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A Quality Improvement Project to Implement Shared Medical Appointments for the Management of Type 2 Diabetes in Latino Patients

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Abstract

Problem: Santa Rosa Community Health (SRCH) is one of the largest federally qualified health centers in Northern California, providing health care to more than 30,000 patients. More than half of the patients receiving care at the SRCH Lombardi site are Latino patients. Patients self-identify as Latino or other ethnicity on the initial health center registration form. SRCH serves 964 patients with diabetes. Due to limited access to appointments and resources, seeing a healthcare provider regularly can be difficult, posing a barrier to diabetes management. Patients with diabetes would greatly benefit from regular appointments with their primary care provider and resource appointments with a nurse, nutritionist, behavioral health specialist, and pharmacist, yet due to insufficient appointment availability, this is not possible.

Context: The project lead planned, implemented, and evaluated this evidence-based, quality-improvement project for the implementation of weekly shared medical appointments for diabetes education for Latino patients at an outpatient clinic of SRCH. The project was implemented from June to September 2019 with final evaluation in September 2019 and data analysis and dissemination of data to occur in December 2019.

Intervention: The intervention consisted of creation, implementation, and evaluation of a shared medical appointment (SMA) project for quality improvement in patient care. The project goal was to improve patients' diabetes knowledge, hemoglobin A1C, and satisfaction with SMAs.

Measures: Patients completed a pre- and post-intervention diabetes knowledge questionnaire. Hemoglobin A1C levels were evaluated prior to the intervention and three months later. Patients and primary care providers completed satisfaction surveys.

Results: Patients and providers were very satisfied with shared medical appointments for diabetes. Glucose control through hemoglobin A1C and diabetes knowledge did not show

significant improvement in three months, consistent with other studies of SMAs and reflective of the need for longer-term interventions intended to educate, change behavior, and improve health.

Conclusion: SMAs allow for more time for patients to acquire the self-management tools and skills needed to manage diabetes. SMAs provide social interaction, improved social support and increased access to appointments. Additionally, SMAs are important models to consider in moving towards team-based care. On this point, and on the long-term efficacy of SMAs for glycemic control and diabetes self-management, additional research is needed.

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Section II. Introduction

Type 2 diabetes mellitus affects over 30 million people in the United States. It is a complex, chronic disease that can be managed through diet, physical activity, and appropriately prescribed medications (Centers for Disease Control and Prevention, 2019). In the United States, primary care providers are faced with the daunting task of caring for patients with diabetes to address multiple complaints in a typical 20-minute visit. Not surprisingly, it is difficult to address multiple complaints in one visit. Managing type 2 diabetes in individual appointments poses challenges to primary care providers due to limited time, resources, increased patient loads, and limited appointment availability. These challenges have led providers to search for unique and efficient innovations to improve diabetes care for patients and prevent the progression of this chronic illness. One of the innovative practice ideas is using shared medical appointments to improve diabetes care for patients. Shared medical appointments (SMAs), also known as group visits, occur when multiple patients are seen as a group for the management of chronic conditions (AAFP, 2018). SMAs present an opportunity for patients to have improved access to care and better diabetes education, which will improve glycemic control and increase patient satisfaction (Dontje, & Forrest, 2011).

The age-adjusted prevalence of type 2 diabetes is nearly 2 times greater among Latinos than non-Latino Whites. The Latinos in the United States generally have poorer glycemic control than the non-Latino white population, which can lead to more frequent complications, greater disease severity and worse health outcomes (Rotberg, Junqueira, Gosdin, Mejia, & Umpierrez, 2016). Rotberg, et al. (2016) found the level of social support to be a significant factor in health and overall well-being in low-income Latinos. Using shared medical appointments in Latino

patients with diabetes aims to enhance patient emotional well-being and increase the level of social support to improve glycemic control.

Problem Description

Santa Rosa Community Health (SRCH) is one of the largest federally qualified health centers in Northern California, providing health care to more than 30,000 patients. The mission of SRCH is to serve the diverse community by providing excellent, culturally responsive, comprehensive primary care that is accessible to all people (SRCH, 2019). More than half of the patients receiving care at the SRCH Lombardi site are Latino patients. Patients self-identify as Latino or other ethnicity on the initial health center registration form. SRCH serves 964 patients with diabetes. Patients with diabetes see their primary care provider at least once every three months for diabetes management. If their diabetes is uncontrolled, these individuals will likely see their primary care provider or a nurse more often.

Due to limited access to appointments and resources, seeing a healthcare provider more frequently can be difficult, posing a barrier to diabetes management. Ideally, patients with diabetes would greatly benefit from regular appointments with their primary care provider as well as resource appointments with a nurse, nutritionist, behavioral health specialist, and pharmacist. Due to limited appointment availability, especially for resource appointments, this is not possible. As the organization places an increased emphasis upon health quality and increasing access to appointments, it was apparent that a quality improvement initiative was required to address the identified problem.

Available Knowledge

PICOT question. For Latino patients with type 2 diabetes, how does the implementation of weekly shared medical appointments compared to standard quarterly visits improve diabetes knowledge, confidence in management and hemoglobin A1C three months post intervention?

Systematic literature review. A search was performed using Pubmed, EBSCOhost and CINAHL search databases for journals. The following key terms were included in the search in different combinations: *diabetes, shared medical appointments, education, Latino.* Evidence was limited to articles published in English between 2011 and 2018. Articles were excluded if the framework included inpatient settings. From the initial yield of 76 articles, seven were selected for this review because of their relevance to the purpose of the literature review. The level of evidence was assessed according to *the Johns Hopkins Research Evidence Appraisal Tool* (Dang, & Dearholt, 2018). This appraisal tool was used to evaluate the strength of evidence and quality of the studies included in this review (see Appendix A).

Diabetes outcomes in patients with shared medical appointments. Several studies have evaluated the impact of a collaborative diabetes SMA. A quasi-experimental study (Dontje, & Forrest, 2011) in an academic health center explored the effect of having monthly, 90-minute group visits for patients with diabetes focusing on helping them improve their self-management skills. Findings from the study indicated improvements in self-management skills, satisfaction with the shared medical appointment as well as some improved adherence to diabetes metrics.

The patients Dontje and Forrest (2011) included in their study had been referred by their primary care provider (PCP), had a diagnosis of diabetes and had a hemoglobin A1C greater than 8%. The PCP excluded patients with end of life or mental health issues from their study as well as those with homebound status. Fifty-one patients attended the group visits over thirty-three

months; of the 51 participants, 33 attended one or two visits and 18 attended three or more group visits. The group visits were scheduled for 90 minutes and included a meeting with the Nurse Practitioner (NP) for 10-15 minutes where the NP reviewed the patient's record, performed a focused history and physical and discussed proposed changes in the medications for each patient. This was followed by a group visit for 40-50 minutes, which included discussion of and progress toward goals. The study measured selected metrics as recommended by the American Diabetes Association (ADA). The metrics with highest percentage improvements from pre to post intervention included patients who had the pneumonia vaccine recorded, received the influenza vaccine, those who had a systolic blood pressure less than 130 mmHg, diastolic blood pressure less than 80 mmHg, those with random renal microalbumin less than 30mg and those who had attended a dilated eye exam and foot examination within the last year and those who used tobacco Finally, it also included pre and post hemoglobin A1C. From the 10-diabetes metrics analyzed, eight were significantly higher for those who attended the shared appointment more than three times. The two measures that did not have enough significance were the hemoglobin A1C and tobacco use measures. It is important to note, from the results of this study, how shared medical appointments can help improve measures that are specific to meeting ADA metrics. Results of the study demonstrated improved clinical outcomes related to monitoring and documenting of diabetes measures, self-management behaviors and high provider and patient satisfaction.

A large retrospective study (Watts, et al, 2015) assessed the impact on glycemic control in a primary care Veterans Affairs SMAs. They included 1290 predominantly male, middle age, African American patients with diabetes who had attended at least one SMA from 2006 to 2010. The primary measure for the effectiveness of SMAs was the hemoglobin A1C. The study

reported significant A1C reductions overall as well as a difference in A1C slopes before and after the intervention. The study conducted an independent sample t-test using aggregate data for the entire period fit 1170 patients who had at least one pre- and post-SMA A1c measurement which showed significant reduction in A1c levels (delta= 0.54, p <0.001). Linear regression analysis of the pre-SMA A1c levels showed a significant (p <.001) pretreatment trend but in the increasing direction and the association was substantial ($r^2 = 0.90$), suggesting a strong probability of A1C scores continuing to increase over time unless intervened upon. The glycemic control showed to be deteriorating before the intervention of SMAs and improving after the intervention. This study demonstrates SMA clinical effectiveness in improving A1C in high risk patients with diabetes. The researchers report that the reason SMAs are effective remains somewhat speculative but particular emphasis is placed on medication adherence and titration during the SMAs as well as the discussion on the barrier and supporting continued adherence with medication are the likely contributors to the success of the intervention.

Behavioral intervention in shared medical appointments. Another quasi-experimental study (Hartzler et al., 2018) evaluated patient outcomes in an urban family medicine clinic that services low-income patients. Participants were patients with a diagnosis of type 2 diabetes and a hemoglobin A1C greater or equal to 7.5%, who were on at least one antihyperglycemic agent, spoke English and were able to travel to the clinic were enrolled to participate in shared medical appointments over 12 months. This study reported that in patients with diabetes, collaborative SMAs conducted by a multidisciplinary team significantly improve glycemic control, low-density lipoprotein cholesterol (LDL-C), adherence to national guidelines, improve diabetes knowledge and decrease diabetes related emotional distress. The SMAs were conducted in a group format and the clinical team included a resident physician, clinical pharmacist, and

psychologist. The SMAs were conducted one to two mornings per week and were 120 minutes long with a maximum of 10 patients per visit. Patients attended the SMA once every 4 weeks if A1C was greater than 8% and every 6-8 weeks if A1C level was less than 8%. The SMA's included obtaining an updated medication list, an individualized plan of action including medication adjustments, diet and exercise recommendations and self-care recommendations for each patient. Each session included behavioral health interventions with stress management techniques, mindfulness strategies, and introductions to the cognitive behavioral model to change a health habit. The Problem Areas in Diabetes (PAID) validated questionnaire evaluated the emotional distress associated with diabetes which demonstrated an improvement which was evaluated with paired t-tests demonstrating $P<.001$ and P .003 respectively in baseline to 12-month survey scores. This evidence demonstrates that behavioral intervention is critical for patients with diabetes to make management changes. Researchers report that additional research is needed to further evaluate the relationship and impact between SMAs and both glycemic and depression related outcomes.

   Effectiveness of shared medical appointments for Latino patients. The Emory Latino Diabetes Education Program (ELDEP) is the first nationally accredited, all-Spanish diabetes self-management education (DSME) program that focused on the Latino population. A study (Rotberg, Junqueira, Gosdin, Mejia, & Umpierrez, 2016) examined the relationship between social support and glycemic control within the population of low-income Latinos with type 2 diabetes enrolled in the ELDEP. The patients attended an initial 3-hour diabetes self-management education class, monthly classes to address the barriers of diabetes self-management as well a phone calls to answer any questions throughout the study. The level of perceived social support was measured using the Duke-UNC Functional Social Support

Questionnaire (Duke-UNC FSSQ) Scale which has been found to have good reliability and validity in Spanish-speaking populations. The score on the DUKE-UNC FSSQ increased from a score of 21 out of 40 at baseline to a score of 29 out of 40 at the 3 months follow up (P< .001). The group starting the study with a higher level of social support began with a lower hemoglobin A1C and after the SMAs the hemoglobin A1C decreased from 8.9% to 7.7% average. The group starting the study with a lower level of social support decreased their hemoglobin A1C on average from 9.8% to 7.5% after the SMAs. This study demonstrated that DSME/S programs, like ELDP may help reduce emotional distress and motivate patients to improve diabetes self-care.

A different randomized controlled trial (Gutierrez, Gimpel, Dallo, Foster, & Ohagi, 2011) evaluated shared medical appointments in Hispanic patients in a residency clinic showed high patient satisfaction, and statistically significant decrease in hemoglobin A1C levels, as well as improved quality of life and diabetes knowledge scores. This is one of the only studies that has been used to evaluate SMAs among Hispanics. The SMAs were conducted in Spanish every other week. This study included participants that were Hispanic, age 18 or older and with a diagnosis of type 2 diabetes. 50 patients were placed in the SMA group and 53 patients in the control group. When comparing the A1C levels between both groups, the SMA group demonstrated a 1.19% decrease while the control group demonstrated a 0.67% decrease. The quality of life and diabetes knowledge scores increased by 5 and 1.5 points respectively (P<.01). Patient satisfaction scores were high with a median score of 3.67 on a Likert-type scale ranging from lowest score 1 to highest score 4 implying that these visits are well received among patients, specifically Hispanic patients.

Patient satisfaction with SMAs. In a qualitative study (Stults, et al., 2016)

conducted to examine patients' perspective on SMAs, patients reported that they received

numerous tangible and intangible benefits from SMAs particularly enhanced engagement with

other patients and physicians, learning and motivation for health behavior changes. Some

participants also felt that SMAs provided an emotional connection in knowing there are others

going through the same challenges and barriers. This study took place in a large, nonprofit group

practice in northern California and included 30 participants that were interviewed to investigate

the patients' overall satisfaction with SMAs. The average age of the participants was 70, the

majority were white, and more than half of the participants were male and married. In the

evaluated qualitative data, it was reported that the amount of learning during a SMA was higher

than the traditional 15-20-minute visits since patients reported they had more time to learn and

more information given. Another area studied was the difference in motivation for health

behavior change between SMAs and traditional visits. Group participants reported SMAs helped

increase their motivation to make changes and adopt lifestyle modifications by "learning from

others" during these SMAs. This study's limitation of having a potential selection bias for those

who chose to participate in the group because it is possible that participants who had a more

positive view of SMAs agreed to participate.

In the quasi-experimental study by Dontje and Forrest (2011), patient satisfaction surveys

from baseline to 12-months confirmed high satisfaction with group visits with a 73% response

rate. Results from the survey demonstrated a mean response of "very good" to "excellent" rating

for all sections including availability of appointment, courtesy and helpfulness of the staff

person, nurse practitioner and scheduler as well as explanation of what was done, and the

professional skills of the nurse practitioner. The most noteworthy result revealed that 100% of

the group respondents indicated that they would recommend group visits to friends and family

and the primary care provider survey results indicated that 100% would like to continue referring patients. However, only six referring providers completed the survey from 11 total surveys requested. Despite having low response rates from these surveys, these high satisfaction ratings suggest that SMAs are well received by patients and providers.

   Barriers to SMAs. From the same quasi-experimental study, Dontje and Forrest (2011) reported that although group visits were well received, financial sustainability, ongoing maintenance and recruitment posed barriers to the group visits. Because primary care institutions must charge according to a fee-for-service reimbursement protocol, group visits do not appear to be sustainable at times. According to the authors' calculations of fee-for-service reimbursement using an NP provider, to justify the time and cost of group visits, visits would need to include 12-14 patients per group visit. Shared medical appointments offer an excellent opportunity to assist patients in developing self-management techniques and improve the quality of care however, a challenge on how to sustainably integrate these services persists.

   Frates, Morris, Sannidhi, and Dysinger (2017) discussed creating financial viability by billing or having capitated visits which is a model that pays a group of physicians a set amount per patient enrolled whether or not the patient seeks care. Unfortunately, most large health systems still do not have capitated billing, meaning each patient visit will need to be billed directly, the documentation must be adequate, and the visit frequency reasonable. An additional barrier noted was for the self-pay patients who would have to pay out of pocket for these visits and may not find them affordable. Another challenge to SMAs, as discussed by Frates, Morris, Sannidhi, and Dysinger in their paper, is the marketing and referral need for these SMAs. Providers and patients may not be familiar with group visits and they may be nervous about

veering away from traditional individualized care. This challenge can be addressed by educating administrators and patients on the group set up and benefits of these SMAs.

A study by McCuistion et al. (2014) explored the facilitators and barriers to implementing SMAs in a large multispecialty medical group by conducting a comparative analysis at three geographically distinct divisions of the medical group. All three divisions reported one of the barriers to be financial. The reported financial barrier included having to cover administrative and clinical staff expenses as well as implementation costs and not having financial benefit from having SMAs. Another part of the same financial barrier found was the difficulty of referring enough patients. Another important barrier found by this study was the lack of support and resources which limited the implementation of SMAs. This included not having medical assistants, behaviorists and dedicated SMA rooms. The lack of interest of physicians to refer patients to these SMAs was also a barrier and some physicians did not refer due to fear of "losing a patient." They reported they could see the value of referring their patients to language and culture specific SMAs because sharing cultural experiences facilitated the general acceptance of SMAs.

Rationale

Theoretical framework. The Social Cognitive Learning Theory (SCT) by Albert Bandura was developed in 1986, building on his 1960s Social Learning Theory. The theory specifies a core set of determinants, consisting of attention, retention, reproduction, and motivation, that provides a framework for understanding the way learning occurs and the unique way in which individuals acquire and maintain behaviors (Bandura, 2004). The framework addresses the knowledge of risks and benefits of different health practices; perceived self-efficacy that one can exercise control over one's health habits; outcome expectations for expected

costs and benefits of different health habits; the health goals people set for themselves and the

concrete plans and strategies for realizing them; and the perceived facilitators and social and

structural impediments to the changes they seek (Bandura, 2004).

Self-efficacy lies at the center of SCT and demonstrates the expectation that one can

execute a specific behavior in a certain situation. The focus on self-efficacy addresses physical,

social, and self-evaluative outcome expectations; proximal and distal goals; as well as personal,

situational, and health system impediments (Bandura, 2004). SCT maintains that the stronger the

perceived self-efficacy is, the higher the goals will be, and the greater the likelihood that they

will be met, while individuals with lower perceived self-efficacy set lower goals and expect poor

outcomes. For health promotion and behavior change, SCT encourages starting off with short-

term goals that are realistic and measurable, and subsequently adding long-term goals. The

impediments to personal change are different for each individual and form an integral part of the

self-efficacy assessment.

SCT guided a review of the evidence for using shared medical visits in managing

diabetes in the outpatient setting. SCT addresses the relationship between learning and the way

individuals acquire and maintain behaviors. The SMAs strive to help improve self-efficacy and

confidence in patients with diabetes to encourage them to set and meet short- and long-term

goals that will impact their health in positive ways.

Specific Aims

The overall goal of this evidence-based project was to create, implement, and evaluate

shared medical appointments conducted by a multidisciplinary team for Latino patients with

diabetes. The specific aims of this project were to improve diabetes blood glucose control,

measured as reduced hemoglobin A1C three months post intervention; increase diabetes

knowledge and confidence in diabetes management; and to achieve high patient and provider

satisfaction with the shared medical appointments. This paper describes the interventions, the

specific steps for implementation, the defined measurements and methods, and the outcomes of

the interventions.

Section III. Methods

Context

This evidence-based, quality-improvement project encompassed implementation of weekly shared medical appointments for diabetes education for Latino patients at an outpatient clinic of SRCH. The project was implemented with the support and collaboration of the SRCH quality improvement and management teams. The quality improvement team prioritizes improving the quality of care for patients and meeting quality goals, a focus which helped the project lead (the DNP candidate) with implementation. Over the course of the project, the quality improvement team, which meets monthly, evaluated the appointments and made appropriate recommendations for improvement.

The stakeholders for this project were the individuals that influence and are influenced by SMAs. Widely considered, stakeholders consisted of patients, medical providers, healthcare organizations, health insurance systems, and public health organizations. More specifically, patients with diabetes who receive primary care in clinics and have limited access to appointments were the targeted stakeholders. Families of patients were stakeholders in that they provided support to their family members in managing their diabetes and benefited from the patient's increased self-efficacy. Medical care providers who could not offer sufficient access to appointments and serve the volume of patients in need of care were stakeholders. Additionally, leadership teams at SRHC had a stake in the project stemming from their interest in improving job satisfaction and employee retention. Other stakeholders were healthcare organizations with the desire to reduce hospitalizations, increase patient satisfaction, and meet quality improvement goals for diabetes management; healthcare insurance systems with a financial interest in reducing

the cost of managing diabetes and its complications; and public health organizations seeking to

increase access to health care.

The key medical providers and leadership team were aware of and open to the need for

change, as the medical providers were sometimes overwhelmed by the number of patients

coming in for diabetes management visits. Early in the development of the project, a letter of

support for implementation was received from the medical director and director of operations at

SRCH Lombardi site (see Appendix B). The patients were also open to having SMAs as

obtaining appointments with their primary care providers was at times quite difficult. During the

SMAs, patients often mentioned how much they appreciated being able to attend SMAs once a

week because without them they would sometimes have to wait several weeks to see their

primary care provider for a diabetes related issue.

Intervention

The intervention was to implement weekly diabetes shared medical appointments where

several Latino patients at a time could receive diabetes education, medication management, and

continuity of care from a multidisciplinary team consisting of a family nurse practitioner,

medical assistant, and psychologist. The DNP candidate served as a team leader and was

responsible for medical management. Key members involved in the decision-making and rollout

were the team leader and the director of program operations, who generously made herself

available to the team leader, organized meetings, and supported clear communications

throughout this project. Supportive health center personnel included the director of operations,

medical director, clinic manager, psychologist, medical assistants, receptionists, and other staff

who had a positive impact on project implementation.

This quality-improvement project provided an opportunity to help patients with type 2 diabetes at SRHC better manage their diabetes with the aid of drop-in shared medical appointments for diabetes education. The DNP candidate conducted a review of the evidence on how SMAs for diabetes education have been beneficial. Supported by the medical director and director of operations, the DNP student began building interest in the project by taking time in the monthly staff meetings to inform staff, including the MDs, NPs and PAs associated with the health center, about the SMAs and encouraged referral of their patients with diabetes who might benefit from shared appointments. Flyers were created and handed to patients to build awareness of the SMAs. Recruitment began with referrals from the primary care providers by sending a message to the medical assistant in charge of the group. The medical assistant would then call the patients and let them know about the SMAs. If they were interested, the medical assistant would schedule the appointment.

The SMAs were held every Monday from 2-4 pm. Prior to each SMA, the project lead reviewed patient records, including labs, medication regimen and gaps in diabetes care. A large room was made available for each SMA, with chairs set up in a circle to promote interaction. The psychologist facilitated the meeting and group process. Using team-based care with the patients an integral part of the medical interaction was central to the design of the SMAs. The SMA began with vital signs taken by the medical assistant, followed by a medication reconciliation, and a brief interview with the nurse practitioner. After everyone was present, the team leader facilitated a one-hour discussion on a pertinent topic. The topics included in the shared medical appointments included learning about disease process including health targets, balanced plate method, food groups, nutrition labels, medications, stress management, exercise and blood sugar testing and management. The topics were chosen during a leadership meeting

discussing diabetes topics for groups. Although the topics were shortened or lengthened depending on patient participation and questions. A facilitative leadership style was used to guide the group discussion. After the discussion, patients voiced any questions or concerns and healthy snacks were provided. The final 30 minutes of the SMA consisted of goal setting by each patient followed by a stretching activity or mindfulness meditation.

Gap analysis. Latinos face many obstacles that inhibit effective diabetes management, including low health literacy, limited access to diabetes education, and poor social support (Rotberg, Junqueira, Gosdin, Mejia & Umpierrez, 2016). Evidence points to the design of diabetes education programs largely for insured, non-ethnic minority, English-speaking, middle-class populations, with few programs developed for Latino populations (Mauldon, Melkus, & Cagganello, 2006). From the gap analysis, opportunities for improvement were identified and used to design the shared medical visits. The published literature reviewed for this project demonstrated that shared medical appointments for diabetes management are successful in improving diabetes knowledge and glycemic control. The organizational gap analysis demonstrated that there are insufficient resources, including registered nurses, registered dieticians, psychologists, and pharmacists, who can see patients one-on-one. The gap analysis also demonstrated that using shared medical appointments could be employed as an evidence-based practice strategy to mitigate these barriers. See Appendix C for the Gap Analysis.

Gantt chart. The Gantt chart (see Appendix D) was created to function as a reference guide for program planning, monitoring and capturing the work completed. Planning for project implementation began in early January 2019. Project implementation was planned to begin in April, but due to unforeseen circumstances (discussed in the Limitations section), was delayed

until June. The data collection and data analysis were completed as planned in September 2019. The final project write-up was scheduled for September through November 2019.

Work breakdown structure. The work breakdown structure to implement shared medical appointments includes the components of the project and a detailed outline of the categories and tasks. The main components of this project included approval of the key stakeholders, offering SMAs, developing SMAs, defining project scope and developing the budget. Each of these components were broken down into steps to meet the main components. See Appendix E for the breakdown structure.

SWOT analysis. The strengths, weaknesses, opportunities, and threats of this project are enumerated in the SWOT analysis (see Appendix F). The internal strengths were a specific population with an identified need and clear organizational goals for quality improvement in diabetes care. Another strength was the support of the SRCH leadership and quality improvement teams, and primary care providers. An additional strength of the project included the project leader's expertise in diabetes teaching and cultural competence in working with a Latino population. The weaknesses of the project were an inconsistent process for data collection in Santa Rosa Community Health, slow organizational approval for project implementation, and scarcity of internal funding for the project.

The opportunities for this project to fulfill the needs of SRCH in diabetes care included improved access to appointments, increased patient and provider satisfaction with SMAs, and increased success in meeting quality goals. Other opportunities included focusing on patient education and self-efficacy in diabetes care and strengthening the organization's evidence-based practice. The threats to this project were insufficient funding, the possibility of low patient participation, and the limitations that the short project duration put on achieving results.

Program budget and return on investment. The budget for the implementation of shared medical visits included funds to pay for staff to conduct the SMAs. As the SMAs were to occur weekly, four hours of pay per week was budgeted for each of the three staff persons involved. Guest speakers were to be compensated on an hourly basis for their services. Education and demonstration materials added an insubstantial indirect cost. There were no costs for facilities as these were provided by SRCH. See Appendix G for the Program Budget.

Return on investment (ROI) for this project was difficult to determine immediately upon completion of the pilot project due to the short time over which it was implemented. Over time, with the continuation of SMAs and data collection, more quantifiable outcomes are expected to accrue. An assumption in this project was that SMAs would become a way for patients with diabetes to improve access to appointments, therefore decreasing common complications of diabetes and added cost of treatment of complications. Another assumption was that increased access to appointments and improved diabetes education would result in fewer emergency room visits—a cost savings for patients and Sonoma County. See Appendix H for the Return on Investment Plan.

In order to sustain this quality improvement project, it is important to continue funding a 0.2 full time equivalent (FTE) NP position and 0.2 FTE MA position. The annual cost of $30,000 for one year of funding shared medical appointments for diabetes Management is relatively low when compared to $4,700 (CMS, 2019), the average cost of one day in the hospital for a patient in Sonoma County. With the appropriate documentation, SMAs are billable for reimbursement by Medicare, Medicaid and private insurance. The provider can be reimbursed for a 15-minute visit for every patient who attends an SMA. The reimbursement rate for Santa Rosa Community Health is around $280 per visit.

Responsibility/communication matrix. The DNP candidate was the project lead. The University of San Francisco advisory leader for this DNP project was Professor Brian Budds. Dr. Alexa Curtis was a member of the DNP student's advisory committee. Feedback from Professor Budds and Dr. Curtis was solicited and acted on throughout this project. The DNP project advisory member from Santa Rosa Community Health was the site director. The Chief Medical Officer approved the project plan and was consulted regarding the needs assessment, roles and responsibilities, and monthly revisions to SMAs. The primary care providers and medical assistants were crucial participants in this project as they were responsible for recruiting patients and referring them to the diabetes SMAs. See Appendix I for Responsibility/Communication Matrix.

Study of the Intervention

Baseline data collected prior to intervention included demographic information consisting of age, sex, insurance type and primary care provider who completed the referral. See appendix # for the demographic data.

One of the process measures in the project was the change in Hgb A1C from pre to post intervention, measured by data from the patients' electronic medical record (EMR). Hgb A1C levels indicate the average amount of glucose in the blood by measuring the percentage of glycated (glycosylated) hemoglobin in the last 3 months. The Hgb A1C levels are measured once every three months and this intervention lasted three months which made it a good test to measure pre- and post-intervention. During the patient's first visit, the medical assistant checked the Hgb A1C test and documented it in the EMR and our DNP results Excel sheet.

Another process measure was a Diabetes Knowledge Questionnaire that was completed by each patient pre and post-intervention. This Diabetes Knowledge Questionnaire is a self-

administered instrument to measure patients' knowledge of diabetes. This instrument was developed by Garcia and Associates for a diabetes self-management project at Gateway Community Health Centers, Inc. of Texas. This questionnaire was administered in Spanish and every patient was given enough time to complete the questionnaire before commencement of the SMAs and after completing the 12-week intervention.

One of the outcome measures in this project was a post-intervention patient satisfaction survey developed by the DNP candidate. To ensure data quality, the surveys were administered by the medical assistant at the beginning of the post-intervention meeting without the team lead in the room. Another outcome measure was a post-intervention provider satisfaction survey. This survey was made with Qualtrics and sent out as an email to the medical providers at the Lombardi Medical site where the shared medical appointments take place. See appendix # and # respectively for the surveys.

The measurable objectives in determining the success of the shared medical appointments for diabetes management included a comprehensive evaluation of the project. Weekly meetings with the project lead, site director, and medical assistant occurred during the first month of implementation and were aimed at discussing the limitations and problems encountered during project implementation. During that time, minor adjustments were decided on. The project lead found these meetings to be very helpful. A summative evaluation through a post-intervention satisfaction survey was used to assess the project's impact on satisfaction with primary care providers and patients.

Analysis

Qualitative and quantitative data were gathered pre- and post-intervention through hemoglobin A1C readings and diabetes knowledge questionnaires. Data was also gathered

through post-intervention patient and provider satisfaction surveys. The project lead collected data on the patients' demographics, diabetes knowledge, and confidence with managing diabetes. Satisfaction surveys were administered to patients and referring providers after the 12-week intervention. The Hgb A1C tests were obtained through data on the EMR. Data collection was conducted through surveys on Qualtrics to evaluate the referring providers' satisfaction with shared medical appointments. The data was sorted and analyzed with Excel and SPSS.

Analysis of Hgb A1c using a paired t test was utilized to evaluate the change from baseline (i.e.-intervention) to post-intervention. The data from the Diabetes Knowledge Questionnaires were compared using a paired t-test to determine if there were any differences between pre- and post-intervention. The qualitative data was analyzed through thematic analysis.

Ethical Considerations

This DNP Project was determined to be a non-research, evidence-based, quality-improvement project by the DNP Committee in the School of Nursing and Health Professions at the University of San Francisco overseeing this project. Therefore, it was not subject to Institutional Review Board for the Protection of Human Subjects approval. See Appendix J for Statement of Determination.

An ethical consideration to acknowledge in implementing this evidence-based project is the privacy of patients and compliance with the Health Insurance Portability and Accountability Act (HIPAA). Before participating in the SMA, patients signed a confidentiality agreement to protect themselves and all patients in the group. The data gathered and the surveys completed by patients and referring providers were anonymized and free of identifying characteristics in order to protect privacy and ensure HIPAA compliance.

Jesuit values. The mission of the School of Nursing & Health Professions (SONHP) is to advance health professions education within the context of Jesuit tradition. As a Jesuit institution, USF encourages taking action against social injustices towards the underserved. This project embodies the Jesuit value of *cura personalis*, suggestive of giving individualized care and attention to the whole being.

American Nurses Association (ANA) code of ethics. Provision 8 of the ANA Code of Ethics (2015) supports the concept and implementation of shared medical appointments. The provision states, "the nurse collaborates with other health professionals and the public to protect human rights, promote health diplomacy, and reduce health disparities" (ANA, 2015, p.31). This provision provides justification for the project because through collaboration with a multidisciplinary team, the nurse practitioner contributes to the improved health of the Latino patients in the study. If sustained or expanded, this project offers the potential for improved glycemic control, an important step in reducing the existing health disparity between Latinos and the non-Latino white population.

Section IV: Results

Quantitative Results

The SMAs were implemented over a 12-week timeframe. Attendance ranged from three to eight patients per visit. The 25 patients who participated in the program were representative of the larger adult health center population and self-identified as Hispanic-Latino. Their preferred language was Spanish. Female/male representation was 68%/32%. Of the participants who attended the SMAs, nine had Partnership/Medicaid insurance, three had Medicare, nine were uninsured, and four had insurance provided by their employer.

Glucose control. The Hemoglobin A1C was measured pre and post intervention. Pre-intervention A1Cs ranged from 7.2 to 13 based on 10 patients. The mean pre-intervention A1C was 8.68. The post-intervention A1C based on the same 10 patients ranged from 6.7 to 11, and the mean was 8.68. Analysis revealed that overall HgbA1C mean was reduced by 7%. This was not found to be statistically significant ($p < .208$). Seven participants had an overall reduction in HbA1c. Two participants had a reduction greater than 2.0%. The largest reduction in HbA1c was 2.8%. Only one participant experienced an increase in HbA1C. The HbA1C change in pre and post intervention was statistically insignificant ($p < .208$). This is consistent with other studies of SMAs and reflects the long-term nature of these quality measures.

Diabetes knowledge. Twenty-five patients completed the pre-intervention Diabetes Knowledge Questionnaire but only 10 participants completed the post-intervention Diabetes Knowledge Questionnaire. The poor number of responses is addressed in the limitations section of this paper. The pre-intervention Diabetes Knowledge Questionnaire scores ranged from 62% to 90% based on 10 responses, with a mean score of 76.3%. The post-intervention scores had a range of 66% to 95% with a mean score of 82.6%. The change in the mean from pre to post

survey was 6.3%. Eight participants had improvement in the Diabetes Knowledge Questionnaire. One participant had the same score pre- and post-intervention and one participant's score decreased. See table 1.

Pre-intervention	Post -Intervention
7.3	6.7
7.6	7.2
10.1	7.3
7.5	7.5
9	8.5
8.9	8.9
8.6	9.6
10.1	9.6
10.7	10.5
13.1	11

Table 1. Pre and post-intervention hemoglobin A1C measurements.

Provider satisfaction. A post-intervention medical-provider satisfaction survey was sent out to ten referring providers. Six responses were received for a 60% response rate. The survey asked four questions:1) "Have you benefited from being able to offer shared medical appointments?" All six providers answered, "Definitely yes." 2) "Have you found that your patients have benefited from SMAs?" Three providers answered, "Definitely yes," and three answered "Probably yes." 3) "How likely are you to continue offering SMAs to your patients?" Five providers answered, "Extremely likely," and one provider answered, "Moderately likely." See Table 2. A final question asked if they had any further comments about shared medical appointments. Four comments were returned:

- "Patients find them helpful, especially for community building,"
- "I believe shared medical appointments empower patient to take control of their health and is vital to achieve and promote health outcomes."

- "For my HARD-to-control patients who need a whole lot more education,

   comfort, hand-holding, motivation than I can provide in 15-minute visit q3m, this

   has been HUGE for change; my pt dropped a1c by 3 pts in 3 months of

   attending,"

- "Diabetes education is very time consuming. Though there is a lot of

   individualization the general concepts are perfect for group-based care."

#	Answer	%	Count
1	Extremely likely	83.33%	5
2	Moderately likely	16.67%	1
3	Slightly likely	0.00%	0
4	Neither likely nor unlikely	0.00%	0
5	Slightly unlikely	0.00%	0
	Total	100%	6

Table 2. Provider satisfaction survey. This table illustrates provider responses to the question: How likely are you to continue offering SMA for diabetes education to your patients?

Patient Satisfaction

Patient satisfaction with the SMAs was ascertained through a post-program satisfaction questionnaire measured via a 5-point Likert scale (1-very unsatisfied, 2-unsatisfied, 3-neutral, 4-satisfied, 5-very satisfied). The question asked was "Overall, how satisfied are you with your experience with shared medical appointments for diabetes management in which you participated?" Ten patients responded, with eight stating very satisfied, and two stating satisfied. See Figure 1. All the participants indicated they would definitely recommend SMAs to their friends or family.

Figure 1. Patient satisfaction with SMAs. This figure illustrates patient responses to the question: How satisfied are you with SMA's for diabetes?
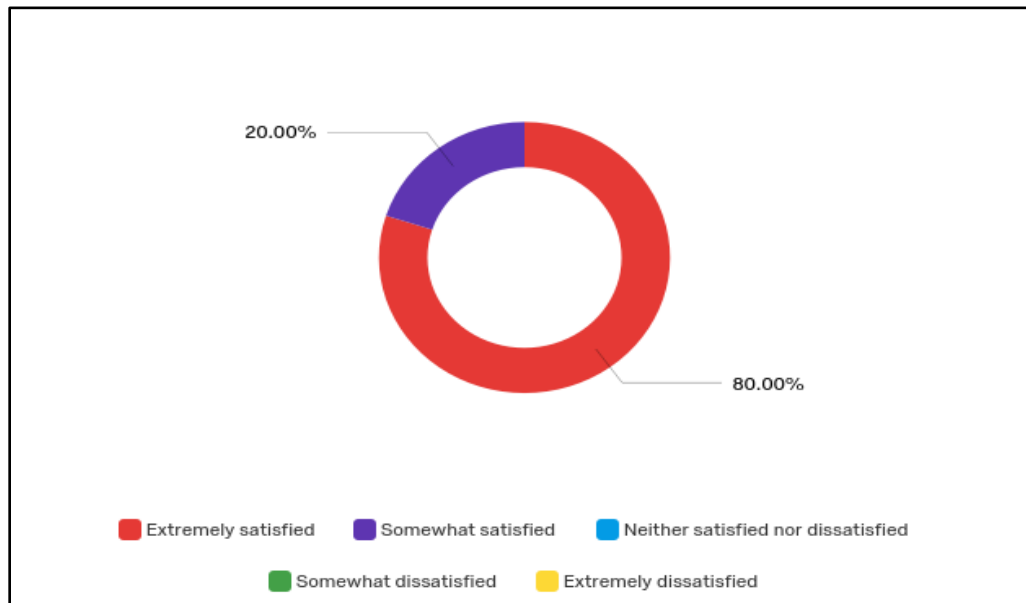
Section V: Discussion

Summary

This quality improvement project had a clear and relevant purpose to meet the needs of patients with diabetes at SRCH. The intervention of implementing SMAs was supported by evidence-based research. The specific aims of this quality improvement project were to improve diabetes blood glucose control, increase patients' diabetes knowledge, and achieve both patient and provider satisfaction with the shared medical appointments. The results indicated no statistical significance in the changes on Hgb A1C and pre- and post- knowledge questionnaires. This could be due to the very limited amount of data retrieved as well as the short duration of the intervention and the small sample size. Continuing SMAs for diabetes management for a longer period of time could give more meaningful since it takes a long time to improve Hgb A1C. The provider and participant satisfaction evaluations showed providers and patients were satisfied with the shared medical appointments. Additionally, the medical providers reported a high likelihood of continued referral to the shared medical appointments. New possibilities emerged

from this project implementation through the change in the SMA fee from a regular sliding scale fee to a $5 charge, making the appointments more affordable for much of the target population.

From a patient perspective, many factors contributed to poor attendance in SMAs, including lack of access to transportation, inconvenient times, work schedule conflict and cost. Efforts made to overcome the poor attendance limitation and increase participation included making a confirmation telephone call the day of the SMA. To mitigate the limiting effect of cost, a lower price for self-pay patients of $5 per visit replaced the regular fee.

Interpretation

SRCH continuously seeks new ways to improve patient care and open access to appointments to better serve the patients. Having weekly SMAs available for Latino patients with diabetes at SRCH improves access to care by offering weekly, drop-in group appointments where many patients with diabetes can attend. If patients are not able to get an appointment with their primary care provider, they can attend the SMA. In time, improved diabetes knowledge and blood glucose control gained through participation in SMAs can be extrapolated to better health outcomes, prevention of complications, and reduction in the prevalence of diabetes hospitalizations.

Limitations

One limitation to implementing SMAs for diabetes management at SRCH was low patient participation. Participant recruitment and retention were challenging. Recruitment was problematic because although patients were referred by their primary care provider, once the medical assistant called them to schedule, the patients would decline the SMA, say they were busy, or they did not have time. In an attempt to increase recruitment, providers were reminded about the SMAs during monthly staff meetings. Providers, accustomed to scheduling individual

follow-up appointments after seeing their diabetes patients, were hesitant to encourage their

patients to engage in a new process and get a different experience through the SMA. Patient

retention was a challenge because some patients would come initially to an SMA but not return.

An attempt to increase recruitment was made by having the medical assistant make a phone call

on the day of the visit to confirm a patient's appointment.

Most of the feedback from patients with respect to low participation was related to the

scheduled times for SMAs: Mondays from 2-4 pm. Many patients reported the need to be at

work then, to pick up their kids from school, or not having transportation. Patients reported

interested in an evening SMA. However, evening SMAs were not established due to the lack of

availability of staff during the evening.

Another limitation was that the results of the shared medical visits may not have been

definitive results due to the short timeframe for intervention and evaluation. For data on Hgb

A1C to be statistically significant, patients would have to have dropped their A1C by two entire

points, which is very difficult to do, especially in three months. The SMAs were originally

planned to start in April but due to unexpected issues that arose, the SMAs started in June,

limiting the intervention duration to three months. Since the SMAs for diabetes management at

SRCH will continue to take place, it may be possible to continue to track the data and patient

results over the next 12 months.

Several patients attended the SMAs once or twice but did not return at the end of the

project to complete the post-intervention surveys. Out of 25 patients who attended at least once,

only 10 patients completed the post-intervention questionnaires and post-intervention Hgb A1C

tests. Getting post-intervention data from all of the patients would have strengthened the study

and perhaps changed the results. Limitations on the data collected included the small sample

size, short duration of the intervention, and the possibility of self-selection bias. Those who chose to participate in the SMAs may have been more willing than the general population to change their lifestyles and dietary habits, thus skewing the data.

The provider satisfaction survey was sent by email to 12 providers, with a return rate of 60%. During the data collection process, the Sonoma County fires and power outages may have contributed to the low provider response. A reminder email, which may have boosted the survey response rate, was not sent out.

Conclusions

Despite the high prevalence of diabetes among Latinos in the U.S. there is a dearth of evidence-based outcome data regarding the effectiveness of shared medical appointments (SMAs) specifically designed for Latinos with type 2 diabetes. Although the literature on SMAs describes the problems faced by Latino patients with diabetes, there are few studies that address appropriate interventions. The intervention undertaken in this project, SMAs in an outpatient setting where provider appointments have not adequately accommodated the Latino population, improved access to care, education, and self-efficacy in managing type 2 diabetes. SMAs have demonstrated the potential to improve glycemic control, increase knowledge about diabetes, reduce emotional distress, and motivate patients to engage in diabetes self-care behaviors. Through provision of SMAs, a multidisciplinary team of healthcare professionals can contribute to the improved health of Latino patients. If sustained or expanded, this evidence-based quality-improvement project would be a much-needed step in reducing the existing health disparity between Latinos and the non-Latino, white population.

The clinical implications for practice are that SMAs allow for more time for patients to acquire the self-management tools and skills needed to manage diabetes. SMAs provide social

interaction, improved social support and increased access to appointments. Additionally, SMAs are important models to consider in moving towards team-based care. For patients with diabetes and depression, it may be beneficial to address psychological needs in conjunction with diabetes management topics through the involvement of a psychologist. On this point, and on the long-term efficacy of SMAs for glycemic control and diabetes self-management, additional research is needed.

Section VI: Other Information

Funding

Funding to support this project and the contributions of SRCH staff in the organization in the design, implementation, and reporting was provided by SRCH. There were no additional sources of funding.

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Section VIII: Appendices
Appendix A
Evaluation of Evidence Table

Citation	Conceptual Framework	Design/method	Sampling/Setting	Major variables studied and their definitions	Measurement	Data analysis	Findings	Appraisal: Worth to practice	Level and Quality
Dontje, K., & Forrest, K. (2011). Implementing group visits: Are they effective to improve diabetes self-management outcomes? *The Journal for Nurse Practitioners*, 7, 571-577. http://dx.doi.org/10.1016/j.nurpra.2010.09.014	N/A	Quasi-experimental 33-month timeframe Group visits	Sampling: Fifty-one patients attended the group visits over thirty-three months; of the 51 participants, 33 attended 1 or 2 visits and 18 attended 3 or more group visits. Setting: outpatient setting	The independent variable: group of participants attending the group visits Dependent variables: Participant satisfaction Provider satisfaction Pneumonia vaccine recorded, systolic blood pressure less than 130, random renal micro albumin less than 30 attended a dilated eye exam within the last year	Measures included satisfaction surveys at beginning, at 12-month intervals to patients and the referring providers as well as: BP, A1C, micro albumin, LDL, Eye exam, flu vaccine PNA vaccine, Tobacco use	Qualitative data with surveys Quantitative data and percentage of metric adherence	Participants attending 3 or more sessions, demonstrating a greater percentage to DM goals. A1C levels were comparable for both groups 37.9% adherence vs 35.3% adherence Patient satisfaction was 100% would recommend the group visits Provider satisfaction was 100% (only 2 respondents) reported they would continue referring patients.	Strengths: Large time frame Limitations: Number of patients attending visits was small	**Critical Appraisal Tool & Rating:** the Johns Hopkins *Research Evidence Appraisal Tool* (Dearholt & Dang, 2012). **Evidence level II,** **B quality**

Frates, E.P., Morris, E.C., Sanniidhi, D., Dysinger, W.S., (2017). The Art and Science of Group Vis its in Lifestyle Medicine. American Journal of Lifestyle Medicine, 11(5), 408-413. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6124948/	N/A	Lifestyle medicine group session	Review articles and discussion regarding shared medical visits	Topics discussed: -Benefits of group visits -Using a systematic approach to plan group visits -Using behavior change techniques to engage patients	N/A	N/A	-Benefits of group visits include improved health behaviors, increased self-efficacy, reduced cholesterol, reduced BP, improved BMI, and improved glucose control. -Creating financial viability would be possible through capitation or through billing every patient with detailed documentation. -Using the coaching method for behavior change is beneficial to patients	Limitations: This is a discussion paper	**Critical Appraisal Tool & Rating:** the Johns Hopkins *Non-Research Evidence Appraisal Tool* (Dearholt & Dang, 2012). **Evidence level V:** **B Quality**
Hartzler, M. L., Shenk, M., Williams, J., Schoen, J., Dunn, T., & Anderson, D. (2018). Impact of Collaborative Shared Medical Appointments on Diabetes Outcomes in	N/A	12-month prospective, quasi-experimental study	59 patients enrolled 38 patients completed study Inclusion Criteria: -Diagnosis of type 2 DM and	Variables studied: -hemoglobin A1C -lipids -Systolic BP -weight -Adherence to ADA guidelines	Problem Areas in Diabetes (PAID-2) scale Spoken Knowledge in Low Literacy in Diabetes	-ANOVA -Paired t-tests -Chi-squared test	A1C and LDL cholesterol decreased More patients became compliant with the ADA guidelines: -LDL goal of less than 100 mg/dL -Appropriate antihypertensive medications	Strengths: Significant research Limitations: -The intervention was not compared with a control group	**Critical Appraisal Tool & Rating:** the Johns Hopkins *Research Evidence Appraisal Tool* (Dearholt & Dang, 2012). **Evidence level II:**

a Family Medicine Clinic. Diabetes Educator, 44(4), 361–372. https://doi.org/10.1177/01457217187765 97			- Hemoglobin A1C greater or equal to 7.5% -Taking one antihypertensive agent -Able to travel to clinic - Able to comprehend dietary and diabetes teaching -Spoke English Exclusion criteria: -Pregnant - Hearing, vision, or cognitive impairments -concomitant diseases such as psychiatric instability	-Problem Areas in Diabetes scale survey (PAID-2) -Spoken Knowledge in Low Literacy in Diabetes Scale (SKILLD)	Scale (SKILLD)	-Spearman correlation	- Aspirin prescription -Received PNA vaccine -Improved scores of PAID-2 and SKILLD survey scores	-Small sample size -Sample population limits generatability -Data was lost as participants dropped out of study (increased chance of type 2 error)	**B Quality**

			or other injuries -If they missed more than 3 appointments					
Rotberg, B., Junqueira, Y., Gosdin, L., Mejia, R., & Umpierrez, G. E.(2016). The Importance of Social Support on Glycemic Control in Low-income Latinos With Type 2 Diabetes. American Journal of Health Education,47(5), 279–286. https://doi.org/10.10801925	N/A	Descriptive study of a group of Latino patients with type 2 diabetes enrolled in the Emory Latino Diabetes Education Program from 2012-2014	284 participants were included Including Criteria: -Identified as Latino or Hispanic - 18 years or older -Known diagnosis of type 2 diabetes Exclusion Criteria:	Data Collected: -Demographics -Preventative Measures (eye, foot, vaccine, and dental exam) -Level of perceived social support -Biometric markers (Hb A1C, BMI, blood pressure)	The Duke-UNC Functional Social Support Questionnaire (UNC-Duke FSSQ) scale to determine the level of perceived social support ELDEP Questionnaire	SPSS software was used to analyze Descriptive analyses included frequencies and cross tabulations Paired t tests	Among patients with low social support, HbA1C decreased by 2.3 % from baseline to follow up (P <.001) Patients with moderate-high social support also experienced significant reduction of A1C of 1.2% from baseline to follow up (P<.001) and a 10mmHg decrease in systolic blood pressure (P<0001) Preventative measures increased by an average of 0.5 during follow up (P <.001) in both groups	Limitations: -Absence of a control group for comparison -Patients were referred to program and not randomly selected -The questionnaire is self-administered, and some did not complete the entire document -Some participants left the class before biomedical markers were obtained	**Critical Appraisal Tool & Rating:** the Johns Hopkins *Research Evidence Appraisal Tool* (Dearholt & Dang, 2012). **Evidence level II:** **B Quality**

037.2016.120 3838									
Stults, C. D., Hung, D. Y., Tai-Seale, M., McCuistion, M. H., Frosch, D. L., & Cheng, P. H. (2016). Shared Medical Appointments: A Promising Innovation to Improve Patient Engagement and Ease the Primary Care Provider Shortage. Population Health Management, 19(1), 11–16. https://doi.org/10.1089/pop.2015.0008	N/A	The focus group portion of the study was designed based on previous research on SMA' as well as key informant interviews with individuals involved in SMA's. The questions were designed to investigate patients' overall reactions to SMAs. Non-research, qualitative information	48 participants contacted 30 individuals participated in one of the 5 focus groups,	Variables Studied: Qualitative Study -Main benefits from SMAS -Participants concerns and fears about SMAs	N/A	N/A	SMAs provide a way to improve access, improve relationships with physicians and increase patient's knowledge of their health as well as easing the patient load for physicians.	Limitations: The study is the potential for selection bias for those who chose to participate in an SMA and the focus groups. It is possible that participates who had a more positive view toward SMAs may be more likely to agree to participate in the study.	**Critical Appraisal Tool & Rating:** the Johns Hopkins *Non-Research Evidence Appraisal Tool* (Dearholt & Dang, 2012). **Evidence level V:** **B Quality**

| Watts, S.A., Strauss, G.J., Pascizzi, 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. 400-456. Doi: 10.1002/2327-6924.12200 | N/A | A retrospective pretest/posttest study included 1290 patients who had attended more than one shared medical appointment. | 1290 individuals | Variables studied: hemoglobin A1C | -Diabetes Severity Index

-Hemoglobin A1C | -T-test

-Linear regression analysis | The study strongly suggests the clinical effectiveness of SMAs in reducing A1C levels over 9% in patients with diabetes | Strengths:

Large study (1290 patients)

Limitations:

-One site

-Results reflect only those veterans participating in SMAs in an inner city midwestern outpatient clinic | **Critical Appraisal Tool & Rating:**

the Johns Hopkins *Research Evidence Appraisal Tool* (Dearholt & Dang, 2012).

Evidence level II,

B quality |

Appendix B

Letter of Support from Organization

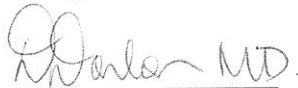Santa Rosa
COMMUNITY
HEALTH

srhealth.org

School of Nursing and Health Professions
University of San Francisco
2130 Fulton Street
San Francisco, CA 94117

January 30th, 2019
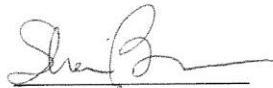
To Whom it May Concern,

On behalf of Santa Rosa Community Health, we are submitting this letter of support for the project Denisse Maldonado, MSN, FNP-C has selected as a requirement of her doctoral program. The project selected is *The Effectiveness of Shared Medical Appointments for the Management of Type 2 Diabetes in Hispanic Patients.* Denisse will continue to develop and support initiatives to establish effective systems to advance her quality improvement project. We will discuss the progress of this work on a routine basis and I am confident that we will successfully achieve several key milestones by May 2019 and completion of the project by December 2019.

Sincerely,

Deb Donlon, MD
Medical Director, Lombardi

Shari Brenner
Site Director, Lombardi

All of us. For all of you.

a california health center

Appendix C

Gap Analysis

Effectiveness of SMAs for the Management of Type 2 Diabetes in Latino Patients

Evidence-based best practice	Best Practice Strategies	Current organizations practices	Barriers to implementation of evidence-based practice	Will the organization implement the evidence-based best practice?
Using a multidisciplinary team to manage diabetes	All patients see their primary care provider, a nurse, a registered nutritionist, a pharmacist, a behavioral health provider	No RDs Not enough RNs to do one on one visits	Limited budget	No, there are not enough nurses and not any RDs or psychologists to see every patient one on one
Using shared medical appointments for diabetes management	Several patients at a time have a 90-minute appointment in a group setting to receive diabetes education, medication management, behavior change coaching and social support.	Individual visits with primary care provider or nurse	Low patient turn-out Limited budget	Yes, shared medical appointments will be implemented by the project lead

Appendix D

Gantt Chart

DNP Project	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planning for implementation	■	■	■									
Preparing teaching materials	■	■	■									
Staff meeting presentation		■		■				■				■
Implementation of SMAs				■	■	■	■	■	■			
Revisions and updates					■		■					
Pre-tests and data collection			■									
Post-tests and data collection									■			
Meet with QIP group		■				■				■		
Evaluate project and goals									■	■		
Final Project Write-up								■	■	■	■	■

Appendix E

Work Breakdown Structure
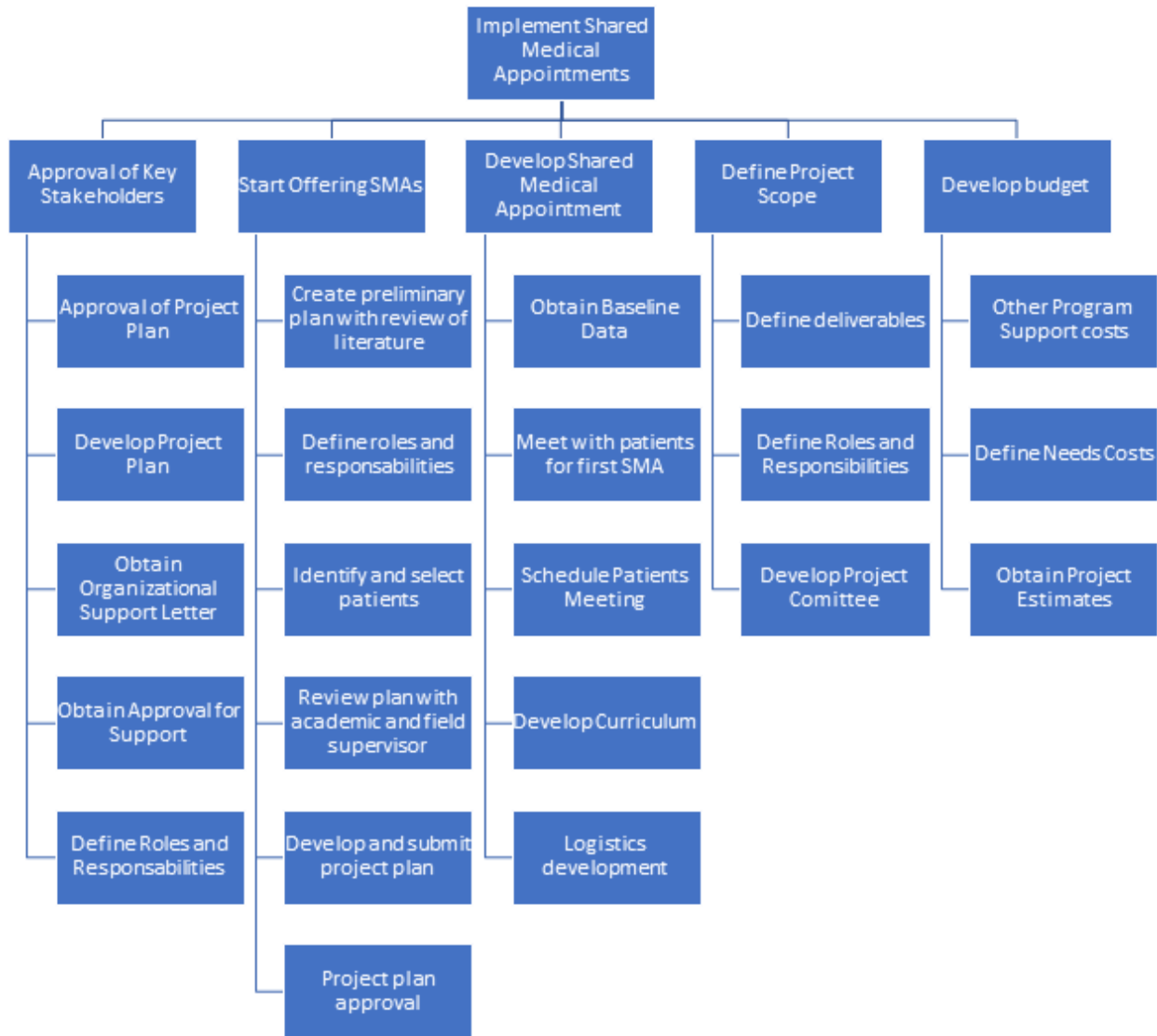
Appendix F

SWOT Analysis

	Strengths (Internal)	Weaknesses (Internal)
	- Specific population with need identified - Executive leadership support from Santa Rosa Community Health - Focus of project is a quality improvement measure that needs improvement at Santa Rosa Community Health - Support from key stakeholders: Primary care providers - Personal expertise on diabetes teaching in Spanish; culturally competent teaching - Santa Rosa Community Health has experience with implementing shared medical appointments	- Inconsistent process for data collection - Scarcity of internal funding for project - Slow approval/ implementation - Lack of enough patients attending shared medical appointments - Lack of provider referrals - Results may be slow
	Opportunity (External)	Threats (External)
	- Improved patient access to appointments for diabetes management - Maximize patient education regarding diabetes - Increased patient satisfaction - Increased provider satisfaction - Improved evidence-based practice for diabetes care	- Insufficient funding - Low patient participation - Only applies to small amount of population that attends the shared medical visits

Appendix G

Budget

DNP Direct Cost	2019
DNP Hourly Wage	$56.00
Total .1 FTE (2-week period)	$448
Annual Cost	$11,648

Guest Speaker Direct Cost	2019
Multidisciplinary member Hourly Wage (rotates/varies)	$40.00-$80.00
Total .1 FTE (2-week period)	$320-$640
Annual Cost	$8,320-16,640

Medical Assistant Direct Cost	2019
Medical Assistant Hourly Wage	$18
Total .1 FTE (2-week period)	$144
Annual Cost	$3,744

Indirect costs	2019
Educational Materials	$50
Demonstration Materials	$50
Annual Cost	$2,600

Appendix H

Return on Investment (ROI)

	Year 1	Year 2	Year 3
Implementation costs	$26, 312- $34, 632	$26, 312- $34, 632	$26, 312- $34, 632
ROI	$39,072	$39,072	$39,072
Encounter Revenue	$90,000	$90,000	$90,000
Net profit	$49,440-$57,760	$49,440-$57,760	$49,440-$57,760

ROI
- The average cost per hospitalization was $11,524 when adjusted to a national average. (ADA) Preventing three hospitalizations in one year would save $34,572
- Preventing ED visit $1,500- $7,500. Preventing three ED visits would save at least $4,500 per year.
  Preventing three hospitalizations and three ED visits would save at least $39,072 per year which is the ROI.

Encounter revenue
> ► $100 per visit X10 patients per SMA= $1,000X 45 weeks per year= $45,000 per year

Appendix I

Responsibility/Communication Matrix

Role	Activity	Conduct needs assessment	Define Roles and Responsibilities	Approve project plan	Inform referring providers	Refer and schedule patients	Implement SMAs	Schedule monthly revision meetings	Retain patients	Collect Data	Collect post intervention data
Project Lead		R	R	S	R	R	R	R	S	R	R
Chief Medical Officer		C	C	R			S	S			
Site Director		S		R	S			R			
Project Mentor		S	C	R							
Medical Assistant						R	S		S	S	S
Providers		C				R					R

Key:

R = Responsible   S= Supports   C = Consulted

Appendix J

DNP Signed Statement of Non-Research Determination Form

Student Name: Denisse Maldonado, MSN, FNP-C

Title of Project:

Effectiveness of Shared Medical Appointments for the

Management of Type 2 Diabetes in Latino Patients

Brief Description of Project:

The proposed DNP project is the development of shared medical visits for Latino patients with type 2 diabetes. The shared medical visits will be 60-120 minutes and would include time for social integration, integrative education, motivation change coaching, and medication management.

Shared medical appointments would aim at improving education regarding disease process, complications, medications, behavior change, nutrition and exercise. They would also aim to improve self-management techniques for patients to be active members of their medical care leading to improved diabetes control. The proposed DNP project would focus on people of Latino origin and would be conducted in Spanish to target the Santa Rosa Community Health population of Latinos with type 2 diabetes.

Shared medical appointments have be documented to improve patient access and increase productivity in the clinic as well as many other benefits for the patients including improved hemoglobin A1C, blood pressure, weight loss, reduced hospital admissions, improved perceived social support and overall satisfaction (Stults et al., 2016).

A) Aim Statement:

By December 2019, to develop, implement and evaluate shared medical appointments that are conducted by a multidisciplinary team for Latino patients with diabetes.

B) Description of Intervention:

A quality improvement project will be implemented by developing weekly shared medical appointments where several Latino patients at a time can receive diabetes education, medication management, behavioral change coaching, and continuity of care from a multidisciplinary team.

C) How will this intervention change practice?

> Using shared medical appointments at Santa Rosa Community Health where provider appointments are limited will change practice by more effectively educating Latino patients and managing diabetes. This evidence-based project would improve hemoglobin A1C measurements, diabetes education, patient and provider satisfaction.
>
> **D) Outcome measurements:**
>
> Patients will be asked to participate in pre and post-intervention assessment to evaluate the effectiveness of shared medical appointments. The patient's hemoglobin A1C will be measured pre and post-intervention. Patients and providers will also complete pre and post intervention satisfaction surveys.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used: (http://answers.hhs.gov/ohrp/categories/1569)

X This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

☐This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments: **EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST**
*Instructions: Answer YES or NO to each of the following statements:

Project Title:	YES	NO
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	X	
The specific aim is to improve performance on a specific service or program and **is a part of usual care**. ALL participants will receive standard of care.	X	
The project is **NOT** designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does **NOT** follow a protocol that overrides clinical decision-making.	X	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does **NOT** develop paradigms or untested methods or new untested standards.	X	

The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does **NOT** seek to test an intervention that is beyond current science and experience.	**X**	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	**X**	
The project has **NO** funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	**X**	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., **not** a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	**X**	
If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: *"This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board."*	**X**	

ANSWER KEY: If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is **NO**, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print):

Denisse A. Maldonado, MSN, FNP-C

_____

Signature of Student:

_____**DATE**_____

SUPERVISING FACULTY MEMBER (CHAIR) NAME (Please print):

Brian Budds, RN, MS, JD

_____

Signature of Supervising Faculty Member (Chair):

_____**DATE**_____

Appendix K

Provider Satisfaction Survey

Shared Medical Appointments for Diabetes Education

1. Have you benefited from being able to offer shared medical appointments (SMA) for diabetes education to your patients?
   a) Definitely Yes
   b) Probably yes
   c) Might or might not
   d) Probably not
   e) Definitely not

2. Have you found that your patients benefited from SMAs for diabetes education?
   a) Definitely Yes
   b) Probably yes
   c) Might or might not
   d) Probably not
   e) Definitely not

3. How likely are you to continue offering SMA's for diabetes education to your patients?
   a) Extremely likely
   b) Moderately likely
   c) Slightly likely
   d) Neither likely or unlikely
   e) Slightly unlikely

4. Do you have any further comments about shared medical appointments for diabetes education?

Appendix L

Patient Satisfaction Survey

1. Que tan satisfecho esta con las citas compartidas sobre el diabetes?

    a. Extremadamente satisfecho
    b. Algo satisfecho
    c. No satisfecho ni insatisfecho
    d. Algo insatisfecho
    e. Extremadamente insatisfecho

2. Usted recomendaria las citas compartidas sobre el diabetes a sus amigos o familiares?

    a. Si, totalmente
    b. Mas bien si
    c. Ni si, ni no
    d. Mas bien no
    e. No

3. Tiene algun otro comentario sobre las citas compartidas del diabetes?

Appendix N

Patient Demographics Table

Initials	Age	Sex	Self ID	Language	Insurance
BG	52	F	Latino	Spanish	Partnership
JA	48	M	Latino	Spanish	Self-pay
AC	51	F	Latino	Spanish	Self-pay
TS	47	M	Latino	Spanish	Anthem
MM	66	M	Latino	Spanish	Blue Cross
GG	64	F	Latino	Spanish	Self-pay
AD	44	F	Latino	Spanish	Partnership
MV	62	F	Latino	Spanish	Olivers
RH	72	M	Latino	Spanish	Medicare
EC	60	F	Latino	Spanish	Partnership
JP	68	M	Latino	Spanish	Partnership
MP	62	F	Latino	Spanish	Partnership
JC	52	M	Latino	Spanish	Self-pay
AS	65	M	Latino	Spanish	Self-pay
EE	55	F	Latino	Spanish	Partnership
LO	75	F	Latino	Spanish	Self-pay
MA	52	F	Latino	Spanish	Partnership
IS	49	F	Latino	Spanish	Partnership
RG	52	M	Latino	Spanish	Medicare
RG	50	F	Latino	Spanish	Medicare
AZ	55	F	Latino	Spanish	Partnership
JR	45	F	Latino	Spanish	Self-pay
MM	61	F	Latino	Spanish	Self-pay
CR	47	F	Latino	Spanish	Self-pay
OVR	53	F	Latino	Spanish	Partnership