five point Likert scale. It is useful as a brief overall assessment of diabetes self-efficacy. Survey results of the DES-SF are specific to the project of the DNP student and independent of any information requested by the provider group. Pre-test scores of the DES-SF measured the self-efficacy of the participants' ability to manage their diabetes at the start of the first SMA. Post-test scores evaluated the same values at the end of the 6th monthly SMA intervention.

Data analysis was conducted using IBM SPSS Statistics (version 25). The Wilcoxon signed-rank test was used to determine significance. This test is the nonparametric equivalent of the paired-samples t-test. Data are medians unless otherwise indicated. With a small sample size (n=7), median scores are less influenced by outliers and skewed data. The participant's biophysical measurements and DES-SF survey scores were measured twice: before and after the 6-month intervention, resulting in pairs of observations. The medians of the differences in pairs of observations were compared to determine if the intervention contributed to improvements and if they were statistically significant.

Procedures

The DNP student was present during the first SMA and provided a verbal description of the program evaluation project. Participants in agreement to participate in the DNP project signed an informed consent and HIPAA authorization form, which gave the student permission to observe the SMA and to access participants' patient data.

In order to obtain biophysical measures, participants were expected to receive two serum tests for both HgbA1c and a lipid panel within twelve months, at least 8-12 weeks prior to the intervention and at least 8-12 weeks after the intervention. Patients were also asked to have their weight and vital signs (blood pressure, heart rate and respiratory rate) obtained at the start of each meeting. All laboratory results and biophysical measures were recorded in the electronic medical record. Data retrieval included serum HgbA1c results for up to three months after the 6th SMA. This was to allow time for patients to have post-intervention serum HgbA1c obtained.

The DNP student asked participants to complete the DES-SF survey at the beginning of the first SMA they attended and again and end of the intervention six months later. A total of ten

pre-intervention surveys were completed. However, results included analysis of the seven participants who completed both pre and post intervention surveys.

Facilitators and Barriers

Facilitators include a highly motivated team. The American Diabetes Association has recognized that this provider group meets the national standards for DSME. A diabetes case conference is held at the site every other month. During this meeting, several members of the healthcare team meet for one hour to discuss strategies to improve care for diabetics. A provider is named a 'diabetes champion' and heads the discussion and ongoing collaboration of the group. The diabetes champion at the site was integral to the development of the pilot SMA.

The main barrier to implementation was lack of time. Providers are already working nine to ten hour shifts per workday. Researching evidence, identifying best practice interventions and measurement tools, and coordinating schedules among different healthcare professionals requires time and energy that can be difficult to muster. Skepticism of the intervention due to the heterogeneous format of SMAs was found to be another barrier that may impede enthusiasm among providers as well as other key stakeholders. Recruitment of participants was also a barrier. To ensure cost-effectiveness, the goal is to obtain a minimum of 6 participants at each SMA. Diabetics are already trying to maintain adherence to several medical appointments, including eye exams, foot exams, more frequent primary care appointments, other specialty appointments such as endocrine, cardiac, respiratory, etc. Co-pays and transportation to appointments can become a burden. An SMA could be considered another appointment to add to the regimen.

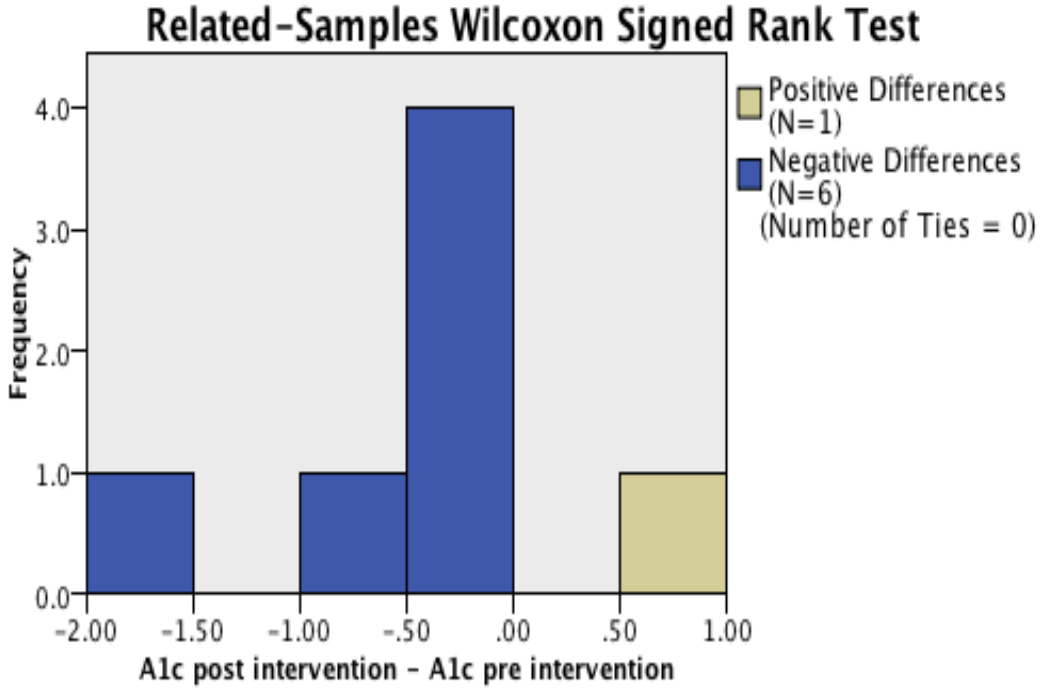
Ethics and Human Subjects Protection

IRB approval was sought and granted from the University of Massachusetts Internal Review Boards under an expedited review. All patients' privacy with regards to their medical health records and statements made in the group setting was protected by the Health Insurance Portability and Accountability Act of 1996 (U.S. Department of Health and Human Services, 2017), which protects the privacy of patient's health information. The DNP student and other professionals participating in the intervention stressed the importance of respecting the privacy of participating group members. All electronic files were password protected. Any personal information used for statistical analysis were labeled with a code. A master key that links patient information to codes were maintained in a separate and secure location. Any codes or data related to personal information will be destroyed three years after the close of the study. Participants signed an informed consent form with the understanding that results from the study may be published in an academic journal. Minimal risk was imposed upon the human subject. The DNP student and participating personnel followed the *Standards of Care* determined by the policies and procedures at the program site, a primary care office.

Data Analysis

Results

The goal was to reduce HgbA1c among all seven participants by 0.5-1%. Analysis revealed that overall HgbA1c was reduced by 0.4%. This was not found to be statistically significant ($p < .128$). Six participants had an overall reduction in HgbA1c. Three participants had a reduction greater than 0.5%. The largest reduction in HgbA1c was 1.9%. Only one participant experienced an increase.

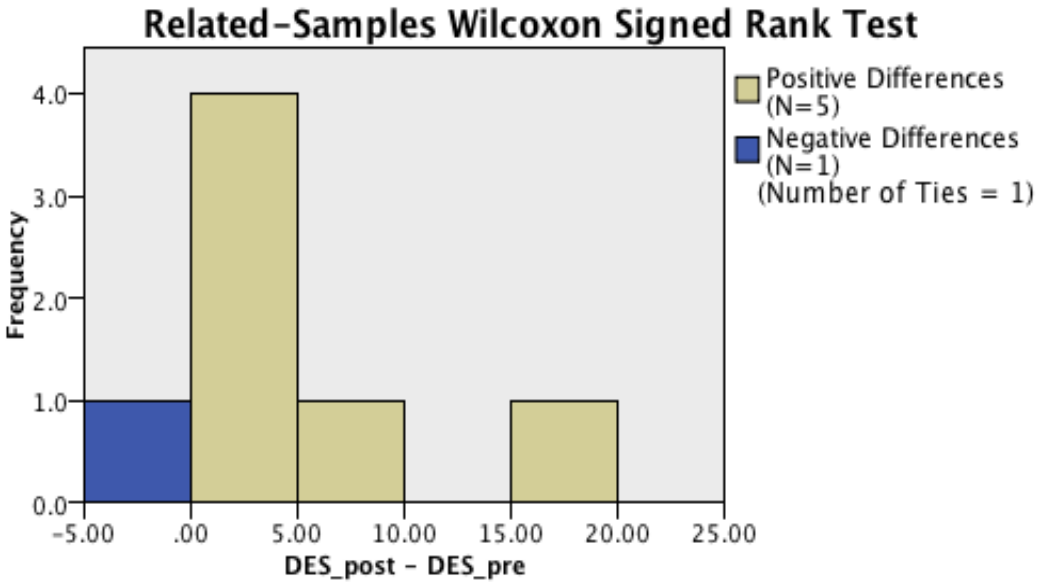


Vital signs and weights were obtained at each SMA. Systolic blood pressure was found to increase slightly (+3 mm/Hg), and diastolic blood pressure decreased slightly (-4 mm/Hg). Neither of these outcomes was determined to be statistically significant ($p < .345$; $p < .610$, respectfully). There was no difference in weight.

One participant did not follow up with post-intervention laboratory data other than HgbA1c. Therefore, only six participants' post-intervention HDL, LDL, and triglycerides were analyzed. Of those, there were significant improvements in LDL (-11.8 mg/dL, $p < 0.43$) and HDL (+3.5 md/dL, $p < 0.43$). There was an increase in triglycerides (+36.5, $p < .116$).

DES-SF pre-test/post-test scores determined behavior change. The lower the score, the less self- efficacy. An increase in overall score indicates an increase in self-efficacy. Overall, the differences in DES-SF scores increased by one and was not found to be statistically significant ($p < .172$). However, it is important to note that of the seven participants, five had an increase in

score. The biggest increase was 18 points. Two participants had an increase in one point. One participant had no change in score, and one participant had a decrease in score by 5 points.



As with many studies, there are unanticipated outcomes that can warrant further inquiry. Throughout the 6-month intervention, two participants scheduled individual appointments with members of the healthcare team who were active in the SMA. This is nearly a third of the participants (28.5%). One participant began to make regular appointments with the nutritionist. The participant who was the only one to show an increase in HgbA1c began to meet individually with the behavioral health psychologist. These outcomes have further implications in practice. These behavior changes may be the result of patient's developing trust amongst members of the healthcare team and therefore reaching out to them for additional support.

Cost Benefit Analysis

With the appropriate documentation, SMAs can be a billable visit. Instead of a 15-minute individual office visit, the provider can bill a 15-minute visit for every patient who attends an SMA. For example, if 10 patients attend an SMA, the provider can bill 10 patients for a 15-

minute appointment within 90 minutes. Normally, a provider could see 6 patients for a 15-minute appointment within that same timeframe.

Support staff and the presence of interdisciplinary team members are also ideal for best outcomes. Costs associated with staffing of an SMA should include all staff that is present. However, this makes the cost-benefit analysis difficult to determine if core team members and their credentials vary. For this pilot SMA, included in the costs was 90 minutes for the FNP, diabetes nurse educator, behavioral health psychologist, nutritionist, and MA. The FNP is able to bill for a 15-minute appointment, but the other disciplines are not. Costs should be analyzed based on the compensation of each discipline present at each meeting, and the revenue from the reimbursement of the participants.

Is it important to consider that the overall financial impact of SMAs include other factors beyond the direct costs and reimbursement of the SMA. Group visits have shown a statistically significant reduction in specialty and ED visits (Wagner et al., 2001). Hospitalizations have also been found to be lower among SMA participants, but only one study found this outcome to be statistically significant (Sudur et al., 1999). Group visits have also been shown to improve a providers' productivity (Bray et al., 2008). Diabetes is a complex disease accompanied by comorbidities and complicated sequelae. Addressing a diabetic's medication regimen, lifestyle modification, and immediate needs is difficult to address in a 15-minute appointment. If a diabetic is able to get their healthcare needs met in a group format, there is less need for individual office visits. Lessening the amount of appointments for complex patients can increase the productivity of the provider, thus increasing overall revenue.

Implications for Practice

As the population ages, the prevalence of chronic diseases will increase (Centers for Disease Control and Prevention, 2017). This will further strain an already problematic healthcare system, which currently functions below optimal outcomes. In 2001, The Institute of Medicine (IOM) developed a report addressing a divide between what is best practice in healthcare and what is actual practice in healthcare (Institute of Medicine, 2001). The IOM (2001) identified six areas of improvement to narrow the divide. It proposes that healthcare delivery should be safe, effective, efficient, timely, patient-centered, and equitable. Implementation of these improvements requires an organization's effort to redesign the system of healthcare delivery (Institute of Medicine, 2001). Recommendations for system redesign include: models of care that are customized according to patients' needs and values; sharing of information so that patients are given knowledge that enables them to become a part of the decision-making process regarding their healthcare; cooperation and collaboration among clinicians that utilize evidence-based practice. SMAs are an intervention that incorporates many of the strategies proposed by the IOM.

SMAs have been endorsed by the American Academy of Family Physicians, the American Osteopathic Association, and the Cleveland Clinic, as an effective means to manage chronic conditions. This intervention has been used successfully for improving patient outcomes and patient satisfaction not only in diabetes management, pain management, heart disease, and among cancer survivors (Reed, Partridge, & Nekhlyudov, 2015; Ticket et al., 2016).

The biggest challenge to the implementation of SMA is the lack of a homogenous format. This limits consistency in measureable outcomes. One of the most comprehensive guides for the implementation of group visits was developed at Massachusetts General Hospital by the

Women's Health Associates (Eisenstat, Siegel, Carlson, & Ulman, 2012). This guide serves to illustrate structure and content to the sessions, timing and scheduling of sessions, billing, and how to assess success. Most notably, the guide recognizes particular barriers to patient participation of the group visit. One suggestion for recruitment included broadening the scope of the visit. Instead of focusing solely on diabetes, groups can also include patients who are obese, have metabolic syndrome, or hypertension. Though specific diagnosis may vary, patients may have similar issues in disease management. It is imperative that future implementation if SMAs and group visits follow a homogenous format. This will assist with strengthening program evaluation outcomes.

Strengths

The success of the pilot SMA was attributed to the highly organized interdisciplinary team. Core team members were prepared and developed a format that was consistent yet dynamic. The design and delivery of each meeting prioritized goal setting, education, and participation engagement. The facilitators incorporated guest speakers and topics that were integral to the needs of the diabetic patient, including: improving diet, increasing physical activity, medication management, psychosocial concerns, and screening for target organ damage. The focused collaboration of the team demonstrated a core principle of the chronic care model: that the interactions between a proactive team and the informed patient results in improved health outcomes.

Behavior change was observed among both patient participants and healthcare team members. Trust grew and relationships developed. As the months progressed, the group started to share more about personal challenges and triumphs. Participants looked at their phones less during check-in time and engaged in conversations with each other not prompted by the

facilitator. Relationships between the participants and healthcare team members also changed. Primary care providers will often refer a diabetic patient to other disciplines, such as a diabetes nurse educator and/or nutritionist, to assist with disease management. Many patients decline. During the SMA, patients developed a trusting relationship with the team. Two participants began to individually with team members other than their primary care provider. This is nearly 30% of the group. One began to meet regularly with the nutritionist. The one participant, who's HgbA1c did not improve, began to meet with the behavioral health psychologist.

The chronic care model recognizes the benefit of behavior change among healthcare team professionals as being equally important as patient behavior change. The SMA provided a setting allowing each professional to learn from the teaching by others. Best practice guidelines and skills for disease management are shared. Their overall understanding of diabetes disease management was enhanced, which can positively impact other diabetics that they serve.

Limitations

This program evaluation had important limitations to consider. It was an evaluation of a small pilot SMA at a primary care office setting and not meant to be generalizable. The small sample size, lack of comparison group, and one clinical setting weaken the interpretation of the outcomes. However, these results offer important information for the setting in advancing the implementation of SMAs as one model for addressing chronic care needs. Future programs would benefit from evaluation of SMAs in different locations that utilize a homogenous format. A larger provider group would also be able to provide a larger population from which to draw a larger sample size and control group. Generalization of the results is also limited to the homogenous characteristics of the group. Socio-economic status and available transportation were not variables in the analysis, but could impact the feasibility of participation and would

likely add important contextual knowledge that was limited in this evaluation. Participants were required to pay the usual co-pay for a routine appointment. This monthly fee could pose a financial burden for some. One study provided an incentive for participation by waiving the co-pay of medications and blood glucose testing strips (Dickman et al., 2012). Similar financial incentives could be considered for future studies.

Inadequate health literacy could also be a limitation of this study that was not evaluated. The pilot SMA addressed the health literacy needs of the group, but was lacking in how to address this barrier. The majority of the SMA format was verbal presentation and open discussions. Inadequate health literacy has been implicated in increasing the risk of adverse health outcomes among diabetics. A certain set of skills is needed to navigate the heath care setting and to self-manage a complex disease (Bailey et al., 2014). Health literacy needs should be considered to ensure assimilation of the educational material to increase the probability of best outcomes.

The timing of the laboratory measurements varied during the program evaluation. HgbA1c reflects blood glucose concentration over the preceding 8-12 weeks. The goal was to obtain laboratory results closest to the 1st SMA, which took place in the third week in April, for pre-intervention values and those within 8-12 weeks of the 6th SMA, which concluded during the third week in September, for post intervention values. Two participants had HgbA1c levels drawn in May within 4 weeks of starting the SMA. Their values were considered pre-intervention. The same two participants had their next HgbA1c levels drawn in August. These values were considered post-intervention.

Conclusion

Limitations notwithstanding, SMAs are a dynamic intervention that yields positive results for diabetic patients. Clinicians should feel confidant implementing SMAs as an effective tool to improve clinical outcomes among participants. As the population of aged Americans increases, so does the prevalence of complex chronic conditions such as diabetes. Though primary prevention is key, rising diabetes rates requires patient empowerment and self-efficacy to prevent complications associated with hyperglycemia. Diabetes is a chronic disease that has the potential to impact every bodily system except respiratory. Sequelae from macrovascular and microvascular damage greatly impact a patient's quality of life. It is also costly for both patient and the healthcare system. SMAs are one intervention that has shown to reduce the burden of chronic disease management for both patient and provider. Strong high-quality evidence exists that identifies SMAs as an effective diabetes self-management education intervention.

The goal of this project was to determine if the translation of best practice by the means of an SMA intervention was applicable to a local primary care office. SMA and group visits are delivery care models that adapt to the concept of the Patient Centered Medical Home (PCMH), which was the site of the project. The outcomes revealed the efficacy of the program, identified areas of improvement, and familiarized participating personnel with the process of applying best practice to the clinical setting. It also provided a design for future evaluations of SMA interventions that could be replicated. The results revealed improvements in biophysical measurements and self-efficacy scores. The results of this pilot support the consistent evidence in the research and endorsements by reputable organizations to encourage organizations to implement SMAs as an intervention for diabetes management with ongoing outcome evaluation.

References

American Diabetes Association. (2013). The cost of diabetes. Retrieved from http://www.diabetes.org/advocacy/news-events/cost-of-diabetes.html

American Diabetes Association. (2015). Strategies for improving care. *Diabetes Care, 38(*Supplement 1), S5-S7. doi: 10.2337/dc15-S004

American Diabetes Association. (2016). Classification and diagnosis of diabetes. *Diabetes Care, 39*(Suppl.1), S13-S22. doi: 10.2337/dc16-S005. Retrieved from http://care.diabetesjournals.org/content/suppl/2015/12/21/39.Supplement_1.DC2/2016-Standards-of-Care.pdf

Andres, A., Gomez, J., & Saldana, C. (2008). Challenges and applications of the transtheoretical model in patients with diabetes mellitus. *Disease Management and Health Outcomes, 16*(10, 31-46.

Bailey, S.C., Brega, A.G., Crutchfield, T.M. Elasy, T., Herr, H., Kaphinst, K.,…Schillinger, D. (2014). Update on health literacy and diabetes. *The Diabetes Educator, 40*(5), 581-604. doi: 10.1177/0145721714540220.

Bodenheimer, T., Wagner, E.H., & Grumbach, K. (2002). Improving primary care for patients with chronic illness. *American Medical Association, 288*(14), 1775-1779.

Centers for Disease Control and Prevention. (2017). All chronic surveillance systems. Retrieved from https://www.cdc.gov/chronicdisease/stats/index.htm

Dickman, K., Pintz, C., Gold, K., & Kivlahan, C. (2012), Behavior changes in patients with diabetes and hypertension after experiencing shared medical appointments. *Journal of American Nurse Practitioner, 24*(1), 43-51.

Edelman, D., Gierisch, J.M., McDuffie, J.R., Oddone, E., Williams Jr, J.W. (2015). Shared medical appointments for patients with diabetes mellitus: A systematic review. *Journal of General Internal Medicine, 30*(1), 99-106.

Eisenstat, S., Siegel, A.L., Carlson, K., & Ulman, K. (2012). Putting group visits into practice: A practical overview to preparation, implementation, and maintenance of group visits at Massachusetts General Hospital. Retrieved from http://www.massgeneral.org/stoecklecenter/assets/pdf/group_visit_guide.pdf

Goode, A.D., Winkler, E.A.H., Reeves, M.M., & Eakin, E.G. (2015). Relationship between intervention dose and outcomes in living well with diabetes: A randomized trial of telephone-delivered lifestyle-based weight loss intervention. *American Journal of Health Promotion, 30*(2), 120-129.

Guthrie, G., & Bogue, R.J. (2015). Impact of a shared medical appointment lifestyle interventions on weight and lipid management with type 2 diabetes: A clinical pilot. *Journal of the American College of Nutrition, 34*(4), 300-309.

Improving Chronic Illness Care. (2018). The chronic care model. Retrieved fromhttp://www.improvingchroniccare.org/index.php?p=The_Chronic_Care_Model&s=2

Institute of Medicine. (2001). Crossing the quality chasm: A new health care system for the 21st century. Washington, DC: National Academy Press.

Jackson, R., Asimakopoulou, K., & Scammell, A., (2010). Assessment of the transtheoretical model as used by dieticians in promoting physical activity in people with type two diabetes. *Journal of Human Nutrition & Dietetics, 20*(1), 27-36.

Johns Hopkins Medicine. (2017). Retrieved from http://www.hopkinsmedicine.org/evidence-based-practice/jhn_ebp.html

Johnson, T.M., Richards, J., & Churilla, J.R. (2015). Care utilization and diabetes self-management education duration. *Diabetes Spectrum, 28*(3), 193-200.

Kirsh, S., Watts, S., Pascuzzi, K., O'Day, M.E., Davidson, D., Strauss, G., Kern, E.O., & Aron, D.C. (2007). Shared medical appointments based on the chronic care model: A quality improvement project to address the challenges of patients with diabetes with high cardiovascular risk. *Quality and Safety in Health Care, 16*(5), 349-353.

Lockman, K.A., Ritchie, S.A., & Adamson, K.A. (2011). Fundamentals in diabetes. Part 1: An introduction to vascular complication. *Journal of Diabetes Nursing, 15*(9), 256-262.

McCulloch, D.K. (2018). Clinical presentation and diagnosis of diabetes mellitus in adults. In D.M. Nathan & J.I. Wolfsdorf (Eds.), *UpToDate.* Retrieved from https://www-uptodate-com.silk.library.umass.edu/contents/clinical-presentation-and-diagnosis-of-diabetes-mellitus-in adults?search=diabetes%20diagnosis&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1

McGloin, H., Timmins, F., Coates, V., & Boore, J. (2015). A case study approach to the examination of a telephone-based health coaching intervention in facilitating behavior change for adults with type 2 diabetes. *Journal of Clinical Nursing, 24,* 1246-1257. doi: 10.111/jocn.12692

Michigan Diabetes Research Center. (2017). Tools for health professionals. Retrieved from http://diabetesresearch.med.umich.edu/Tools_SurveyInstruments.php

Molinaro, R., & Dauscher, C. (2017). Complications resulting in uncontrolled diabetes. *Medical Laboratory Observer, 49*(2), 20-22.

Partners for a Healthier Community. (2016). Retrieved from http://www.cooley-dickinson.org/wp-content/uploads/2016/09/Cooley-Dickinson-2016-communith-health-needs-assessment.pdf

Reed, S.C., Partridge, A.H., & Nekhludov, L. (2015). Shared medical appointments in cancer survivorship care: A review of the literature. *Journal of Oncology Practice, 11*(1), 6-11. doi: 10.1200/JOP.2014.001411

Simmons, C. & Kapustin, J.F. (2011). Diabetes group visits: An alternative to managing chronic disease outcomes. *The Journal for Nurse Practitioners, 7(*8), 671-679.

Ticket, K.H., Matiaco, P.M., Jones, K., Howlett, B., & Early, K.B. (2016). Effectiveness of shared medical appointments targeting the triple aim among patients with overweight, obesity, or diabetes. *The Journal of the American Osteopathic Association, 116*, 780-787, doi: 10.7556/jaoa,1016.153.

U.S. Department of Health and Human Services. (2017). Patient centered medical home: Resource center. Retrieved from https://pcmh.ahrq.gov/page/defining-pcmh

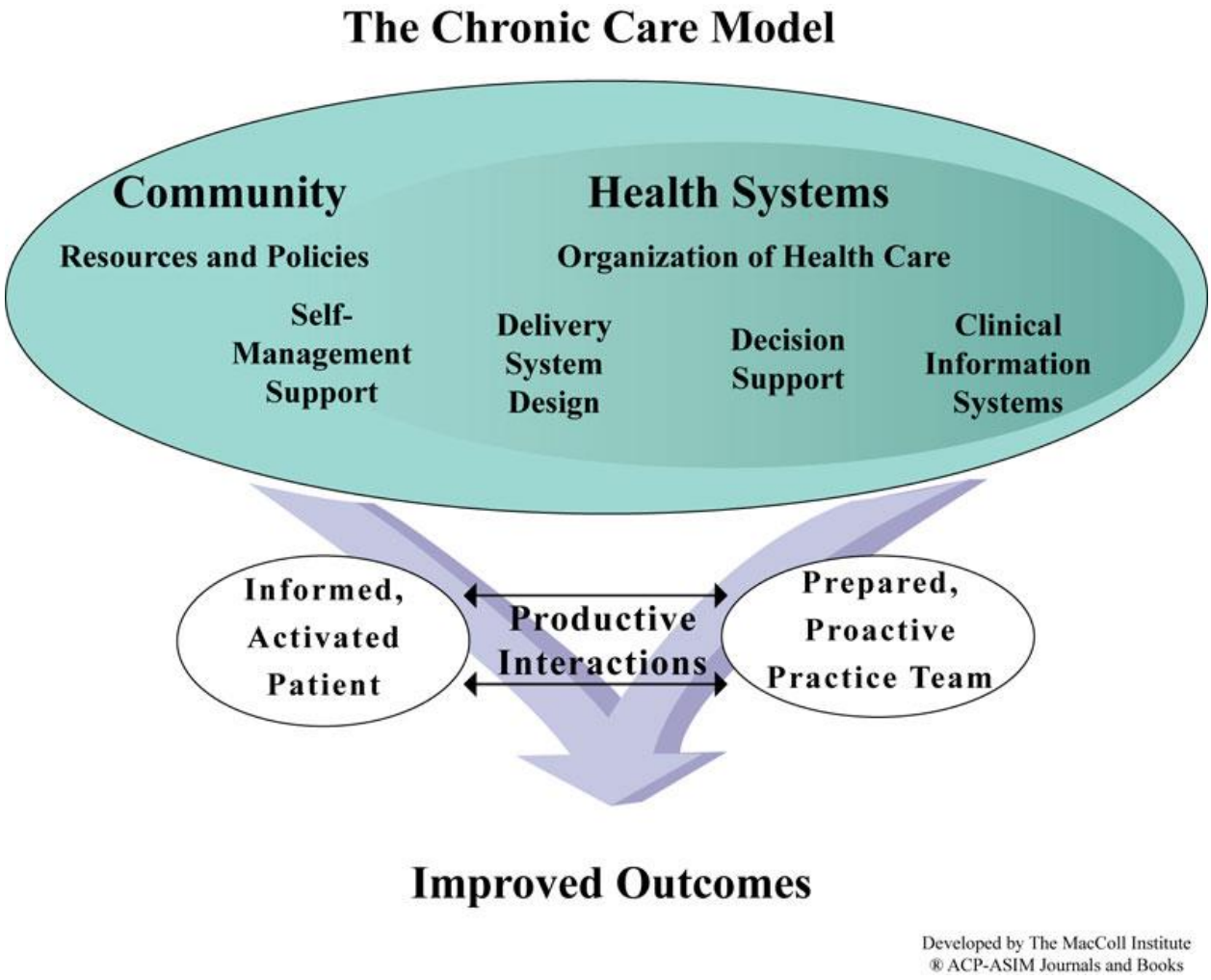
U.S. Department of Health and Human Services. (2017). Health Information Policy. Retrieved from https://www.hhs.gov/hipaa/

Vazquez-Benitez, G., Desai, J.R., Xu, S., Goodrich, G.K., Schroeder, E.B., Nichols, G.A.,…O'Connor, P.J. (2015). Preventable major cardiovascular events associated with uncontrolled glucose, blood pressure, and lipids and active smoking in adults with diabetes with and without cardiovascular disease: A contemporary analysis. *Diabetes Care, 38*(5), 905-912. doi: 10.2337/DC14-1877.

Wagner, E.H., Gronthaus, L.C., Sandhu, N., Galvin, M.S., McGregor, M., & Artz, K. (2001). Chronic care clinics for diabetics in primary care. *Diabetes Care, 24*(4), 695-700.

Watts, S.A., Strauss, G.J., Pascuzzi, K., O'Day, M.E., Young, K., Aron, D.C., & Kirsh, S.R. (2015). Shared medical appointments for patients with diabetes: Glycemic reduction in high-risk patients. *Journal of the American Association of Nurse Practitioners, 27*(8), 450-456.

Appendix A-Theoretical Framework



Appendix B

Shared Medical Appointments

(Name of provider group) strives to provide quality healthcare for your patients in new and effective ways. In a healthcare system that can sometimes be limited by short visit times, a Shared Medical Appointment (SMA) offers our patients a unique opportunity to have increased quality time with their own provider. Shared Medical Appointments are individual visits in the presence of other patients who share similar health issues. A significant portion of the appointment is group education, which is followed by time for providers to meet with and assess the needs of their patients.

The Shared Medical Appointment is a growing trend being used across the country to improve patient experience. Research shows that offering health care in an SMA improves patient experience by:

- Providing increased time with your provider
- Improving your healthcare outcomes through comprehensive education and follow-up
- Providing you the opportunity to have an extended, interactive visit with your healthcare provider and other members of the health care team such as a nutritionist, behavioral specialist or a physical therapist
- Offering predictable appointment times with a commitment to start and finish on time

Billing: A SMA is scheduled and billed like any other medical appointment. You are charged your regular co pay for each SMA but you have increased time and attention during this 60-90-minute appointment.

Next Appointment: As we have discussed, I would like you to join the upcoming SMA to address: _____

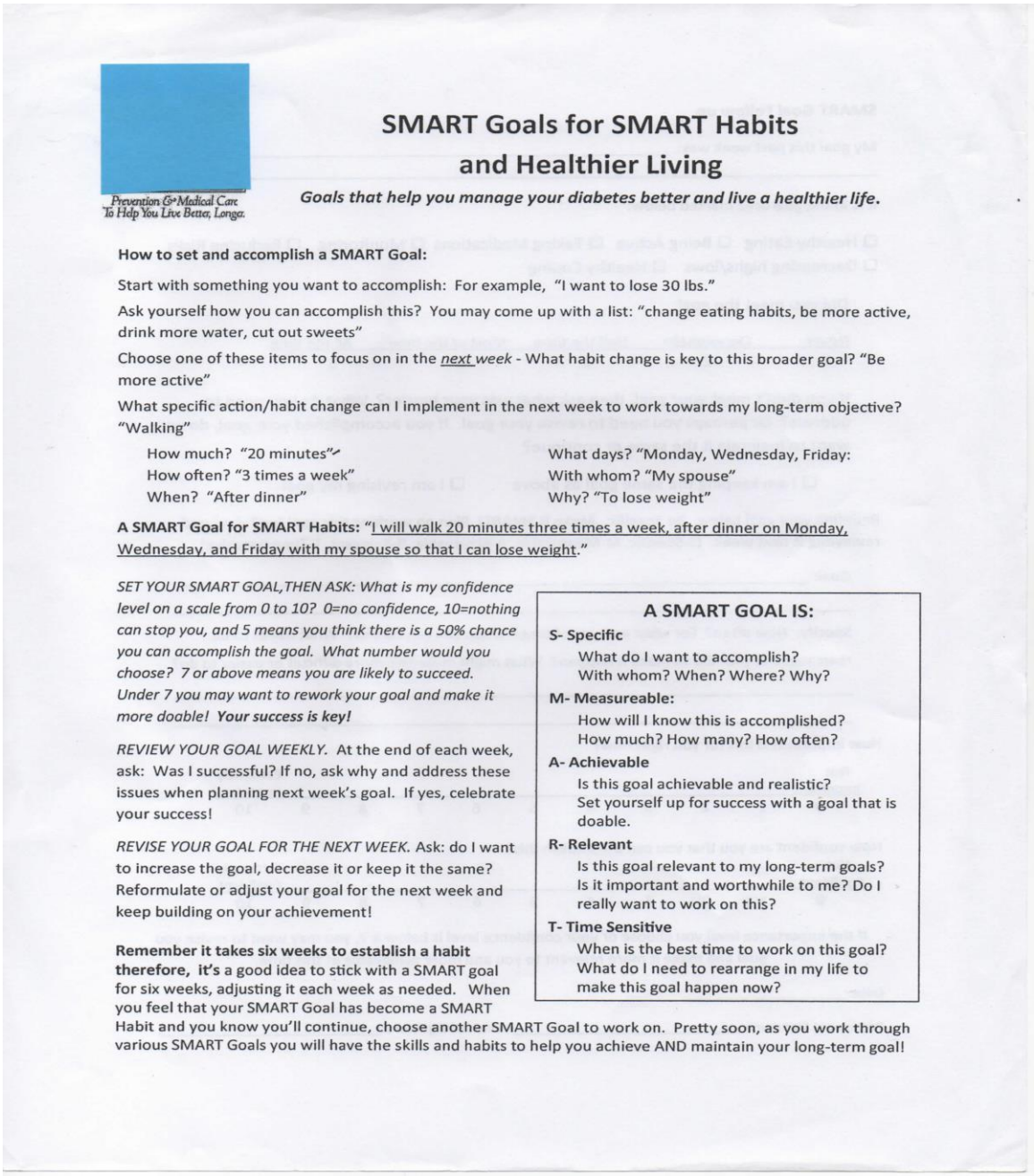
Please stop at checkout or call the office to schedule this appointment with (provider): _____

I am very pleased to be able to offer you this opportunity to address your health needs in this way. Please send me a message if you have any questions.

If you would like more information on Shared Medical Appointments: https://my.clevelandclinic.org/patients-visitors/prepare-appointment/shared-medical-appointments

http://www.harvardvanguard.org/about.us/group-appointments

Appendix C



Prevention & Medical Care
To Help You Live Better, Longer

SMART Goals for SMART Habits and Healthier Living

Goals that help you manage your diabetes better and live a healthier life.

How to set and accomplish a SMART Goal:

Start with something you want to accomplish: For example, "I want to lose 30 lbs."

Ask yourself how you can accomplish this? You may come up with a list: "change eating habits, be more active, drink more water, cut out sweets"

Choose one of these items to focus on in the *next week* - What habit change is key to this broader goal? "Be more active"

What specific action/habit change can I implement in the next week to work towards my long-term objective? "Walking"

- How much? "20 minutes"
- How often? "3 times a week"
- When? "After dinner"
- What days? "Monday, Wednesday, Friday:
- With whom? "My spouse"
- Why? "To lose weight"

A SMART Goal for SMART Habits: "I will walk 20 minutes three times a week, after dinner on Monday, Wednesday, and Friday with my spouse so that I can lose weight."

SET YOUR SMART GOAL,THEN ASK: What is my confidence level on a scale from 0 to 10? 0=no confidence, 10=nothing can stop you, and 5 means you think there is a 50% chance you can accomplish the goal. What number would you choose? 7 or above means you are likely to succeed. Under 7 you may want to rework your goal and make it more doable! ***Your success is key!***

REVIEW YOUR GOAL WEEKLY. At the end of each week, ask: Was I successful? If no, ask why and address these issues when planning next week's goal. If yes, celebrate your success!

REVISE YOUR GOAL FOR THE NEXT WEEK. Ask: do I want to increase the goal, decrease it or keep it the same? Reformulate or adjust your goal for the next week and keep building on your achievement!

A SMART GOAL IS:

S- Specific
What do I want to accomplish?
With whom? When? Where? Why?

M- Measureable:
How will I know this is accomplished?
How much? How many? How often?

A- Achievable
Is this goal achievable and realistic?
Set yourself up for success with a goal that is doable.

R- Relevant
Is this goal relevant to my long-term goals?
Is it important and worthwhile to me? Do I really want to work on this?

T- Time Sensitive
When is the best time to work on this goal?
What do I need to rearrange in my life to make this goal happen now?

Remember it takes six weeks to establish a habit therefore, it's a good idea to stick with a SMART goal for six weeks, adjusting it each week as needed. When you feel that your SMART Goal has become a SMART Habit and you know you'll continue, choose another SMART Goal to work on. Pretty soon, as you work through various SMART Goals you will have the skills and habits to help you achieve AND maintain your long-term goal!

Appendix D-Measurement Tool

Diabetes Empowerment Scale-Short Form (DES-SF)

The 8 items below constitute the DES-SF. The scale is scored by averaging the scores of all completed items (Strongly Disagree =1, Strongly Agree = 5) des

eck the box that gives the best answer for you. **In general, I believe that I:**

...know what part(s) of taking care of my diabetes that I am **dissatisfied** with.	1 Strongly Disagree	2 Somewhat Disagree	3 Neutral	4 Somewhat Agree	5 Strongly Agree
…am able to turn my diabetes goals into a workable plan.	1 Strongly Disagree	2 Somewhat Disagree	3 Neutral	4 Somewhat Agree	5 Strongly Agree
...can try out different ways of overcoming barriers to my diabetes goals.	1 Strongly Disagree	2 Somewhat Disagree	3 Neutral	4 Somewhat Agree	5 Strongly Agree
...can find ways to feel better about **having** diabetes.	1 Strongly Disagree	2 Somewhat Disagree	3 Neutral	4 Somewhat Agree	5 Strongly Agree
...know the positive ways I cope with diabetes-related stress.	1 Strongly Disagree	2 Somewhat Disagree	3 Neutral	4 Somewhat Agree	5 Strongly Agree
...can ask for support for having and caring for my diabetes when I need it.	1 Strongly Disagree	2 Somewhat Disagree	3 Neutral	4 Somewhat Agree	5 Strongly Agree
...know what helps me stay motivated to care for my diabetes.	1 Strongly Disagree	2 Somewhat Disagree	3 Neutral	4 Somewhat Agree	5 Strongly Agree
...know enough about myself as a person to make diabetes care choices that are right for me.	1 Strongly Disagree	2 Somewhat Disagree	3 Neutral	4 Somewhat Agree	5 Strongly Agree