

Quality Improvement Project: Continuous Glucose Monitoring

Melanie White

College of Nursing, East Carolina University

Doctor of Nursing Practice Program

Dr. Dianne Marshburn

July 16, 2023

Abstract

This paper describes a quality improvement project in which the aim was to increase the amount of continuous glucose monitors (CGM) prescribed at a primary care clinic for type 2 diabetic patients. The purpose of this project was to improve providers' ability to initiate and manage CGMs in type 2 diabetic patients. The literature review and provider survey results revealed three main barriers to prescribing CGMs that included financial barriers, time constraints, and inadequate provider education about continuous glucose monitors. Surveys were distributed to the providers in the clinic to evaluate for provider perceptions on educational needs for initiating and prescribing CGMs in the primary care setting. The project described how educational content was developed into a video and PowerPoint presentation about ordering, prescribing, and managing CGMs. The video and PowerPoint presentation were disseminated to providers at a primary care clinic. The amount of CGM's prescribed increased over a four-month duration after the video and PowerPoint educational content was disseminated to providers in the primary care clinic. The goal of the project was to improve the financial benefit for the accountable care organization, streamline processes for care of diabetic patients, and improve care for type 2 diabetic patients.

Keywords: type 2 diabetes, continuous glucose monitors, primary care, financial barriers, time constraints, and provider education

Table of Contents

Abstract	2
Section I: Introduction	5
Background.....	5
Organizational Needs Statement.....	5
Problem Statement.....	8
Purpose Statement.....	9
Section II: Evidence.....	11
Literature Review.....	11
Evidence-Based Practice Framework.....	17
Ethical Consideration and Protection of Human Subjects.....	18
Section III: Project Design.....	20
Project Site and Population.....	20
Project Team.....	21
Project Goals and Outcomes Measures.....	22
Implementation Plan.....	23
Timeline.....	24
Section IV: Results and Findings.....	26
Results.....	26
Discussion of Major Findings.....	28
Section V: Interpretation and Implications.....	31
Costs and Resource Management.....	31

Implications of the Findings.....	32
Sustainability	34
Dissemination Plan	34
Section VI: Conclusion.....	36
Limitations and Facilitators.....	36
Recommendations for Others.....	36
Recommendations for Further Study.....	37
Final Thoughts.....	38
References.....	40
Appendices	48
Appendix A: Provider Questionnaire.....	48
Appendix B: Power Point Presentation.....	50
Appendix C: Data Collection Tool.....	54
Appendix D: Continuous Glucose Monitor Prescriptions.....	56
Appendix E: Number of CGMs Prescribed in Clinic.....	57
Appendix F: Pre/Post Survey Provider Results.....	58
Appendix G: Timeline.....	61
Appendix H: Budget.....	62

Section I. Introduction

Background

Diabetes was the eighth leading cause of death in 2020 in the United States (US) (Murphy et al., 2021). The American Diabetes Association (ADA) estimated the cost of diabetic care at \$327 billion in 2017 (American Diabetes Association [ADA], 2018). In 2019, 11.3% of the total US population and 29.2% of persons 65 years and older had a diagnosis of diabetes (United States Department of Health and Human Services [USDHHS], 2022). According to the Morbidity and Mortality Weekly Report (MMWR), the prevalence of type 1 and 2 diabetes in Medicare participants was 31.6% in 2015, or almost a third of beneficiaries (Andes et al., 2019). In the United States, most of the diabetic care provided accounts for 67.3% of individuals with Medicare, Medicaid, and military insurance, whereas private insurance comprises 30.7% and uninsured at 2% (ADA, 2022a). An individual with diabetes has medical healthcare expenditures approximately 2.3 times higher than those that do not have diabetes (ADA, 2018).

Approximately 50% of adults have a glycated hemoglobin A1c of 7% or greater (Centers for Disease Control and Prevention [CDC], 2022a). These findings demonstrate the need to develop interventions to promote adequate glucose control in adults. These interventions will improve care and prevent complications secondary to uncontrolled diabetes. The project supported the organization's mission to participate and contribute to being part of one great team that provides innovative healthcare that will improve health for the citizens of North Carolina while reducing healthcare costs (University of North Carolina Health, 2022).

Organizational Needs Statement

This project assisted with meeting the goal of Healthy People 2030 to reduce the diabetes burden by improving the diabetic population's overall health and quality of life (Healthy People,

2022). Healthy People 2030 aims for the number of diabetic adults on insulin to check their glucose at least once daily. In 2019, the Behavioral Risk Factor Surveillance System (BRFSS) found that in the US, 86.5% of adults 18 years of age and older with diabetes on insulin did daily glucose tests on themselves. In contrast, in North Carolina, only 63.6% of people with diabetes checked their glucose one or more times a day in 2019 (North Carolina Department of Health and Human Services [NCDHHS], 2022). The Healthy People 2030 goal is for 94.4% of people with diabetes to check their glucose daily (Healthy People, 2022). Aggarwal et al. (2022), Chircop et al. (2021), and Ying and Choi (2021) performed a systemic literature review about continuous glucose monitoring (CGM) usage in healthcare. The systemic reviews found that using CGMs reduced glycated hemoglobin A1c results better than self-monitoring blood glucose with finger stick blood glucose monitoring.

The project will help the organization meet the Centers for Medicare and Medicaid Services (CMS) Achievable Benchmarks of Care (ABC) for diabetes, focusing on assisting patients with achieving the goal of glycated hemoglobin A1c of nine percent or less (CMS, 2022c). The project organization site is part of an Accountable Care Organization (ACO). CMS develops quality measures that quantify healthcare processes such as diabetes management and glycated hemoglobin A1c results. These quality measures are evaluated and reported to the public about a healthcare organization's quality of healthcare for the ACO population. For example, the glycated hemoglobin A1c goal is considered one of four quality domains or a quality measure for the diabetic population. The organization utilizes the Merit-Based Incentive Payment System (MIPS) to receive reimbursement for meeting benchmarks set by CMS. This measure's calculation uses a percentage of patients with diabetes who had glycated hemoglobin

A1c >9.0% in a year in the 18-75 age range. Therefore, the lower the rate of patients with glycated hemoglobin A1c 9% or greater, the greater the reimbursement for the ACO.

This organization's ACO is one of nineteen in North Carolina and one of 456 in the US (CMS, 2022b). The UNC Senior Alliance Next Generation Accountable Care Organization (NGACO) model of 2019 quality measure for diabetes glycated hemoglobin A1c poor control was 12.5. The mean performance for all NGACOs was 11.43 (University of North Carolina Senior Alliance, 2022a). Therefore, the project site ACO would receive less reimbursement than the national average for this diabetic measure. The primary care clinic in which the project took place was noted to have a diabetic type 2 population of 45% (487 of 1,082) with a glycated hemoglobin A1c >7% and 13% (139 of 1082) with glycated hemoglobin A1c >9 % (University of North Carolina Health, 2022). According to the ADA (2020) Standards of Care for Diabetes for Primary Care Providers, "Glucose monitoring is key for the achievement of glycemic targets for many people with diabetes" (p.17), and "CGM has emerged as a complementary method for the assessment of glucose levels" (p.17).

CMS requires organizations participating in an ACO to choose one of three ACO programs, 1) Pioneer ACOs, 2) The Next Generation ACOs (NGACO), or 3) Medicare Shared Savings Program (MSSP) ACOs (CMS, 2015). In 2022 the project site transitioned from NGACO to the MSSP ACO program (University of North Carolina Senior Alliance, 2022b). The MSSP benchmark for diabetes is a calculation that uses the regionally adjusted historical benchmark value, the CMS Hierarchical Condition Categories (HCC) risk ratio, and the national-regional blended update factor (CMS, 2021). In addition, the calculation includes evaluating the last three years of the organization's financial claims for diabetes, the HCC risk ratio, and a comparison to other national and regional ACOs' benchmark performances for the diabetic

population. The measurement goal levels are set at percentiles. For example, at the 30th percentile (meaning 70% of participants have glycated hemoglobin A1c greater than 9%), 60th percentile (40% of participants have glycated hemoglobin A1c greater than 9%), or 90th percentile (10% of participants have glycated hemoglobin A1c greater than 9%) (CMS, 2022a). In conclusion, CMS has benchmarked that the lower the percentage of patients with glycated hemoglobin A1c greater than 9%, the greater the financial benefit for the ACO organization.

The Quadruple Aim is vital to strive to meet due to its emphasis on providing safe and efficient healthcare. The project improved patients' experience with ease of initiation of CGM and improved provider satisfaction to streamline the process of initiating and monitoring CGM data for type 2 diabetic patients while assisting with meeting ADA recommendations and guidelines. In addition, the project aligns with the principles of the Quadruple Aim: 1) improving patient outcomes of glycemic control and promoting better health for diabetics, 2) bending the cost curve or lowering costs for the organization by achieving benchmarks for the ACO set by CMS for glycemic control and decreasing complications of uncontrolled diabetes, 3) enhancing the patient experience by promoting efficient initiation of CGM, and 4) improving work processes for providers to streamline the process of initiation and management of CGM (Institute for Healthcare Improvement [IHI], 2022a).

Problem Statement

The project addressed the problem of provider barriers to CGM initiation and management in type 2 adult diabetic patients in the primary care clinic. The goal for the project was to increase the number of CGMs prescribed at the clinic. The ADA (2020) recommends a goal glycated hemoglobin A1c of 7.0% or less. A gap noted within the organization was that approximately 45% of type 2 diabetic adult patients had a glycated hemoglobin A1c of 7% or

greater (University of North Carolina Health, 2022). Also, it is essential to note that 13% of type 2 diabetic patients at the clinic site have a glycated hemoglobin A1c >9 %. The project goal was to improve glycemic control by decreasing glycated hemoglobin A1c and promote the prevention of adverse consequences of uncontrolled type 2 diabetes. In addition, it will benefit the organization financially.

Developing an intervention to address 13% of the project site's diabetic population may not seem beneficial for an organization. However, a cross-sectional study by Kaufman et al. (2021) compared severe illness spending, including diabetic complications, of over 400 ACOs. This study found that seriously ill patients accounted for 50% of an ACO's spending when only 8-13% of the ACO participants were considered seriously ill. According to the ADA (2018), 73% of healthcare expenditures for people with diabetes are due to direct costs, including hospital inpatient, emergency care, and ambulatory visits. These health care expenditures are due to uncontrolled diabetes with adverse effects on body systems such as the cardiac, neurological, peripheral vascular, and ophthalmic systems. Implementing an educational video and PowerPoint presentation for providers about CGMs promoted CGM prescribing and assisted with efficient management in the care of the diabetic population. This can lead to diabetic patients with fewer hospitalizations due to complications of uncontrolled diabetes and assist organizations with achieving benchmarks established by Medicare for ACOs.

Purpose Statement

The purpose of this quality improvement project was to improve providers' ability to initiate and manage CGM in type 2 diabetic patients. The project was completed over a four-month period that included (a) assessment of providers' perceptions of barriers to initiation and management of CGMs, (b) development of an educational video and PowerPoint presentation for

providers about CGM initiation and management, (c) evaluation of the number of CGMs prescribed in the clinic prior to the providers viewing the educational video and PowerPoint presentation (d) dissemination of educational video and PowerPoint presentation to providers on CGM initiation and management, and (e) evaluation of the number of CGMs prescribed after providers have viewed the educational video and PowerPoint presentation about CGMs. The project supports the organization's goal of improving diabetic care by lowering glycated hemoglobin A1c levels, preventing complications of uncontrolled diabetes, and reducing costs. In addition, it will assist with achieving national, organizational, patient, and provider goals while reducing costs.

Section II. Evidence

Literature Review

The proposed quality improvement project goal was to increase the number of CGMs prescribed in a primary care clinic setting to improve care for type 2 diabetic patients. The goal of the literature review performed was to: (a) identify the status in the U.S. healthcare system regarding the usage of CGMs for type 2 diabetics in primary care, (b) formulate ideas that can be developed into interventions to increase the number of prescriptions prescribed for CGMs in primary care, and (c) determine the evidence that would support the intervention for this project. Therefore, the literature review synthesis was pivotal to the implementation and completion of the project.

The Laupus Health Science library databases were used for this search strategy. The literature search was completed using the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and PubMed databases. The initial MeSH term used for the search process was "continuous glucose monitoring" AND "type 2 diabetes", "diabetes" AND "fear of needles," "serious illness" AND "accountable care organizations," "blood glucose self-monitoring" AND "continuous glucose monitoring," "self and family management framework" AND "diabetes," "continuous glucose monitoring" AND "primary care," and "diabetes complications" and "healthcare costs" and "blood glucose self-monitoring" The search identified a total of 3817 articles in which abstracts and conclusions were reviewed. The articles pertinent to the topic were filtered using the inclusion criteria: zero-to-five-year publishing period, English language, adults 18 years of age or older, type 2 diabetes, and self-blood glucose monitoring. The exclusion criteria included type 1 diabetes, gestational diabetes, teenagers, children, and endocrinology.

The levels of research evidence referenced for this literature review were evaluated based on Melnyk and Fineout-Overholt's Levels of Evidence model (Melnyk & Fineout-Overholt, 2019).

The literature review search included Level 1, Level II, Level III, Level IV, Level V, Level VI, and Level VII research evidence. The immediate process of the literature review search started with researching Level 1 evidence, systemic reviews, and meta-analysis studies. The second priority of the search included Level II research, randomized controlled trials and experimental studies. Subsequently, Level III through VII research evidence was reviewed, including the US National ADA Guidelines for Type 2 Diabetes Care and Management for Adults in Primary Care. After reviewing the inclusion, exclusion, and levels of evidence for each article, 36 articles were retained. Most articles retained were Level I-IV to support the importance of conducting this project to improve the number of CGMs prescribed in the primary care setting to improve care for patients with type 2 diabetes. However, Level V-VII articles were retained to assist with developing the educational video and PowerPoint presentation for providers, which required expert opinions to determine the educational information appropriate for the video and PowerPoint.

Current State of Knowledge

According to the CDC (2022c) National Diabetes Statistics Report, 37.3 million people 18 years of age and older have a diagnosis of diabetes, which equates to 11.3% of the adult population with diabetes. Ninety to ninety-five percent of people with diabetes are diagnosed with type 2 diabetes (CDC, 2022b). Type 1 and 2 diabetes were diagnosed in 25% of adults 65 years or older in the United States per a retrospective review of Medicare Part A and B claims from 1999-2017 (Andes et al., 2019). There was an increased prevalence of the diagnosis of type 1 and 2 diabetes from 2001 to 2015 among Medicare beneficiaries aged 68 years of age and

older, from 23.3% in 2001 to 32.1% in 2012 (Andes et al., 2019). Type 1 and 2 diabetes represents a third of the Medicare beneficiaries with Medicare Part A and B insurance that have a diagnosis of diabetes.

In North Carolina in 2018, 12.4% of the population 18 years of age and older were diagnosed with diabetes (ADA, 2022b). The project site is in Wake County, where 8.5% of adults 20 years and older are diagnosed with diabetes (North Carolina Diabetes Advisory Council [NCDAC], 2020). The ADA reports that a person with diabetes medical expenses are 2.3 times higher than those that do not have diabetes (ADA, 2022b). Direct medical expenses for individuals with diabetes in North Carolina in 2017 were 7.7 billion dollars (ADA, 2022b). Primary care providers provide diabetic care to 85% of the diabetic population, whereas specialty providers such as endocrinologists provide 15% of diabetic care to people with diabetes (Shubrook et al., 2021). CMS encourages ACOs to reduce the number of emergency room visits of diabetic patients, and the primary care provider is pivotal in reaching this goal (Kaufman et al., 2021).

The importance of achieving glycated hemoglobin A1c goals to prevent adverse complications and hospitalizations related to uncontrolled diabetes and hypoglycemia is evident throughout the literature (ADA, 2020; Aggarwal et al., 2022; Anderson et al., 2020; Bailey & Gavin, 2021; Galindo et al., 2020; Kaufman et al., 2021; Rubin & Shah, 2021). Chronic disease processes such as chronic renal insufficiency, coronary artery disease, cerebrovascular accidents, and peripheral artery disease are serious illnesses that increase costs for healthcare organizations and ACOs (Kaufman et al., 2021). A retrospective review study by Yang et al. (2020) was done in which a review of insurance claims data of over 600,000 type 2 diabetics that were 65 years of age or less over seven years revealed that complications due to type 2 diabetes were significantly

increased for the patient with type 2 diabetes. The annual per-person type 2 diabetic complication costs were most expensive for end-stage renal disease (\$94,231), myocardial infarction (\$45,251), congestive heart failure (\$31,202), and stroke (\$23,780) (Yang et al., 2020). The primary care provider is an excellent resource for managing type 2 diabetes and achieving glycated hemoglobin A1c goals, which can be cost-efficient for ACOs and healthcare organizations (Kaufman et al., 2021; Rubin & Shah, 2021).

Evidence in the literature supports the use of CGM technology in improving glycated hemoglobin A1c goals in patients with diabetes (Aggarwal et al., 2022; Ang et al., 2020; Martens et al., 2021; Ying & Choi, 2021). However, the management of type 2 diabetes with technological advances such as CGMs has remained a challenge for providers in primary care, including a knowledge deficit of interpretation and management of CGM data and clinic processes that impede the review of CGM data by providers (Edelman et al., 2021; Martens, 2022). The ADA (2020) has released detailed guidelines for the Standards of Medical Care for Type 2 Diabetes. The ADA standards of medical care for diabetes provide primary care healthcare professionals with evidence-based treatment and management recommendations for adults with diabetes. The guidelines are developed to improve the diabetic populations' health while decreasing mortality and morbidity due to diabetes complications. Guidelines and recommendations addressed for the project include: (a) improving care and promoting health for adult type 2 diabetics, (b) incorporating diabetes technology such as CGM in type 2 diabetes management, and (c) achieving glycemic targets or time in glucose range goals.

Current Approaches to Solving Population Problem(s)

There are numerous approaches to improving the care for individuals with type 2 diabetes, including patient education regarding exercise, diet, self-care behaviors, and medication

adherence (ADA, 2020). For example, an approach to improve care for type 2 diabetes includes providing Diabetes Self-Management Education and Support (DSMES) classes, including dietary, exercise, and technology education for diabetes (ADA, 2020; Modzelewski et al., 2022). In addition, primary care providers are essential to the healthcare team (ADA, 2020). However, evidence in the literature identified that primary care providers could be a potential barrier to prescribing CGMs in the primary care setting (Edelman et al., 2021; Martens, 2022). In addition, the literature identified the importance of the initiation and management of type 2 diabetes with CGMs to achieve glycated hemoglobin A1c and glucose variability goals (Aggarwal et al., 2022; Ang et al., 2020; Beck et al., 2017; Carlson et al., 2017; Layne et al., 2020; Martens et al., 2021; Ying & Choi, 2021).

The literature review revealed that increased glucose self-monitoring by patients promoted improved self-care for type 2 diabetic patients (Battelino et al., 2019; Chircop et al., 2021; White & Knezevich, 2020). CGM technology provides a patient with real-time continuous glucose monitoring capability. The usage of a CGM resulted in improved self-monitoring of glucose, which subsequently resulted in improved glycated hemoglobin A1c or the achievement of meeting glucose goals (Aggarwal et al., 2022; Beck et al., 2017; Galindo et al., 2020; Laight, 2020; Martens et al., 2021).

Financial barriers for patients and time constraint barriers for providers are significant reasons that CGMs are not prescribed for managing type 2 diabetes. The financial barriers include the excessive costs of the CGM device and supplies. A retrospective cohort study conducted by Modzelewski et al. (2022) that evaluated patients initiated on CGM found it took patients more than three months to access a CGM device. The study identified that when providers used durable medical equipment (DME) suppliers, patients experienced more

significant delays of up to six months to initiate CGM. Another barrier identified was that providers had decreased knowledge about interpreting patient glucose reports from CGMs to make changes in medication treatment of type 2 diabetes (Espinoza et al., 2020; Laight, 2020; Rodbard & Garg, 2021). The project addressed barriers related to CGM initiation and management to improve the care of type 2 diabetic patient population.

Evidence to Support the Intervention

The partnering project site organization is part of an ACO of a large healthcare organization. The ADA (2018) identified that 24.8% of hospital patients' days in 2017 were related to patients diagnosed with diabetes. The Covid 19 pandemic resulted in significant financial demands for healthcare organizations and ACOs. According to Yan et al. (2022) observational cohort study that compared ACOs' quality measures for diabetes from the year before the pandemic in 2019 to the 2020 pandemic, the proportion of adults with poor diabetes control increased. The quality measure benchmark for diabetes decreased, resulting in a loss of profits for the ACO organization. It is crucial to note that CMS incentivizes ACOs if the organization is proactive in preventing acute care readmissions, such as emergency room visits and hospitalizations for individuals with diabetes (Rubin & Shah, 2021). The financial benefits of improved diabetic care are evident by improving quality measures such as glycated hemoglobin A1c targets. The project's goal was to improve diabetes care by increasing the amount of CGM prescriptions initiated, which can lead to improved glycated hemoglobin A1c goals and decrease complications of uncontrolled diabetes. (ADA, 2020; Aggarwal et al., 2022; Martens et al., 2021; Modelewski et al., 2022; Layne et al., 2020; Ying & Choi, 2021).

Evidence-Based Practice Framework

The revised Self and Family Management Framework guided the project to improve CGM usage by patients. The revised Self and Family Management Framework's central theme is determining how a patient and patient family members can manage a chronic disease, including type 2 diabetes (Grey et al., 2014). The revised Self and Family Management Framework consist of four domains. The first domain is the self-management process. Self-management of type 2 diabetes requires routine self-monitoring of glucose. The CGM device is a technological resource for patients that provides adequate glucose monitoring (ADA, 2020). The second domain of the framework identifies barriers and facilitators for chronic disease management, such as diabetes. The barriers to CGMs usage for managing type 2 diabetes are costs, time constraints, and providers' unwillingness to initiate a CGM prescription. The facilitators essential to promote the usage of CGMs in an individual's diabetic care routine in the project includes patients, family members, pharmacists, nutritionists, and primary care providers. The third domain includes the proximal outcome. This outcome is considered met when the patient can change their behavior by demonstrating self-management of their diabetes using a CGM, which can improve glycated hemoglobin A1c goals. The literature supports that a patient's ability to recognize glucose results by using a CGM will improve a patient's activity level and dietary habits, which are considered proximal outcomes, otherwise known as behavioral changes (Majithia et al., 2020; Reichert et al., 2020). The fourth domain is the distal outcome or improved quality of life and cost containment of a chronic disease such as diabetes. Using a CGM has been shown to reduce glycated hemoglobin A1c and thus reduce complications of uncontrolled diabetes in the organization and ACOs (Andes, 2019; Kaufman et al., 2021; Rubin & Shah, 2021).

The quality improvement project was guided by the Plan-Do-Study-Act (PDSA) quality improvement process (Institute for Healthcare Improvement [IHI], 2022b). The PDSA is a rapid cycle change evaluation of healthcare processes that promotes healthcare improvement in organizations. The first step is the planning stage, in which a survey was given to providers to identify the barriers to the initiation and prescribing of CGMs. Next, an educational video with a PowerPoint presentation about prescribing and managing CGMs was developed and distributed to six providers via Microsoft Teams. This was followed by measuring the number of CGMs prescribed before and after providing the educational video and PowerPoint presentation to providers. Weekly and monthly evaluations of the number of CGMs prescribed in the clinic were conducted.

Ethical Consideration & Protection of Human Subjects

This quality improvement project involved the development of an educational video and PowerPoint presentation about CGMs for providers. The project leader followed three principles that guided research to ensure the project was ethical. The principles enforced are beneficence, respect for persons, and justice (Grove & Gray, 2019). The project leader described the project's benefits to all the providers at the site. The providers had the option to participate or not participate in the survey, thus supporting the principle of respect for persons. The project supported the principle of beneficence in that it caused no harm to providers or patients. The project leader ensured the following: 1) no identifying information, such as the providers' or patients' ages or names, were collected, and 2) providers' confidentiality was maintained.

A requirement to be considered a project leader was the completion of the Collaborative Institutional Training Initiative (CITI) training modules. The project leader completed the Social and Behavioral research investigators and critical personnel module, which included descriptions

of the ethical components such as informed consent, privacy, confidentiality, and assessing risk (Collaborative Institutional Training Initiative, 2022). The project leader completed the university review process by submitting the Self-Certification Quality Institutional Review Board (IRB) Qualtrix, where the project was deemed a quality improvement project. Therefore, the project did not require further university IRB review. The project site research committee and senior officials reviewed and determined the project to be a quality improvement project, not requiring further IRB review at the organization.

Section III. Project Design

Project Site and Population

The project site was a primary care clinic in the Triangle area of North Carolina, part of an extensive university health system. The site is one of over 90 primary care clinics associated with the larger organization. The primary care clinic's patient population includes patients six years and older, with the majority considered adults. According to the Community Health Assessment in 2018, 37% of adults were 45 years of age and older in the eastern area of the county where the clinic is located (Wake County Health and Human Services, 2019). The primary facilitator was the site champion, an employee of the clinic and organization. The project leader educated six providers in the clinic about CGMs initiation and management.

A potential barrier to the project was the possibility of providers not reviewing the educational video or PowerPoint presentation and not implementing into practice the information provided.

Description of the Setting

The primary care clinic setting was in a community that sees patients from rural and urban areas of the county. The county's population in 2020 was 1,129,410, with 12.6% 65 years of age and older (United States Census Bureau [USCB], 2021). The county population comprises 67.1% white, 21% African American, 0.8% American Indian, 8.3% Asian, and 10.5% Hispanic (USCB, 2021). Approximately 96.7% of the county's population has a computer in the household, and 93.1% have an internet subscription. The median household income of the entire county from 2016 to 2020 was \$83,567 (USCB, 2021). The median house income of the eastern portion of the county where the primary care clinic is located was \$62,892 in 2018 (Wake County Health and Human Services, 2019).

Description of the Population

The healthcare team consisted of two-family practice physicians, four family nurse practitioners, an office manager, a licensed practical nurse, six medical assistants, one lab technician, and two secretaries. The target population was two family practice physicians and four family nurse practitioners at the project site. The secondary population was the type 2 diabetic patients at the clinic.

Project Team

The project team consisted of three members: the project leader, the site champion, and the faculty advisor. The project leader is a Doctor of Nursing Practice student and a Family Nurse Practitioner. The project leader developed the educational video and PowerPoint presentation and disseminated it to the providers in the clinic, collected and analyzed the data, and disseminated the findings to key stakeholders. In addition, the project leader shared the project results with the site champion, university faculty, organizational leadership, and at nursing continuing education conferences. The second member of the team was the site champion. The site champion is a Doctor of Nursing Practice Family Nurse Practitioner that is a provider and member of the healthcare team at the primary care clinic site. The site champion is a nursing faculty member at an out-of-state private online for-profit university that mentors students with Doctor of Nursing Practice projects. The site champion provided the space to conduct the project. The third team member was a faculty member at the University College of Nursing that provided invaluable assistance and served as an advisor for the project. The project leader met a minimum of four times throughout the project with the faculty member and site champion for guidance.

Project Goals and Outcome Measures

The project aimed to increase the number of CGMs initiated, prescribed, and managed in the primary care setting. The measurable outcome was the number of CGMs prescribed to type 2 diabetic patients. An educational video and PowerPoint presentation about CGMs were created and disseminated to all providers in the clinic. The Plan-Do-Study-Act cycle was performed monthly on February 28, 2023, March 31, 2023, and April 30, 2023. The outcome measure, or the number and percentage of CGMs prescribed in the primary care clinic, was collected and tracked weekly and monthly from January to April.

Description of the Methods and Measurement

The literature suggested that more studies be conducted to evaluate providers' perceptions of barriers to CGM initiation (Aggarwal et al., 2022; Eiland, 2019). For the project, a paper copy of a survey was distributed to providers in the primary care clinic to identify barriers to CGM initiation prescriptions. The survey consisted of seven questions based on a four-point Likert scale, one rank order question, and one open-ended question (Appendix A). The barriers identified via this survey were compared to barriers identified in the literature review. An educational video and PowerPoint presentation were distributed to providers via Microsoft Teams (Appendix B). The educational video and PowerPoint explained CGM devices, how to prescribe CGMs, and how to access patients' glucose results from CGM data collected. A data collection tool was used to track the amount and percentages of CGMs prescribed in adult type 2 diabetic patients in the clinic pre- and post-distribution of the educational video and PowerPoint to providers (Appendix C). A visual representation of the number of CGMs prescribed monthly over a four-month interval was displayed in a bar graph (Appendix D). The number of total CGMs and specific types of CGMs prescribed was displayed on a linear graph (Appendix E). A

post-survey was given to the providers the first week in May 2023, the same survey was given in January 2023. The provider's responses about the barriers to CGM initiation and management in primary care were compared to initial survey responses in January 2023 (Appendix F).

Discussion of the Data Collection Process

Data were collected from the electronic medical record (EMR) system before the educational video and PowerPoint distribution in January 2023. After the educational video and PowerPoint distribution, data were collected weekly from February 2023 to April 2023. Patient information such as name and demographic factors were not recorded to protect patient privacy. A weekly tally of the number of CGMs prescribed in the clinic was collected. The monthly total of CGMs prescribed was displayed in a bar chart (Appendix D). A linear graph was developed to display the number of CGMs prescribed pre- and post-distribution of the educational video intervention and PowerPoint (Appendix E).

A post-survey paper copy was given to providers to evaluate how effective the video education and PowerPoint improved the percentage of CGMs prescribed in the clinic (Appendix A). The project leader entered the provider responses on a Word document for analysis. This information was not linked to the providers' names. Instead, the survey results were recorded as providers A, B, C, D, E, and F. Data was stored on a password-protected computer only accessible by the project leader.

Implementation Plan

This quality improvement project involved the development of an educational video and PowerPoint presentation about CGMs that was disseminated to primary care providers to increase the number of CGMs prescribed in a primary care setting (Appendix B). A survey included seven Likert questions, one question in which the providers ranked and prioritized three

barriers to CGM prescribing, and one open-ended question was developed and distributed to providers at the primary care clinic to evaluate providers' opinions about prescribing CGMs (Appendix A). These survey results were compared to the literature review findings about CGM imitation barriers and used to develop an educational video and PowerPoint presentation about CGMs. This video and PowerPoint presentation were created by the project leader and distributed by the employer via Microsoft Teams to the six primary care providers at the clinic in January 2023. The project leader collected and tracked the data weekly on Fridays to evaluate the number of CGMs prescribed in the clinic. At the end of each month, the project leader conducted a PDSA review that assessed and evaluated if the educational video and PowerPoint dissemination increased the number of CGMs prescribed in the clinic and identified any potential barriers.

Timeline

The project planning started in the Spring of 2022, with implementation on January 1, 2023. The educational video and PowerPoint creation was started on January 1, 2023 and completed on January 31, 2023. Pre-data were collected on the number of CGMs prescribed to type 2 diabetics for January 2023. The educational video and PowerPoint were disseminated to providers on February 1, 2023. After distributing the educational video and PowerPoint, the project leader collected weekly data about the number of CGMs prescribed in the clinic. Subsequently, data were collected monthly about the number of CGMs prescribed. A Plan-Do-Study-Act cycle was completed monthly at the end of February, March, and April to identify barriers to prescribing CGMs by primary care providers in the clinic. The project leader assessed and addressed these barriers monthly per the Act phase of the PDSA review. The total number of CGMs prescribed before and after the dissemination of the educational video and PowerPoint

was analyzed in May 2023. The information collected from the project was disseminated in July 2023 to the University faculty, senior leadership at the organization, and at nursing continuing education conferences (Appendix G).

Section IV. Results and Findings

Results

The number and percentage of CGMs were collected weekly for the project. The total number of CGMs prescribed in the clinic before project implementation was 26. The number of CGMs prescribed weekly was evaluated after implementing the video education and PowerPoint presentation to providers. There was an increase in the amount of CGMs prescribed each month over the 12 weeks of project implementation. The total number of CGMs prescribed increased from 26 to 44 during the 12 weeks of the project, a 3.6% increase in the clinic (Appendix C). In January, before the implementation of the project, 5% (26) of diabetic patients eligible for CGM prescriptions were prescribed a CGM. After the start of implementation, 6.2% (31) of diabetic patients eligible for CGM prescriptions were prescribed a CGM, compared to 7.5% (38) in March and 8.6% (44) in April (Appendix D).

Specifically, Libre 2 CGM prescriptions increased from five to six prescriptions after the implementation of the project (Appendix C). In week three, there was a decline from seven to five Libre 2 CGMs prescribed. The decrease was due to the staff removing Libre 2 CGMs from the medication list in the electronic medical record (EMR); this being done during the rooming process adversely affected the data for the project. After week five, correcting rooming process errors, the Libre 2 CGMs prescribed increased from five to 14 over 12 weeks. In contrast, the Dexcom CGM prescribed pre-implementation was 21 compared to 33 by week 12 (Appendix C).

CGM prescriptions were increased after disseminating the video and PowerPoint educational content about CGMs to providers. A survey was distributed to the providers to determine the educational tools' content. The pre-and post-implementation survey ranked order question responses from providers revealed that the main barrier to prescribing CGMs was a patient's insurance coverage (Appendix F). Before the implementation of the video and

PowerPoint education content, 66% (4) providers ranked this as the primary barrier, and 33% (2) providers rated this as the second most common barrier. Post-survey responses revealed 100% (6) providers listed insurance coverage as the primary barrier for prescribing CGMs.

The second barrier noted with in pre-implementation survey responses was the need for provider education training about CGM devices. Pre-implementation survey responses revealed that 17% (1) provider ranked this as the second most common barrier, 50% (3) ranked this as the third most common barrier, with 33% (2) ranked this as a primary barrier. Post survey, 100% (6) providers stated this was the least significant barrier for CGM prescribing.

The third barrier to CGM prescribing was staff time constraints. Pre-implementation survey responses revealed that 50% (3) ranked this as the second most common barrier, and 50% (3) ranked it as the third most common barrier for CGM prescriptions. Post-implementation survey showed that 100% (6) ranked this as the second most common barrier to CGM prescribing.

The providers answered pre-survey Likert scale questions. Before the implementation of the project, the results noted 50% (3) of providers stated they were very likely, and 50% (3) said they were likely to identify a patient as a candidate for CGM (Appendix F). Post-intervention, an improvement in providers' ability to correctly identify patients eligible for CGM increased, with 66% (4) stating very likely and 33% (2) stating likely to be able to do this. At the end of implementation, 100% (6) of the providers indicated they were very likely or likely to prescribe CGM in the next six months. Pre-implementation, 17% (1) provider responded that they were very unlikely, and 50% (3) were not likely to be familiar with insurance requirements and criteria to cover CGMs. Approximately 66% (4) of providers could not distinguish what insurance companies cover Libre versus Dexcom CGMs. In contrast, post-implementation, 100% (6) stated

that it is likely or very likely to know which insurances cover specific types of CGMs. Following project implementation, 100% (6) of the providers stated they were very likely or likely to know the information to put on the CGM prescription compared to 50% pre implementation. In response to the question on whether providers were likely to log into the program to evaluate patient's CGM data, 50% (3) indicated were very likely or likely prior to implementation compared to 67% (4) at end of implementation. An improvement was noted in the post-survey where all 100% (6) providers responded they were very likely or likely to make medication management decisions based on CGM data reports compared to 83% (5) prior to implementation.

The project leader developed the survey's open-ended questions to identify what would be most helpful for providers to help them learn more about CGMs. The survey responses from the providers revealed several themes. A common theme identified was a request for financial information about CGMs, such as which insurance companies approved which CGM device. A second theme noted was to improve provider education about CGMs, such as educating providers about the information needed for writing the script for the transmitter, sensor, and reader for one- and three-month CGM supplies. A third theme was the influence of staff constraints on CGM prescribing. Providers requested CGMs' education, including pictures of the transmitter, sensor, and reader which would assist them with educating patients during visits about CGMs (Appendix F).

Discussion of Major Findings

The literature review supported the project findings. First, the literature review revealed financial barriers to prescribing CGMs in primary care. (Modzelewski et al., 2022; White & Knezevich, 2020). This was supported by the provider survey results, in which 66% (4) of

providers listed financial barriers or a patient's insurance coverage as the primary barrier to prescribing CGMs (Appendix F). Secondly, providers stated that lack of provider education about CGMs was the second most common barrier to prescribing CGMs. This is supported by the literature revealing that a knowledge deficit in interpreting and managing CGM data remains a challenge for primary care providers (Edelman et al., 2021; Martens, 2022). Therefore, the video and PowerPoint education tools were developed to assist providers in overcoming this barrier. The project findings showed that the percentage of CGMs prescribed increased from 5% to 7% the week following the dissemination of the educational materials to providers. Lastly, the literature review revealed that prescribing CGMs was challenging for primary care providers due to time constraints (Edelman et al., 2021; Martens, 2022). Results from the provider's surveys identified this as the third significant barrier to prescribing CGMs. Fifty percent (3) providers ranked time constraints as the second most common barrier, and the other 50% (3) ranked this as the third most common barrier (Appendix F).

A PDSA review was done monthly during the project implementation. The first PDSA review revealed that the amount of Libre 2 and Dexcom CGMs decreased during the month of February. A review of the patient's charts in the EMR revealed that the medical assistants and a licensed nurse removed the CGM prescriptions from the medication list during the rooming process at clinic visits which led to these patients not being included in the total number of patients with a CGM. This PDSA evaluation revealed the importance of ensuring the EMR correctly collects data for the organization. Following the review, the staff were educated not to delete the CGM from the medication list, and for the remainder of the project, the amount of CGMs increased. The second PDSA review conducted in March revealed that one less Dexcom CGM was prescribed during the first two weeks in March. A chart review revealed that the

durable medical equipment (DME) form was incorrectly completed and led to the denial of the Dexcom CGM. In a follow-up staff meeting, the project leader educated the nursing staff and providers on completing a DME form for CGM prescriptions. As a result, the amount of Libre and Dexcom CGMs prescribed in the next few weeks increased. The literature review revealed that DME forms could delay a patient from receiving a CGM for up to six months (Modzelewski et al., 2022). During a third PDSA review in April, the amount and percentage of CGMs prescribed increased throughout the four months of the project were noted. A comprehensive review of the project validated that the project leader's repeated discussions and meetings with providers and staff at the clinic assisted with streamlining the process of ordering CGMs.

Section V. Interpretation and Implications

Costs and Resource Management

This quality improvement project cost included the project leader's and site champion's time and supplies for disseminating the video education and PowerPoint presentation (Appendix H). The total direct cost to implement the project, including pre-and post-survey papers, SanDisk flash drive, paper for printouts for PowerPoint presentation, and Microsoft Office 365 Teams Cloud Program, was estimated at \$923.46. Indirect costs included the project leader's and site champion's time and were estimated at \$5,244.48 over 12 weeks of the project implementation. The hourly rate for the project leader and site champion is \$48.56 an hour. The project leader spent approximately eight hours a week working directly on this project at the primary care clinic project site. The project leader's dedicated time for the project included the development and dissemination of education, data collection and analysis, PDSA cycle reviews, collaboration with site champions, providers, staff, and management, and monthly CGM sales representative meetings.

If this project were to be implemented on a larger scale in the organization, a recommendation would be for a part of the collaborative healthcare team members to be responsible for the weekly data collection and analysis. The collaborative healthcare team member can collect the data and place results in the charts and graphs to enable the project leader to continue face-to-face patient visit encounters. These face-to-face visits with the provider or project leader would increase revenue for the clinic. However, the collaborative healthcare team member may not be available. If the collaborative health team member is not available for this, an advanced practice provider's 1.0 full-time equivalent (FTE) 40-hour position could be adjusted to a 0.9 FTE 36-hour position. A change in FTE status would allow time for the

advanced practice provider to assist with quality improvement projects in the organization. This designated position for an advanced practice provider would allow that provider to manage quality improvement projects to improve care for type 2 diabetic patients while achieving glycated hemoglobin A1c goals set by Medicare and ACOs, assisting with increasing revenue for the ACO and the organization.

Implications of Findings

Implications for Patients

The project results showed an increase in the amount and percentage of CGMs prescribed in the clinic which can positively impact type 2 diabetic patients and their overall health. CGM technology has lowered glycated hemoglobin A1c and improved the self-care of people with diabetes (Battelino et al., 2019; Chircop et al., 2021; White & Knezevich, 2020). In addition, evidence supports the use of CGM technology in decreasing adverse complications for type 2 diabetic patients. (ADA, 2020; Aggarwal et al., 2022; Anderson et al., 2020; Bailey & Gavin, 2021; Galindo et al., 2020; Kaufman et al., 2021; Rubin & Shah, 2021). The project also aligns and supports the patient-centered ideals of the Quadruple Aim by improving patient outcomes of glycemic control, promoting better health for diabetics, and enhancing the patient experience by promoting efficient initiation of CGM (Institute for Healthcare Improvement [IHI], 2022a).

The project would assist with meeting the Healthy People 2030 goal for 94.4% of people with diabetes to check their glucose daily (Healthy People, 2022). The project can benefit patients by improving patient awareness of their glucose results and thus allowing the patient to change their diet and exercise level based on their glucose readings. For example, if a patient recognizes that their glucose is elevated with the readily available CGM device, it will reinforce the need to eat a diabetic diet to prevent hyperglycemia. In addition, improved patient monitoring

of glucose results will promote achieving glycated hemoglobin A1c goals for diabetic patients to prevent complications of uncontrolled diabetes such as chronic renal insufficiency, coronary artery disease, cerebrovascular accidents, and peripheral artery disease. The project goals to increase CGM prescriptions and improve glycated hemoglobin A1c results for the patients will assist with decreasing the annual per-person type 2 diabetic complication costs such as end-stage renal disease (\$94,231), myocardial infarction (\$45,251), congestive heart failure (\$31,202), and stroke (\$23,780) (Yang et al., 2020).

Implications for Nursing Practice

An essential component of the Quadruple Aim is to improve work processes for providers to streamline processes such as initiating and managing CGMs (Institute for Healthcare Improvement [IHI], 2022a). Educating providers about CGMs prescribing promotes increased CGM initiation and promotes improved care for type 2 diabetic patients. This project supported this component of the Quadruple Aim and promoted the utilization of interprofessional collaboration to improve the care of diabetic patients and improve glycated hemoglobin A1c results for patients. The nursing professional is an excellent resource to utilize to lead the interprofessional team for the care of diabetic patients. The nursing professional can lead the collaborative healthcare team by effectively communicating with the team members and ensuring continuity of care for the diabetic population.

Impact on Healthcare System

CMS has established benchmark goals, that provide financial incentives for the ACO organization if met. CMS has set a goal for ACOs patients to have a glycated hemoglobin A1c of less than 9%. Developing interventions that assist an organization's providers in promoting and initiating CGMs have been proven to improve glycated hemoglobin A1c goals, thus assisting the

organization in meeting this diabetic ACO benchmark goal. In addition, another Quadruple Aim component that this project supported was bending the cost curve and lowering costs for the organization by achieving benchmarks for the ACO set by CMS for glycemic control. As stated by the ADA (2018), 73% of healthcare expenditures for people with diabetes are due to direct costs, including hospital inpatient, emergency care, and ambulatory visits. Therefore, developing interventions within the organization that assist with the prevention of complications of diabetes that can cause hospitalizations and emergency room visits are pivotal for the financial success of a healthcare organization.

Sustainability

The project results support the importance of sustaining this project in the organization. The project leader discussed the dissemination of the project throughout the organization with the Institute for Healthcare Quality Improvement Department. The video education and PowerPoint presentation remains available for dissemination and can be disseminated to the primary care clinics within the organization. The project site actively participates in other quality improvement projects, including promoting diabetes self-management education courses within the organization. The project leader will continue employment at the project site and be available as a resource for providers and patients. Healthcare is incorporating technology rapidly, and this project promotes technology interventions to improve care and glycated hemoglobin A1c goals for diabetic patients.

Dissemination Plan

The project results were presented to faculty and students at the University College of Nursing on July 11, 2023. The project was presented to the project site providers and staff via PowerPoint presentation at a staff meeting on July 14, 2023. The DNP project paper was

submitted for public access to the University Scholarship database on July 17, 2023. The project manuscript, with a requirement of 1300 words or five pages, per requirements of SQUIRE guidelines, will be submitted in August 2023 to the Journal of Nursing Care Quality, which provides practicing nurses and nursing leaders information about quality improvement processes in the practice setting. The quality improvement project will also be submitted as an abstract to the organization's Institute for Healthcare Quality Improvement department in December 2023 for consideration of system-wide dissemination to primary care clinics. As a result of this project, the project leader plans to develop another quality improvement project to submit to the quality improvement department next year with a focus on increasing prescribing of various pharmaceutical treatments, such as SGLT2 inhibitors and GLP-1 receptor medications for type 2 diabetes, to prevent adverse kidney and cardiovascular effects in people with type 2 diabetes.

Section VI. Conclusion

Limitations and Facilitators

Evaluating the limitations and facilitators during a quality improvement project is essential. Identifying limitations allows the leadership in an organization to recognize where change processes and resources can be prioritized to overcome barriers that impede reaching a project goal. Limitations of this project included: provider time constraints, financial barriers in which CGM prescriptions were impeded by coverage from insurance companies, technology barriers, and a short duration of four months for implementation. One major limitation was the four-month time frame which did not allow for an evaluation of the ACO's Achievable Benchmarks of Care (ABC) goal or glycated hemoglobin A1c results for the entire year. Therefore, the project could not evaluate if initiating CGMs improved the ACO's ABC goal of glycated hemoglobin A1c by less than 9% for the fiscal year.

Multiple project stakeholders were major facilitators for the project. For example, collaboration with healthcare team members, such as discussing the importance of not removing CGMs from the medication list, increased the amount and percentage of CGMs prescribed in the clinic. The site champion was another facilitator in supporting and guiding the project leader toward project improvement. The CGM pharmaceutical sales representatives were a facilitator in providing updated information about CGMs. Finally, the project leader's employer was a facilitator by providing office resources to complete the project.

Recommendations for Others

The first recommendation for this project would be for the organization to evaluate the glycated hemoglobin A1c results of patients with and without CGM prescription for one year to determine if a CGM prescription improved glycated hemoglobin A1c benchmark goals for the

organization. The second recommendation derived from the project would be to disseminate the video education and PowerPoint to the 90 primary care clinics throughout the organization. The pre-survey provider results provided helpful information for developing the educational content for the video and PowerPoint presentation for providers. The project findings reinforce that the organization should consult with providers for feedback on the information needed to improve workflow processes. The third recommendation is for healthcare organizations to recognize the importance of promoting an efficient interprofessional collaborative team that can assist with data collection needed for quality improvement projects. For example, the collaborative health team can assist with identifying barriers such as the rooming process and EMR documentation problems through a formalized PDSA evaluation process. The fourth suggestion also promotes interprofessional collaboration by utilizing the organization's shared pharmacy to assist with completing DME forms for CGM prescriptions. The final recommendation is for the organization's information technology team members to develop an interface into the EMR with the CGM reports derived from the CGM companies. This would improve provider access to CGM results to assist with diabetes medication management decisions during clinic visits.

Recommendations Further Study

The project results indicate that a video education and PowerPoint tool for providers increased the amount and percentage of CGMs prescribed in the primary care clinic. This result reinforces the importance of the need for educational tools to be offered to providers and staff in the organization. The input of providers and staff in developing these tools is pivotal for the active engagement of the providers. One future recommendation is to complete this project for a year in multiple primary care clinics within the organization to evaluate if the video education and PowerPoint presentation improves CGM prescribing. This project increased CGM

prescribing by 3.6% over four months in one primary care clinic. The project could increase CGM prescribing by 3.6% in 90 primary care practices resulting in a potential 324% total increase in CGM prescribing for the organization. The improvement in the amount of CGMs prescribed in primary care settings has the potential to result in improved glycated hemoglobin A1c results and increased financial benefit for the organization. Another recommendation is to evaluate the ACO's ABC benchmark glycated hemoglobin A1c goal at the end of the fiscal year to see if an improvement is noted in this goal. The evaluation of the ABC benchmark goal to achieve a glycated hemoglobin A1c less than 9% would determine if increasing CGM prescribing for people with type 2 diabetes improved the ABC glycated hemoglobin A1c goal in the organization's type 2 diabetic population. The final recommendation for future projects is to develop educational tools for primary care, inpatient hospital, and home health settings to increase the amount and percentage of SGLT2 inhibitors and GLP-1 receptor diabetic medications prescribed to prevent adverse cardiovascular and kidney complications due to type 2 diabetes.

A significant gap noted during the project is the unavailability of CGM devices for self-pay patients or patients with significant financial difficulties. Therefore, it is recommended that healthcare organizations, insurance companies, and medical supply companies of CGMs collaborate in making CGM devices available for patients with financial difficulties. This can be achieved by offering special financial assistance programs and financial support for all patients regardless of financial resources.

Final Thoughts

The determinantal adverse effects of uncontrolled diabetes and the adverse effects on the cardiovascular, kidney, and vascular systems are evident in the literature and seen throughout

daily practice. The fiscal impact of these adverse effects is apparent and draining the US healthcare system, including the Medicare population, many of whom have type 2 diabetes. Approximately 50% of adults with type 2 diabetes have a glycated hemoglobin A1c of 7% or greater (Centers for Disease Control and Prevention [CDC], 2022a). The importance of developing educational interventions to improve glycated hemoglobin A1c goals for patients is evident in the literature. This quality improvement project provides a solution, such as increasing CGM prescriptions in the primary care setting to meet this goal. The project supports providers, staff, and patients to provide optimal diabetic care to meet goals while assisting with financial gains for the organization and ACO.

References

Aggarwal, A., Pathak, S. & Goyal, R. (2022). Clinical and economic outcomes of continuous glucose monitoring system (GCMS) in patients with diabetes mellitus: A systematic literature review. *Diabetes Research and Clinical Practice*, 186, 109825

<https://doi.org/10.1016/j.diabres.2022.109825>

American Diabetes Association. (2018). Economic costs of diabetes in the US in 2017.

Diabetes Care, 41(5), 917-928. <https://doi.org/10.2337/dci18-0007>

American Diabetes Association. (2020). Standards of medical care in diabetes-2020 abridged for primary care providers. *Clinical Diabetes* 38(1), 10-38.

<https://doi.org/10.2337/cd20-as01>

American Diabetes Association. (2022a). *The cost of diabetes*.

<https://www.diabetes.org/about-us/statistics/cost-diabetes>

American Diabetes Association. (2022b). *The burden of diabetes in North*

Carolina. https://diabetes.org/sites/default/files/202111/ADV_2021_State_Fact_sheets_North%20Carolina_rev.pdf

Anderson, J.E., Gavin, J.R., & Kruger, D.K. (2020). Current eligibility requirements for CGM coverage are harmful, costly, and unjustified. *Diabetes Technology*

& Therapeutics, 22(3), 169-173. <https://doi.org/10.1089/dia.2019.0303>

Andes, L.J., Yanfeng, L., Srinivasan, M., Benoit, S.R., Gregg, E. & Rolka, D.B. (2019).

Diabetes prevalence and incidence among Medicare beneficiaries—United States, 2001-2015. *Morbidity and Mortality Weekly Report*, 68(43), 961-966.

<https://doi.org/10.15585%2Fmmwr.mm6843a2>

Ang, E., Lee, Z.X., Moore, S., Niana, M. (2020). Flash glucose monitoring (FGM): A clinical

- review on glycemic outcomes and impact on quality of life. *Journal of Diabetes and its Complications*, 34(6), 107559. <https://doi.org/10.1016/j.jdiacomp.2020.107559>
- Bailey, C.J. & Gavin, J.R. (2021). Flash continuous monitoring: A summary review of recent real-world evidence. *Clinical Diabetes*, 39(1), 64-71. <https://doi.org/10.2337/cd20-0076>
- Battelino, T., Danne, T., Bergenstal, R.M., Amiel, S.A., Beck, R., Biester, T., Bosi, E., Buckingham, B.A., Cefalu, W.T., Close, K.L., Cobelli, C., Dassau, E., Devries, J.H., Donaghue, K.C., Dovic, K., Doyle, F.J., Garg, S., Grunberger, G., Heller, S., . . . Philip, M. (2019). Clinical targets for continuous glucose monitoring data interpretation: Recommendations from the international consensus on time in range. *Diabetes Care*, 42(8), 1593-1603. <https://doi.org/10.2337/dci19-0028>
- Beck, R.W., Riddlesworth, T.D, Ruedy, K., Ahmann, A., Haller, S., Kruger, D., McGill, J.B., Polonsky, W., Price, D., Aronoff, S., Aronson, R., Kollman, C. & Bergenstal, R. (2017). Continuous glucose monitoring versus usual care in patients with type 2 diabetes receiving multiple daily insulin injections. *Annals of Internal Medicine*, 167(6), 365-374. <https://doi.org/10.7326/M16-2855>
- Carlson A., Mullen, D.M., & Bergenstal, R.M. (2017). Clinical use of continuous glucose monitoring in adults with type 2 diabetes. *Diabetes Technology & Therapeutics*, 19(2), S4-S11. <https://doi.org/10.1089/dia.2017.0024>
- Centers for Disease Control and Prevention (2022a). *Risk factors for diabetes-related complications*. <https://www.cdc.gov/diabetes/data/statistics-report/risks-complications.html>
- Centers for Disease Control and Prevention. (2022b). *Type 2 Diabetes*. <https://www.cdc.gov/diabetes/basics/type2.html>
- Centers for Disease Control and Prevention. (2022c). *National Diabetes Statistics Report*.

<https://www.cdc.gov/diabetes/data/statistics-report/index.html>.

Centers for Medicare and Medicaid Services (2015). *Next generation accountable care*

Organization (ACO) model fact sheet.

<https://www.cms.gov/newsroom/fact-sheets/next-generation-accountable-care-organization-aco-model-fact-sheet>

Centers for Medicare and Medicaid Services (2021). *Medicare shared savings program*.

<https://www.cms.gov/files/document/medicare-shared-savings-program-shared-savings-and-losses-and-assignment-methodology-specifications.pdf-0>

Centers for Medicare and Medicaid Services. (2022a). *Medicare shared savings program quality measure benchmarks for 2020/2021 performance years*.

<https://www.cms.gov/files/document/20202021-qualitybenchmarks.pdf#:~:text=Quality%20performance%20benchmarks%20are%20established%20by%20the%20Centers.Care%20Coordination%2FPatient%20Safety%2C%20Preventive%20Health%2C%20and%20At-Risk%20Population.pdf>

Centers for Medicare and Medicaid Services. (2022b). *Accountable Care Organizations*.

<https://data.cms.gov/medicare-shared-savings-program/accountable-care-organizations>

Centers for Medicare and Medicaid Services (2022c). *Table:33 ACO Quality*

Measures. <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharesavingsprogram/Downloads/ACO-Shared-Savings-Program-Quality-Measures.pdf>

Chircop, J., Sheffield, D., & Kotera, Y. (2021). Systemic review of self-monitoring of blood glucose in patients with type 2 diabetes. *Nursing Research*, 70(6), 487-497.

<https://doi.org/10.1097/NNR.0000000000000542>

Collaborative Institutional Training Initiative. (2022). *Social/Behavioral Research Investigators and key personnel*. <https://www.citiprogram.org/members/index.cfm?pageID=147#view>

Edelman, S.V., Cavaiola, T.S., Boeder, S., & Pettus, J. (2021). Utilizing continuous glucose monitoring in primary care practice: What the numbers mean. *Primary Care Diabetes*, 15(2), 199-207. <https://doi.org/10.1016/j.pcd.2020.10.013>

Eiland, L., Thangavelu, T., & Drincic, A. (2019). How technology improved diabetes management in relation to age, gender, and ethnicity. *Current Diabetes Reports*, 19(11), 199-207. <https://doi.org/10.1007/s11892-019-1231-5>

Espinoza, J., Shah, P., & Raymond, J. (2020). Integrating continuous glucose monitor data directly into the electronic health record: Proof of Concept. *Diabetes Technology & Therapeutics*, 22(8), 570-576. <https://doi.org/10.1089/dia.2019.0377>

Galindo, R.J., Migdal, A.L., Davis, G.M., Urrutia, M.A., Albury, B., Zambrano, C., Priyathama, V., Pasquel, F.J., Fayfman, M., Peng, L., & Umpierrex, G.E. (2020). Comparison of the Freestyle Libre Pro Flash Continuous Glucose Monitoring (CGM) system and point-of-care capillary glucose testing in hospitalized patients with type 2 diabetes treated with basal-bolus insulin regimen. *Emerging Technologies: Data Systems and Devices*, 43(11), 2730-2735. <https://doi.org/10.2337/dc19-2073>

Grey, M., Schulman-Green, D., Knafl, K., & Reynolds, N.R. (2014). A revised self and family management framework. *Nursing Outlook*, 63(2), 162- 170. <https://doi.org/10.1016/j.outlook.2014.10.003>

Grove, S.K., & Gray, J.R. (2019). *Understanding nursing research: Building on evidence-based practice* (7th ed.). Elsevier

Healthy People 2030 (2022). *Diabetes*. United States Department of Health and Human

- Services. <https://health.gov/healthypeople/objectives-and-data/browse-objectives/diabetes>
- Institute for Healthcare Improvement. (2022a). *The triple aim or the quadruple aim? Four points to help set your strategy*. <https://tinyurl.com/2m9c3y8>
- Institute for Healthcare Improvement. (2022b). Plan-Do-Study-Act (PDSA) Worksheet. <https://www.ihl.org/resources/Pages/Tools/PlanDoStudyActWorksheet.aspx>
- Kaufman, B.G., Anderson, D., Blesar, W.K., Muhlestein, D.B., Smith, D.B., Smith, N., Clough, J., McClellan, M.B., & Saunders, R. (2021). Association of ACO shared savings success and serious illness spending. *Journal of Healthcare Management*, 66(3), 227-240. <https://doi.org/10.1097/JHM-D-20-00155>
- Laight, D. (2020). Capturing glucose variability in patients with diabetes. *Prescriber*, 31(9), 20-23. <https://doi.org/10.1002/psb.1864>
- Layne, J.E., Zisser, H., Bergenstal, R.M., Gabbay, R.A., Barleen, N.A., Miller, D.P., & Dixon, R.F. (2020). Change in A1C with and without intermittent use of CGM in adults with type 2 Diabetes participation in the Onduo Virtual Diabetes Clinic. *Diabetes*, 69 (1). 70-OR. <https://doi.org/10.2337/db20-70-OR>
- Majithia, A., Kusiak, C.M., Lee, A.A., Colangelo, F.R., Romanelli, R.J., Roberston, S., Miller, D.P., Erani, D.M., Layne, J.E., Dixon, R.F., & Zisser, H., (2020). Glycemic outcomes in adults with type 2 diabetes participating in a continuous glucose monitor-driven virtual diabetes clinic: Prospective trial. *Journal of Medical Internet Research*, 22(8), e21778. <https://doi.org/10.2196/21778>
- Martens, T.W. (2022). Continuous glucose monitoring in primary care-are we there? *Current Opinion in Endocrinology, Diabetes, & Obesity*, 29(1), 10-16. <https://doi.org/10.1097/MED.0000000000000689>

- Martens, T., Beck, R.W., Bailey, R., Ruedy, K.J., Calhoun, P., Peters, A.L., Pop-Busui, R., Philis-Tsimikas, A., Bao, S., Umpierrez, G., Davis, G., Kruger, D., Bhargava, A., Young, L., McGill, J.B., & Aleppo, G. et al...Bergenstal, R.M. (2021). Effect of continuous glucose monitoring on glycemic control in patients with type 2 diabetes treated with basal insulin. *Journal of American Medical Association*, 325(22), 2262-2272.
<https://doi.org/10.1001/jama.2021.7444>
- Melnyk, B.M., & Fineout-Overholt, E. (2019). *Evidence-based practice in nursing and healthcare: A guide to best practice* (4th ed.). Philadelphia, PA: Lippincott, Williams & Wilkins
- Modzelewski, K.L., Murati, J., Charoenngam, N., Rehm, C., & Steenkamp, D.W. (2022). Delays in continuous glucose monitoring device initiation: A single-center experience and a call to change. *Diabetes Technology & Therapeutics*, 24(6), 390-395.
<https://doi10.1089/dia.2021.0557>
- Murphy, S.L., Kochanek, K.D., Xu, J., & Arias, E. (2021). Mortality in the United States, 2020. National Center for Health Statistics, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.
<https://dx.doi.org/10.15620/cdc:112079>
- North Carolina Department of Health and Human Services (2022). *2019 BRFSS survey results: Diabetes*. <https://schs.dph.ncdhhs.gov/data/brfss/2019/region4/blsugar.html>
- North Carolina Diabetes Advisory Council. (2020). *NC Diabetes Statistics*.
<https://www.diabeticsnc.com/county-statistics/>
- Reichert, S.M., Harvey, E., Graat, M.A., & Liebusch, R.A. (2020). Benefits of flash glucose

sensors on type 2 diabetes management and exercise behavior in insulin and noninsulin-treated patients: The STAND study. *Canadian Journal of Diabetes*, 44(7), S3-S3.

Rodbard, D. & Garg, S.K. (2021). Standardizing reporting of glucose and Insulin data for patients on multiple daily injections using connected insulin pens and continuous glucose monitoring. *Diabetes Technology & Therapeutics*, 23(3), 221-226. <https://doi.org/10.1089/dia.2021.0030>

Rubin, D.J., & Shah, A.A. (2021). Predicting and preventing acute care re-utilization by patients with diabetes. *Current Diabetes Reports*, 21(9), 34-34. <https://doi.org/10.1007/s11892-021-01402-7>

Shubrook, J.H., Ramirez, B.F., Healy, A.M., Salzberg, L., Ahmed, S., Feinberg, H., Schutta, M., Schwartz, F.L., & Low Wang, C.C. (2021). Primary care diabetes fellowship programs: Developing National Standards. *Clinical Diabetes*, 39(1), 88-96. <https://doi.org/10.2337/cd20-0055>

United States Census Bureau (2021). *Quick facts Wake County North Carolina*. <https://www.census.gov/quickfacts/fact/table/wakecountynorthcarolina/AGE775221>

United States Department of Health and Human Services (2022). *National diabetes statistic report 2020 estimates of diabetes and its burden in the United States*. <https://www.cdc.gov/diabetes/data/statistics-report/diagnosed-undiagnosed-diabetes.html>

University of North Carolina Health (2022). *Vision and Values*. <https://www.unhealthcare.org/about-us/vision-values/>

University of North Carolina Senior Alliance (2022a). *UNC Senior Alliance NGACO Quality Results Calendar Year 2019*. <https://tinyurl.com/6yzv4c79>

University of North Carolina Senior Alliance (2022b). *UNC Senior Alliance*.

<https://www.unhealthcare.org/unc-senior-alliance/>

Wake County Health and Human Services. (2019). *Wake County 2019 Community Health Needs Assessment. Our Community Wellbeing Opportunities and Challenges. 2019 Wake County Community Health Needs Assessment.* <https://schs.dph.ncdhhs.gov/units/Idas/cha2019/2019-WakeCounty-CHNA-Report-Final-pdf>

White, N.D., & Knezevich, E. (2020). Flash glucose monitoring technology impact on diabetes self-care behavior. *American Journal of Lifestyle Medicine, 14*(2), 130-132.
<https://doi.org/10.1177%2F1559827619890955>

Yan, B.W., Shashoua, M., & Figueroa, J.F. (2022). Changes in spending, utilization, and quality of care among Medicare accountable care organizations during the COVID-19 pandemic. *PLoS ONE 17*(8): e0272706. <https://doi.org/10.1371/journal.pone.0272706>

Yang, W., Cintina, I., Hoerger, T., Neuwahl, S.J., Shao, H., Laxy, M., & Zhang, P. (2020). Estimating costs of diabetes complications in people <65 in the U.S. using panel data. *Journal of Diabetes and its Complications, 34*(12), 1-12.
<https://doi.org/10.1016/j.jdiacomp.2020.107735>

Ying, C. & Choi, J. (2021). Flash continuous glucose monitoring (Freestyle Libre 14-day system) for self-management of diabetes mellitus. *American Family Physician, 103*(11), 688-690. <https://www.proquest.com/scholarly-journals/flash-continuous-glucosemonitoring-freestyle/docview/2535046278/se-2>

Appendix A**Provider Questionnaire**

Please take a few minutes to assess on scale of 1 to 5 your perception regarding CGM barriers, facilitators, and comfort level in prescribing CGM
1=Very Likely 2=Likely 3=Not Likely 4=Very Unlikely

1. How likely are you to prescribe a CGM in the next 6 months?
 - 1) Very likely
 - 2) Likely
 - 3) Not Likely
 - 4) Very Unlikely

2. How likely are you to be familiar with insurance requirements/criteria to cover CGM?
 - 1) Very Likely
 - 2) Likely
 - 3) Not Likely
 - 4) Very Unlikely

3. If you identified a patient as a candidate for a CGM, how likely are you to prescribe a CGM?
 - 1) Very Likely
 - 2) Likely
 - 3) Not Likely
 - 4) Very Unlikely

4. How likely are you to know what information to put on the CGM electronic prescription?
 - 1) Very Likely
 - 2) Likely
 - 3) Not Likely
 - 4) Very Unlikely

5. How likely is a patient's specific insurance coverage affect your decision to prescribe a CGM?
 - 1) Very Likely
 - 2) Likely
 - 3) Not Likely
 - 4) Very Unlikely

6. How likely are you to log in to program to evaluate CGM data results at patient visits?
 - 1) Very Likely
 - 2) Likely
 - 3) Not Likely
 - 4) Very Unlikely

7. Are you likely to make medication management decision changes based on CGM data report results?

- 1) Very Likely
- 2) Likely
- 3). Not Likely
- 4) Very Unlikely

8. Rate the potential barriers to prescribing CGM in primary care clinic 1 to 3 with 1 being the most significant barrier and 3 being the barrier with least significance

___ Staff time constraints

___ Lack of provider education training about CGM devices

___ Insurance coverage

9. What information would be most helpful for you to learn about CGMs and to increase the amount of CGMs you prescribe?

Appendix B

Power Point Presentation

<p>Continuous Glucose Monitoring for Type 2 Diabetics Melanie White FNP-BC</p>	<p>Two Types CGMs</p> <ol style="list-style-type: none">1. Freestyle Libre. (First available 2017) <small>Approved for 18 years of age and older Not approved for hemochromatosis patients</small>2. Dexcom
--	--

1

2

<p>Freestyle Libre</p> <p>CGM that uses subcutaneous glucose sensing technology to detect glucose levels in the body's interstitial fluid with a sensor. (Measures glucoses every minute, glucose readings store in 15minute intervals)</p> <p>Sensor made of glucose oxidase platinum electrode attached to the sensor that detects glucose levels in the interstitial fluid (No control testing needed, done at factory where manufactured)</p>	<p>Types of Libre CGMs</p> <ol style="list-style-type: none">1. Freestyle Libre (14 Days)2. Freestyle Libre 2 (14 Days)3. Freestyle Libre 3 (available 2023)
--	--

3

4

Libre Supplies

1. Sensor
2. Iphone or Android
3. May purchase **Reader** if do not want to you cell phone to check glucoses

5

Step 1-Libre

The sensor



6

Step 2

Device applied to skin/arm



7

Step 3

Sensor applied to skin



8

Apps-Monitoring Results

Freestyle Libre 

Freestyle Libre 2 



Freestyle Libre 3 

9

Prescribing Libre 2

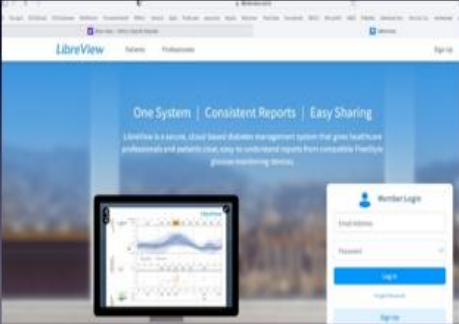

- Prescription for x2 Freestyle Libre 2 Sensors/month
\$75.00/1 month (\$75.00 for 2 sensors)
- App on Cell Phone (Free with cell phone service)
Iphone
Android
- Sensor (only need this if not using cell phone)
\$65.00 for 1 reader
One time cost

10

<p>Reader (used only if not using cell phone)</p> <p>Reader</p>  <p>Sensor</p> 	<h3>Important Fact</h3> <p>Must order reader specific for Libre Freestyle, Freestyle Libre 2, Freestyle Libre 3</p> <p>Readers can not be used interchangeable between the different types of CGMs</p>
---	--


11

12

<h3>App for Libre CGMs</h3> 	<h3>libreview.com</h3> <h4>PATIENT DASHBOARD</h4> 
--	---

13

14

<h3>DEXCOM</h3> <ol style="list-style-type: none">1. DEXCOM2. DEXCOM 6 (most commonly prescribed) 	<h3>Prescribing Dexcom</h3> <ul style="list-style-type: none">• Sensor (10 day usage)• Transmitter (last 3 months)• Iphone or Android OR Receiver
--	---

15

16

Dexcom Sensor/Transmitter

Collects real time glucose reading every 5 minutes



17


Dexcom Transmitter (last 3 months)

Dexcom sensor applied to skin and transmitter INSERTED into sensor



18


App for Dexcom



19

clarity.dexcom.com

PATIENT DASHBOARD



20

Appendix C
Data Collection Tool

Project Name: Program Development Project: Continuous Glucose Monitoring

Name of Data Recorder: Melanie White

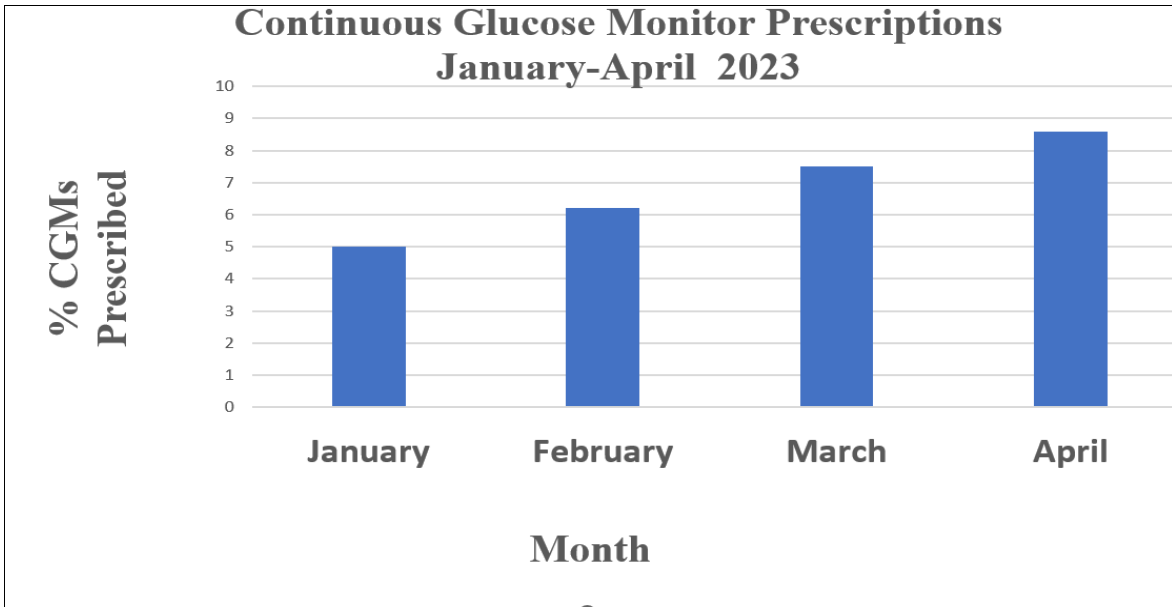
Data Collection Dates: January 1, 2023-May 31, 2023

Number of Continuous Glucose Monitors Prescribed Knightdale Family Medicine

<i>Total Number of Continuous Glucose Monitors Prescribed Prior to Video Education and PowerPoint presentation</i>				
1/27/23	26	5	21	App 5% of those eligible have CGM
<i>Number of Continuous Glucose Monitors Prescribed Weekly After Video Education and PowerPoint presentation</i>				
	Total Number of CGMs Prescribed	Number Libre Prescribed	Number Dexcom Prescribed	Number of patients seen that are eligible for CGM (track %)
Week 1 (2/6-2/10)	34	6	28	Hgba1c>7.0%=501 pts eligible CGM 501/1150=43.5% eligible for CGM App. 7% of the those eligible have CGM
Week 2 (2/13-2/17)	36	7	29	Hgba1c>7.0%=500 pts eligible CGM 500/1152=43.4% eligible for CGM App 7.2% of those eligible have CGM
Week 3 (2/20-2/24)	31	5	26	Hgba1c>7.0%=500 pts eligible CGM 500/1155=43.3% eligible for CGM App 6.2% of those eligible have CGM
Week 4 (2/27-3/3)	32	5	27	Hgba1c>7.0%=505 pts eligible CGM 505/1161=43.4% eligible for CGM App 6.3% of those eligible have CGM
Week 5 (3/6-3/10)	33	6	27	Hgba1c>7.0%=505 pts eligible CGM 505/1165=43.3% eligible CGMs App 6.3% of those eligible have CGM
Week 6 (3/13-3/17)	35	9	26	Hgba1c>7.0%=502 pts eligible CGM 502/1168=43.0% eligible CGM App 7.1% of those eligible have CGM
Week 7 (3/20-3/24)	37	8	29	Hgba1c >7.0%=503 pts eligible CGM 503/1169=43% eligible CGM App 7.3% of those eligible have CGM
Week 8 (3/27-3/31)	38	9	29	Hgba1c>7.0%=505 pts eligible CGM 505/1172=43% eligible CGM App 7.5% of those eligible have CGM
Week 9 (4/3-4/7)	38	11	27	Hgba1c.7.0%=500 pts eligible CGM 500/1177=43% eligible CGM App 7.5% of those eligible have CGM
Week 10 (4/10-4/14)	39	14	25	Hgba1c 7.0%=501 pts eligible CGM 501/1179=42.5% eligible CGM App 7.8% of those eligible have CGM
Week 11 (4/17-4/21)	41	14	27	Hgba1c 7.0%=503 pts eligible CGM 503/1182=42.6% eligible CGM App 8.2% of those eligible CGM

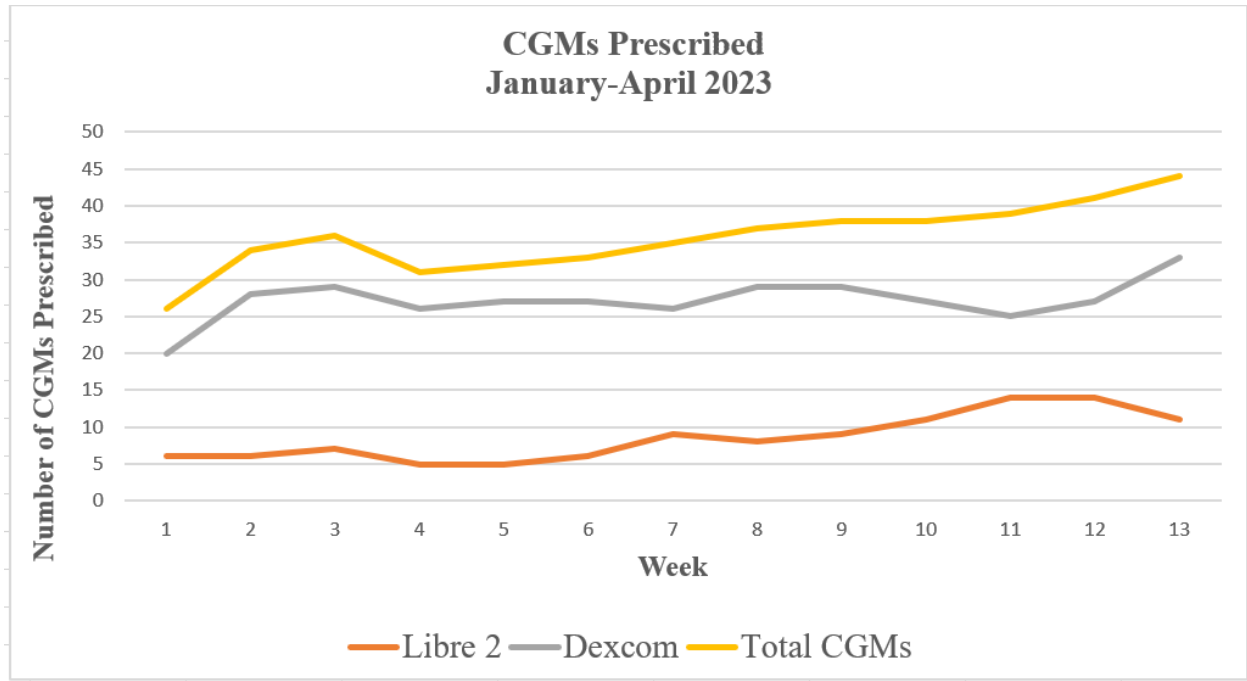
Week 12 (4/24-4/28)	44	11	33	HgbA1c 7.0%=509 pts eligible CGM 509/1192=42.7% eligible CGM App 8.6% of those eligible have CGM
<i>Total Number of Continuous Glucose Monitors Prescribed After Video Education</i>				
5/1/23	44	11	33	App 8.6% of those eligible have CGM

Appendix D



Appendix E

Number of CGMs Prescribed in Clinic



Appendix F

Pre/Post Survey Provider Results

	Pre		Post	
Question 1				
How likely are you to prescribe a CGM in the next 6 months?	1 (Very Likely)	4(67%)	1 (Very Likely)	5(83%)
	2 (Likely)	2(33%)	2 (Likely)	1(16%)
	3 (Not Likely)	0(0%)	3 (Not Likely)	0(0%)
	4 (Very Unlikely)	0(0%)	4 (Very Unlikely)	0(0%)
Question 2				
How likely are you to be familiar with insurance requirements/criteria to cover CGM?	1 (Very Likely)	0(0%)	1(Very Likely)	2(33%)
	2 (Likely)	2(33%)	2 (Likely)	4(66%)
	3 (Not Likely)	3(50%)	3 (Not Likely)	0(0%)
	4 (Very Unlikely)	1(17%)	4(Very Unlikely)	0(0%)
Question 3				
If you identified a patient as a candidate for a CGM, how likely are you to prescribe a CGM?	1(Very Likely)	3(50%)	1(Very Likely)	4(66%)
	2(Likely)	3(50%)	2(Likely)	1(33%)
	3(Not Likely)	0(0%)	3(Not Likely)	0(0%)
	4(Very Unlikely)	0(0%)	4(Very Unlikely)	0(0%)
Question 4				
How likely are you to know what information to put on the CGM electronic prescription?	1(Very Likely)	1(17%)	1(Very Likely)	4(66%)
	2(Likely)	2(33%)	2(Likely)	2(33%)
	3(Not Likely)	1(17%)	3(Not Likely)	0(0%)
	4(Very Unlikely)	2(33%)	4(Very Unlikely)	0(0%)
Question 5				
How likely is a patient's specific Insurance coverage affect your Decisions to prescribe a CGM?	1(Very Likely)	5(83%)	1(Very Likely)	4(66%)
	2(Likely)	1(17%)	2 (Likely)	2(33%)
	3(Not Likely)	0(0%)	3 (Not Likely)	0(0%)
	4(Very Unlikely)	0(0%)	4(Very Unlikely)	0(0%)
Question 6				
How likely are you to log into program to evaluate CGM data results at patient visits?	1(Very Likely)	1(17%)	1(Very Likely)	1(16%)
	2(Likely)	2(33%)	2(Likely)	3(50%)
	3(Not Likely)	2(33%)	3(Not Likely)	2(33%)
	4(Very Unlikely)	1(17%)	4(Very Unlikely)	0(0%)

Question 7

Are you likely to make medication Management decision changes based on CGM data report results?	1(Very Likely)	3(50%)	1(Very Likely)	4(66%)
	2(Likely)	2(33%)	2(Likely)	2(33%)
	3(Not Likely)	0(0%)	3(Not Likely)	0(0%)
	4(Very Unlikely)	1(17%)	4(Very Unlikely)	0(0%)

Question 8

Rate the potential barriers to prescribing CGM in primary care clinic 1 to 3 with 1 being the most significant barrier and 3 being the barrier with least significance.

Pre- Intervention

N=6

Post-Intervention

N=6

Staff time constraints0 ranked 1st6 ranked 2nd3 ranked 2nd3 ranked 3rd**Lack of provider education training about CGM devices**2 ranked 1st6 ranked 3rd1 ranked 2nd3 ranked 3rd**Insurance Coverage**4 ranked 1st6 ranked 1st2 ranked 2nd0 ranked 3rd**Question 9 Answers**

What information would be most helpful for you to learn about CGMs and to increase the amount of CGMs you prescribe?

PreSurvey:

Financial Themes: “Insurance coverage if the main barrier”. “More information or review on insurance requirements/criteria to cover CGM”

Clinic Processes Theme: “How to write the script, provider and patient education, what to put on the prescription, ie: amount of equipment to dispense” “I am willing to prescribe CGMs and

am able to demonstrate use with patients after prescribing” , “How much refills to prescribe to last for 6 months to a year”

Technology Theme: “How to log into glucose results screen”

Post Survey

Financial Themes: “continued updates on insurance coverage as well as new versions of the CGMs as they come out” “get insurance to cover the CGM”

Clinic Processes Theme: “How to order refresher. I get the different parts mixed up , ie: sensor, transmitter and how much to order”

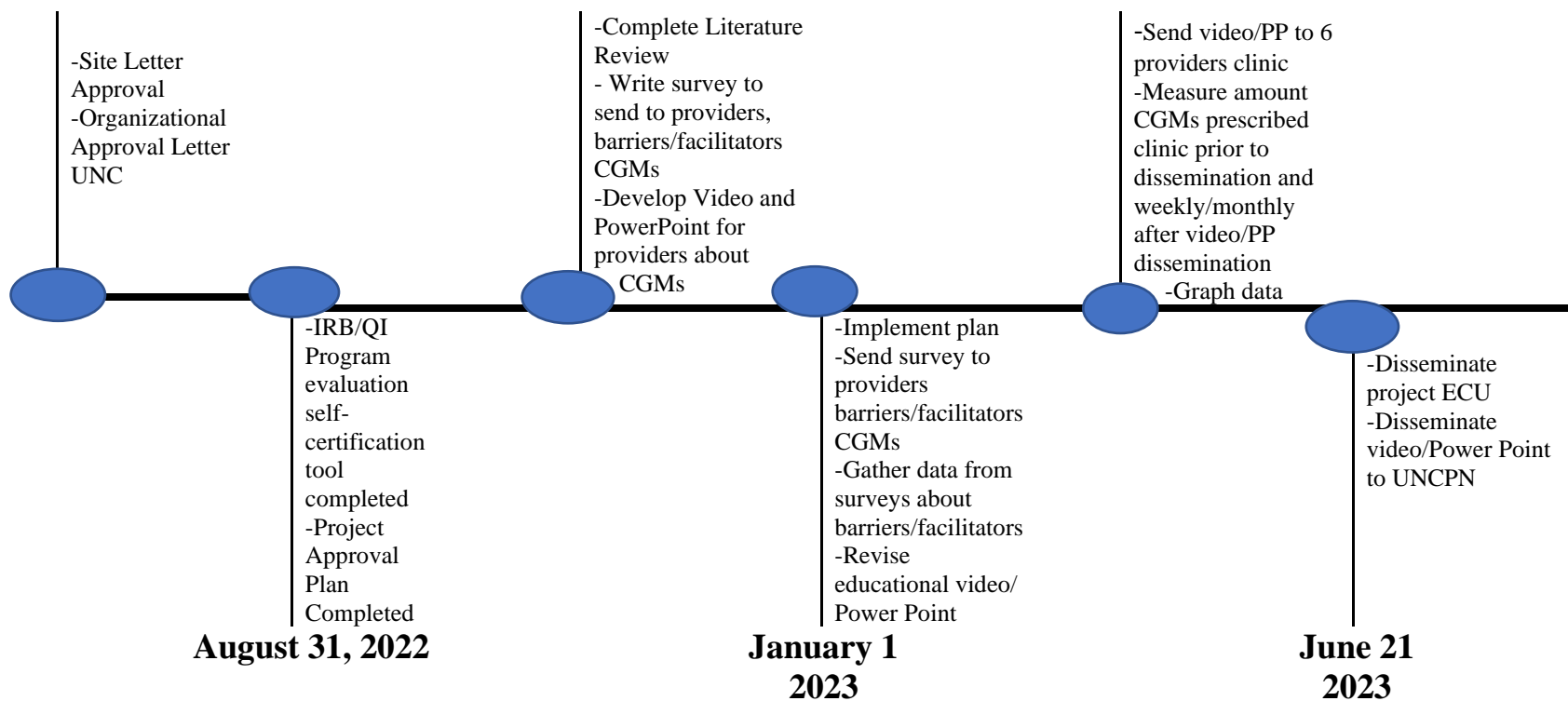
Appendix G

Timeline

June 24,
2022

October 14
2022

February 1
April 31 2023



Appendix H

Budget

Direct Costs	Quantity	Unit Costs	Total
I. Project Materials			
Pre and Post Surveys for providers/paper (\$0.02/sheet paper)	24	\$0.48	0.48
SanDisk Flash Drive	1	\$9.99	9.99
Printed out of Power Presentation (\$0.02/sheet paper)	42	\$0.84	11.32
Microsoft office 365/PowerPoint/Microsoft Teams Cloud Program	6	\$151.99	923.46
Indirect Costs			
I. Staffing Time			
Project Leader's Time	8hr/week	48.56/hr	4661.76/4 mths
Site Champion Time	1hr/week	48.56/hr	582.72/4 mths
Total			6189.73