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## Increasing the Incidence of Referrals and Execution of Diabetic Eye Examinations in a South Texas Primary Care Clinic

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INCREASING THE INCIDENCE OF REFERRALS AND EXECUTION OF DIABETIC EYE  
EXAMINATIONS IN A SOUTH TEXAS PRIMARY CARE CLINIC

by

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for the degree of

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December 2019

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Marisa Cecilia Macias BSN, RN

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### Abstract

Diabetes is a significant public health problem, decreasing quality of life, causing disability and death (CDC, 2017; Foos et al., 2015; Grover & Joshi, 2015). Uncontrolled diabetes can lead to several eye complications including retinopathy and blindness (ADA, 2013; Liu & Swearingen, 2017). As the number of people afflicted with diabetes rises, the need for diabetic eye examination screenings also increases to prevent disability, improve quality of life and prevent blindness (ADA, 2018; Fisher et al., 2016; Garber et al., 2015; & Raman, Gella, Srinivasan, & Sharma, 2016).

The purpose of this project was to increase the rate of diabetic eye examination referrals, completion of diabetic eye examinations and documentation of results in the medical records. The objectives were to improve diabetic eye examination referrals by 30% and increase the referral loop closure by 40%.

Interventions included 2 training changes, 3 clinic processes changes, 4 EMR changes and 4 paper resource changes. Nine of 13 interventions were successfully implemented.

Results showed either a marginal improvement or a regression in the number of diabetic eye examinations. Although, this project failed to meet the objectives, a great deal was learned about clinical practice guidelines.

More quality improvement projects are needed to identify strategies that will help increase the number of annual diabetic eye examinations that are performed in the clinical practice setting. Projects like this help identify barriers to improved health care such as patient motivation to adhere to treatment recommendations.

*Keywords:* diabetes, diabetic eye complications, diabetic eye examinations, diabetic retinopathy

There are an estimated 72 million people in the global adult population with diabetes, accounting for approximately 8.2% of the world population (Raman et al., 2016). Diabetes represents a significant public health problem worldwide, decreasing quality of life and causing disability and death at great economic cost (Foos et al., 2015; Grover & Joshi, 2015). In the United States there are 30.3 million people living with diabetes, approximately 9.4% of the U.S. population (Centers for Disease Control and Prevention (CDC), 2017). The State of Texas ranks 17th in the United States with the one of the largest populations of diabetics accounting for 11.2% of Texas residents (Trust for America's Health & Robert Wood Johnson Foundation, 2017). Due to this prevalence of diabetes, diabetic eye examinations that screens for a variety of diabetic eye complications are critical for preventing disability, improving quality of life and preventing blindness (Figure 1).

Diabetes is a chronic condition that does not happen in isolation. It has the following common comorbidities: hypertension, obesity, hyperlipidemia, chronic kidney disease and cardiovascular disease (Iglay et al., 2016). Overall, the total direct and indirect estimated cost of diagnosed diabetes in the United States in 2012 was \$245 billion (CDC, 2017). According to the Texas Health and Human Services (2015), the region of Texas where San Antonio is located has 11.5% of the diabetic adult population within the State (Figure 2). The San Antonio region borders the region with the most diabetics in the State, which is just south of the San Antonio region, with 15.1% diabetics.

Diabetes is often treated by primary care providers (PCPs) rather than endocrinologists because of the overwhelming number of diabetics. According to the American Diabetes Association (ADA), there have been many advances in diabetic care, but 33%–49% of patients still do not meet targets for glycemic control, blood pressure ranges, or cholesterol control

(ADA, 2018). If there is a lack of collaboration with medical professionals, the progression of diabetes can be dramatic and debilitating.

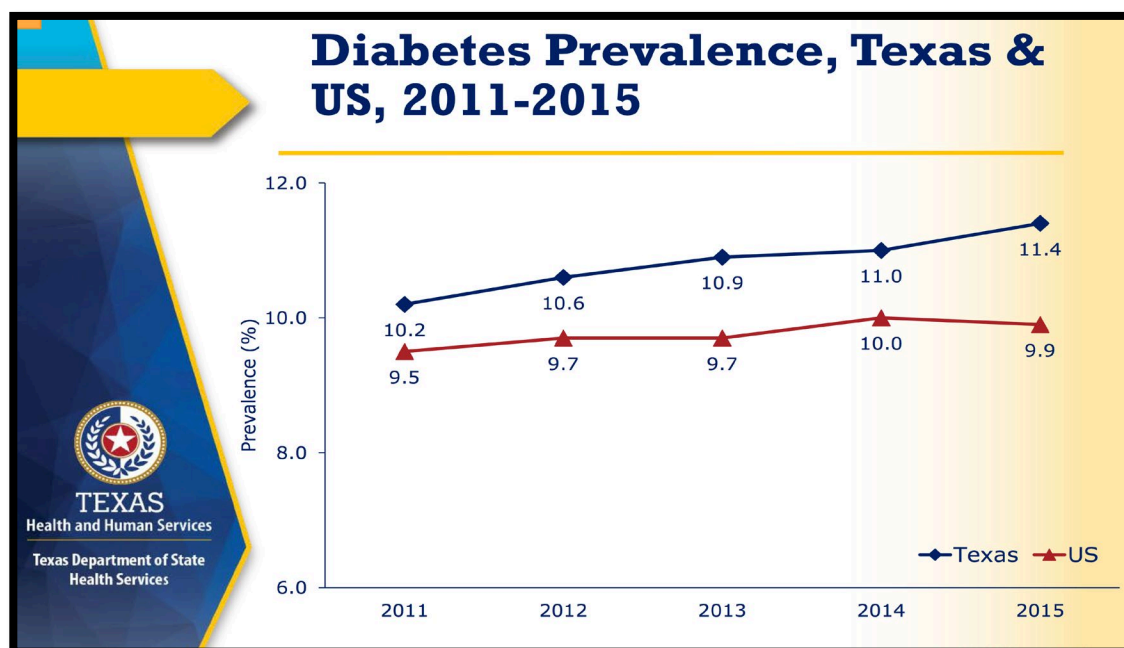


Figure 1. Diabetes prevalence: Texas & United States, 2011-2015.

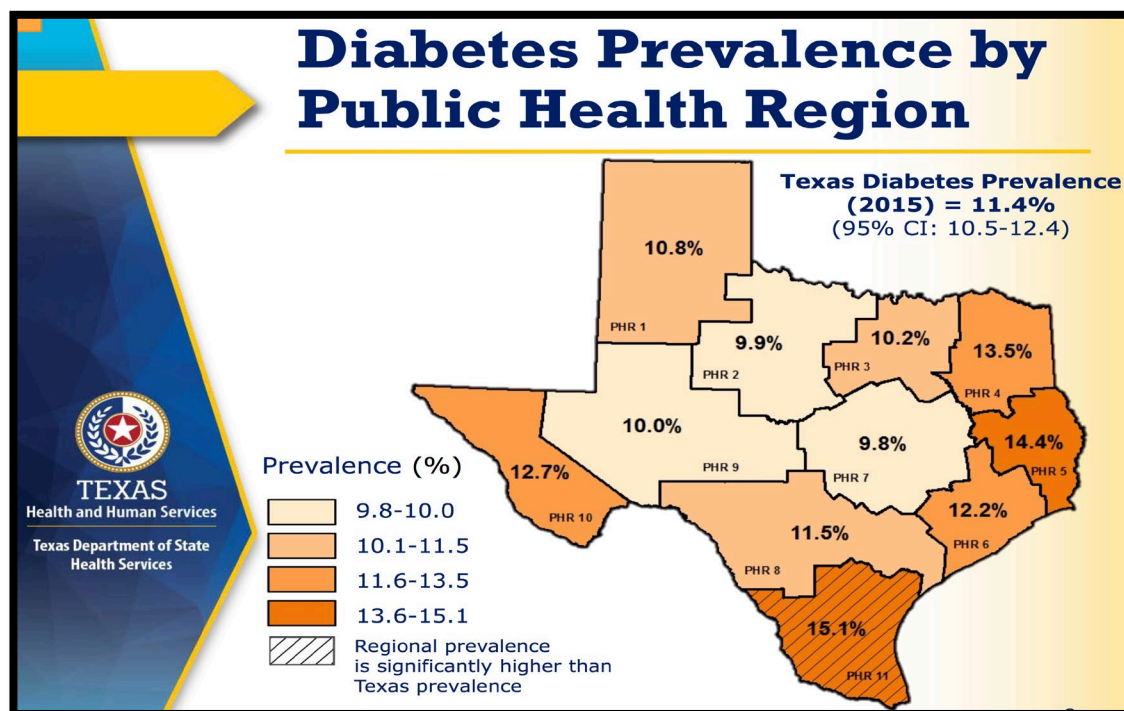


Figure 2. Texas diabetes prevalence by public health region.

### **Statement of the Problem**

As the global prevalence of diabetes increases, so will the number of people with diabetes-related complications. Uncontrolled diabetes can lead to many disabilities including diabetic eye complications such as glaucoma, cataracts, xerophthalmia, diabetic retinopathy and blindness (ADA, 2013; Kamel, Mohammed, Zankalony & Saad, 2017; Vieira-Potter, Karamichos & Lee, 2016; Winters et al., 2016). Diabetes is the leading cause of blindness among U.S. adults and the most prevalent cause of visual impairment (Fisher et al., 2016; Murchison et al., 2016; Willis et al., 2017; Winters et al., 2016). One of the most prevalent complications of diabetes is diabetic retinopathy (DR), which develops in nearly one-third of the diabetic population (Raman et al., 2016). Prevention of blindness due to DR requires effective screening strategies; thus, providers need to know the risk factors and magnitude of the problem (Raman et al., 2016).

### **Background and Significance**

Diabetic eye screening represents tertiary prevention. Tertiary prevention is managing the disease to prevent further complications (Ali & Katz, 2015; Michels et al., 2015). Managing diabetes encompasses monitoring glucose levels (both at-home glucometer samples and serum hemoglobin A1C (HbA1C) samples), working closely with a PCP or endocrinologist, in-depth diabetes education, making lifestyle changes including diet and exercise and taking prescribed medications, which may include oral medications as well as insulin (Ali & Katz, 2015; Michels et al., 2015). Keeping glucose levels under control is necessary to prevent heart attacks, strokes, kidney disease, amputations and diabetic eye diseases that may lead to blindness (Ali & Katz, 2015; Michels et al., 2015). The clinic involved with this project had difficulty getting their

diabetic patients to their annual diabetic eye examinations as well as difficulty tracking those patients that had completed their annual diabetic eye examinations.

### **Assessment**

One of the most distinguishing features of this clinic was that it utilized a hybrid of both paper and an electronic medical record (EMR). As a result, there was double charting and extra work involved in maintaining both forms of documentation. However, there was also an inherent double check or verification in this hybrid system. One of the providers documented most of her visits in the EMR while the other two providers charted on paper and used scribes to enter the visits into the EMR. The clinic is directed and owned by a medical doctor (MD) with more than 30 years of experience. He is Hispanic and speaks fluent Spanish. Consequently, his ability to speak to his patients in their native language along with building a solid rapport has resulted in lifelong relationships. He has many patients that he has treated since they were children and he now treats their children while continuing to see their elderly parents. The MD has two physician assistants (PAs) that work with him. They each see anywhere from 16 to 45 patients per day with an estimated 17 new patients a week. The clinic employs 36 employees, most of whom are full-time employees except for a couple of part-time employees and six contracted workers.

The clinic was frequented by approximately 4,659 patients in 2016 based on the EMR, but the data had some inconsistencies because some patients had more than one record in the EMR or there were some inactive patients who had not been seen in a year that were still being counted. Due to the inconsistencies in the patient data, an average of two totals was utilized to calculate the number of patients seen in the clinic from January 1, 2016 to December 31, 2016. Adding the total number of patients seen by gender to the total number of patients seen by ethnicity and dividing by two served as a means to calculate the total number of patients seen in

the clinical. This resulted in an average patient volume of 4,144 patients. This method adjusted for the redundancies found in the EMR.

Overall, the patient population was not ethnically diverse but rather was mostly a homogenous group. Demographic data collected from this clinic between January 1, 2016 and December 31, 2016 revealed that 3,953 of the patients were Hispanics, 392 of the patients were non-Hispanics and 9 of the patients refused to identify or answer the ethnicity question. Additionally, 1,746 of the patients identified as male while 2,187 of the patients identified as female.

Out of this total patient population approximately 32% (1,335) of the patients were identified as diabetic with only 52% (697) of these patients receiving their annual eye examination in 2016. Subsequent demographics were also collected between January 1, 2017 and December 31, 2017. The same method was used to calculate the patient population in order to adjust for inconsistencies in the EMR. Table 1 shows a comparison between the data collected in 2016 and the data collected in 2017. While the number of diabetic patients seen in the clinic during 2017 decreased there was still a significant number of these patients who did not receive their annual diabetic eye examinations.

The daily operations of this clinic were complex and far busier than most private practice clinics because of the various on-site diagnostics offered. Specifically, the clinic offered laboratory testing, ultrasound, dual-energy x-ray absorptiometry (DEXA) scans, echocardiogram (ECHO) scans, vascular studies, x-rays, bi-monthly optometrist eye examinations, allergy testing and electromyography (EMG). All but three recommended routine preventive screenings for patients were offered in house at the clinic. The three preventative screening that were referred out to other providers included colonoscopies, mammograms, and diabetic eye examinations.



Follow-up on these outside referrals was not consistent but the most deficient of the three was the diabetic eye examinations. The clinic staff acknowledged that there were issues with the process of referring, scheduling and following-up with the diabetic eye examinations. The staff helped identify some of the process problems they had with referrals because they had a vested interest in streamlining and fixing the problems.

Table 1

*Comparison of Patient Demographic Information from January 1, 2016 to December 31, 2016 and January 1, 2017 to December 31, 2017*

Demographic	2016 Number (%)	2017 Number (%)
Males	1,746 (42.1%)	2,166 (46.4%)
Females	2,187 (52.7%)	2,645 (56.7)
Hispanics	3,953 (95.3%)	4,043 (86.7%)
Non-Hispanics	392 (9.4%)	447 (9.5%)
Refuse to Answer	9 (0.002%)	16 (0.003%)
Diabetes Diagnosis	1,335 (32.2%)	1157 (24.8%)
Eye Screening	697 (52.2%)	427 (36.9%)
Closed the Loop	Not collected	185 (43.3%)

**Setting/Population**

The setting was a private family practice clinic in the city of San Antonio, Texas. San Antonio is located within Bexar County in the south-central part of Texas, just south of Austin, Texas. The clinic was located in an older, lower socioeconomic status neighborhood in the southwest area of San Antonio. This project is especially relevant and representative of the population in San Antonio due to the fact that according to the U.S. Census Bureau (2016), over half of the population in San Antonio is Hispanic (59.9%). Likewise, the majority of the clinic patients are Hispanic as previously described. The clinic patient population also has a high volume of patients who only speak Spanish. This is substantiated by the frequency that the one provider who does not speak Spanish having to transfer patients from her service to one of the other two providers who do speak Spanish. The provider who only speaks English is working hard to learn Spanish because she does not want to continue to lose patients. Coincidentally this clinic also has a higher rate of diabetics compared to the national or state average. According to the CDC (2017), the United States has approximately 9.4% or 30.3 million diabetics and the state of Texas has 11.2% diabetics according to Trust for America's Health & Robert Wood Johnson Foundation (2017). Approximately 25% of the clinic's 2017 patient population is diabetic, which is higher than both the national and state numbers. As previous mentioned, the daily operations of the clinic are complex and far busier than most private practice clinics.

**Organization's Readiness for Change**

From the start, the clinic's healthcare administrator recognized that there were serious deficiencies in what she called the "referral loop" for diabetic eye examinations demonstrating a readiness for change. There were various reasons the annual diabetic eye examinations did not get executed. First, the providers did not always remember to prioritize referring their patients

for annual diabetic eye examinations. Second, the referral slip the providers completed for the referrals often got lost. Third, the office staff did not schedule the appointments for the diabetic eye examination. Fourth, the patients were not always given notification of their appointments. Fifth, the patients did not always go to their appointments. Sixth, the results or reports were not sent back to the clinic. Seventh, the results of the completed eye examinations were received but not scanned or documented into the EMR. Acknowledging the deficiencies in the system was the first step to change.

Moreover, the clinic would be eligible to receive additional financial reimbursement from Medicare if they could improve the number of documented patients who receive their annual diabetic eye examinations (Centers for Medicare and Medicaid Services (CMS), 2017). Making the process easier for the staff, doing what is best for the patients and receiving a financial incentive creates stakeholder engagement. However, the most important motivation should be getting the patients screened in order to prevent life altering permanent disability such as blindness from DR. All of these factors contributed to creating stakeholder engagement and demonstrating a readiness for change.

Once the project began, it appeared that they were ready for change, but it quickly became evident that they were in favor of the idea of change but had difficulty adapting to change. To illustrate, despite the letter of support and a detailed presentation of the project and the various developed interventions, some of the administration and providers thought that the project was hypothetical and that the interventions were not actually going to be implemented. Furthermore, the interventions took months instead of weeks to implement for several reasons. For example, it was difficult to find the time to train everyone. In the end, the training was

completed in fragments with some people trained in small groups and others trained using one-on-one presentations.

### **Project Identification**

#### **Purpose and Objectives**

The overall purpose of this project was to improve diabetic eye examination referrals by 30% and close the referral loop by 40%. The purpose of this project was to be accomplished through four objectives: (a) To increase the number of diabetic patients that were referred by one of the three PCPs to an appropriate optometrist or ophthalmologist for an annual diabetic eye examination by 30% in a 10-week implementation period, (b) to increase the supporting clinic staff documentation of the annual diabetic eye examination referrals to an appropriate optometrist or ophthalmologist by 30% in a 10-week implementation period, (c) to increase the documentation of those patients that had completed their annual diabetic eye examinations in the paper chart and the EMR by 40% in a 10-week implementation period, and (d) to increase the optometrist or ophthalmologist reports of annual diabetic eye examinations in the medical records by 40% in a 10-week implementation period.

#### **Anticipated Outcome**

After a successful implementation of the interventions, the anticipated outcome of this project was to get more diabetics to complete their annual diabetic eye examination screening as evidenced by the results being received by the clinic and proper documentation of the results in both the paper charts and the EMR.

## **Summary and Strength of the Evidence**

### **Evidence of the Problem**

According to the ADA (2013), diabetics are 60% more likely to have cataracts and 40% more likely to have glaucoma. Moreover, diabetics are also at a higher risk for xerophthalmia or dry eye with a 62.5% higher prevalence than non-diabetics (ADA, 2013; Kamel et al., 2017). In the United States, diabetes is the leading cause of new cases of blindness among adults aged 20 to 74 years (Fisher et al., 2016; Murchison et al., 2016; Willis et al., 2017; Winters et al., 2016). Up to 45% of people with diabetes experience vision loss and it primarily manifests as DR or diabetic macular edema (Clark & Karpecki, 2016). Diabetes mellitus is associated with extensive morbidity and mortality and the burden of this disease is primarily attributed to chronic progressive damage in major organs (Shih, Lam & Tong, 2017). However, it is underappreciated that the most superficial and transparent organ affected by diabetes is the cornea (Shih et al., 2017). Different corneal components including the epithelium, nerves, immune cells and endothelium underpin specific systemic complications of diabetes (Shih et al., 2017). Diabetes impacts all structures of the eye and many aspects of visual function (Clark & Karpecki, 2016; Vieira-Potter et al., 2016). Just as DR is a marker of more generalized microvascular disease, corneal nerve changes can predict peripheral and autonomic neuropathy, providing a window of opportunity for early treatment (Shih et al., 2017). Diabetic retinal disease, the most common microvascular complication of diabetes, is a leading cause of vision loss among adults worldwide (Clark & Karpecki, 2016; Vieira-Potter et al., 2016; Willis et al., 2017). Between 2005 and 2008, 4.2 million (28.5%) of Americans with diabetes age 40 years or older had DR and of these, 655,000 (4.4%) had advanced DR indicative of severe vision loss (Murchison et al., 2016). The

number of people with DR is expected to increase more than three fold by 2050, creating an immense and costly public health problem (Murchison et al., 2016).

Yet, nearly one in four patients with diabetes age 40 years and older is not complying with the recommended yearly eye examination (Clark & Karpecki, 2016). Despite the risk of vision loss, only 50-60% of people with diabetes, and even fewer in some low-income populations, follow the annual diabetic eye examination recommendation resulting in about 50% of people being diagnosed too late for treatment to be optimally effective (Clark & Karpecki, 2016; Murchison et al., 2016). Likewise, Liu and Swearingen (2017) uphold that diabetic eye screenings are critical for saving sight through timely intervention with effective treatments, but only about 50% of adults with diabetes in the United States follow screening recommendations.

There are several reasons why patients do not receive annual eye examinations. According to Clark and Karpecki (2016), the most commonly cited barriers to eye examinations in diabetic patients are “no need” (39.7%), cost or lack of insurance (32.3%), and other reasons include not having an eye doctor, not being able to make an appointment with a doctor and not having transportation to the appointment (see Figure 3).

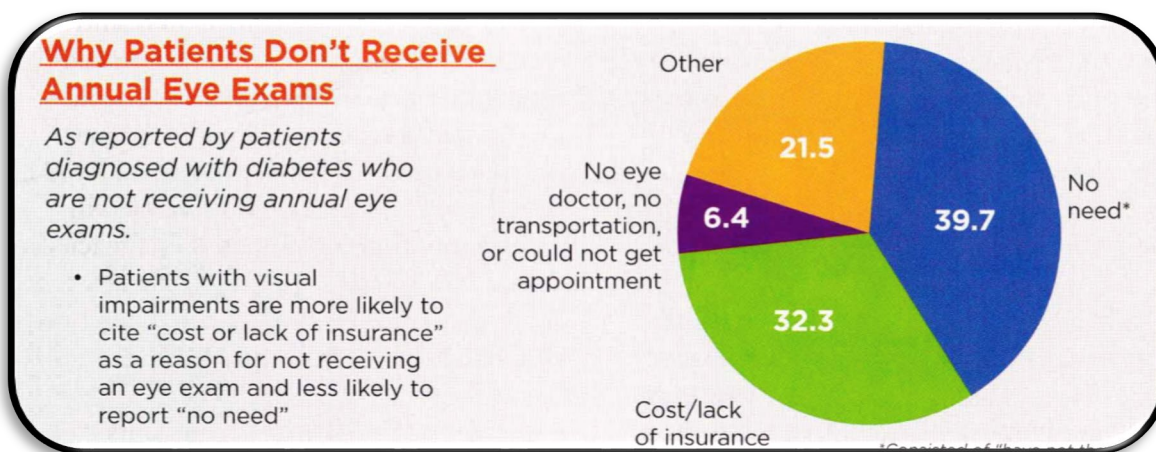


Figure 3. Why patients don't receive annual eye exams.

This is reflective of common findings that current screening strategies aimed at detection of DR have poor compliance (Murchison et al., 2016; Pasquel et al., 2016). Similarly, Liu and Swearingen (2017) describe that especially among the underserved minority and rural communities, barriers include inadequate care coordination and ineffective communication between PCPs and eye providers, provider workload constraints, limited eye care access, time constraints, financial considerations and patients' not understanding the purpose for screening or the disease burden. Correspondingly, a study by Fisher et al. (2016) found several reasons for patient non-adherence to routine eye examinations. This included a lack of symptoms, time constraints, a lack of understanding of insurance benefits, patient education level and a lack of awareness or low prioritization for having an examination. Correspondingly, Lu et al. (2016) cite the following barriers to DR screening in a Los Angeles clinic: financial burdens (26%), depression (22%), transportation (15%), language issues (15%), denial (8%), fear (5%) and cultural beliefs or myths (4%). This study also found that patients with poor understanding of the need for screening were more likely to report barriers (Lu et al., 2016).

### **Literature With Successful Interventions Addressing the Problem**

Successful management of eye complications from diabetes includes early diagnosis, tight glycemic and blood pressure control and medical treatment (Murchison et al., 2016; Shih et al., 2017). Clinical trials demonstrating the efficacy of these interventions led the American Academy of Ophthalmology, the ADA and the American Optometric Association to recommend dilated fundus examinations to reduce the risk of vision loss (Murchison et al., 2016). Timely screening and treatment prevents 90% of blindness (Liu & Swearingen, 2017). Systemic control of diabetes can improve ocular surface health, aided by anti-inflammatory and vasoprotective agents (Shih et al., 2017). Effective screening, education and frequent examinations are essential

to prevent the likelihood of vision loss (Clark & Karpecki, 2016; McDonald & Dickinson, 2016). Providers, both PCPs and eye doctors, must be meticulous in their examinations, thorough in their descriptions, clear with respect to explaining the ramifications of missed visits and vigilant in their study of the literature noting the most contemporary treatment options available (Clark & Karpecki, 2016). General practitioners and eye specialists must work together to eliminate or reduce sight-threatening complications among diabetic patients. Diabetic eye screening remains vital to prevent blindness and ensure the health of communities worldwide (Liu & Swearingen, 2017).

### **Guidelines**

The American Association of Clinical Endocrinologists and the American College of Endocrinology joined forces and published the *Clinical Practice Guidelines for Developing a Diabetes Mellitus Comprehensive Care Plan* (Garber et al., 2017). The guidelines are extensive and cover every aspect of diabetes management, but there are only five guidelines related to diabetic eye care (Garber et al., 2017). First, at the time of diagnosis, diabetic patients should be referred to an experienced ophthalmologist for a dilated eye examination—Grade C (Garber et al., 2017). Second, follow-up with an eye care specialist should occur on an annual basis, but patients with diabetes who have had a negative ophthalmologic examination may be screened every 2 years—Grade B (Garber et al., 2017). Third, females who are pregnant and have diabetes mellitus should be referred for frequent/repeated eye examinations during pregnancy and 1 year postpartum—Grade B (Garber et al., 2017). Fourth, patients with active retinopathy should have examinations more than once a year—Grade C (Garber et al., 2017). Fifth, blood glucose, blood pressure, and lipids should be controlled to slow the progression of retinopathy—Grade A (Garber et al., 2017).



The ADA (2018) published the *Standards of Medical Care in Diabetes—2018 Abridged for Primary Care Providers*. The ADA publishes comprehensive recommendations for diabetes care annually. The ADA made seven recommendations related to diabetic eye care. First, referrals for initial care management includes an eye care professional for an annual dilated eye examination—Grade A (ADA, 2018). Second, optimize glycemic control to reduce the risk or slow the progression of DR—Grade A (ADA, 2018). Third, optimize blood pressure and serum lipid control to reduce the risk or slow the progression of diabetic retinopathy—Grade A (ADA, 2018). Fourth, adults with type 1 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist within 5 years after the onset of diabetes—Grade B (ADA, 2018). Fifth, patients with type 2 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist at the time of the diabetes diagnosis—Grade B (ADA, 2018). Sixth, if DR is present, subsequent dilated retinal examinations should be repeated annually by an ophthalmologist or optometrist—Grade A (ADA, 2018). Seventh, if retinopathy is progressing or sight-threatening then examinations will be required more frequently—Grade A (ADA, 2018).

### **Lack of Evidence Related to the Problem**

There was literature describing the problem but not enough literature with solutions to encourage compliance. Overall, there was a lack of literature on how to improve the incidence of annual diabetic eye examinations. There were only three notable studies offering some resolution. Winters et al. (2016) conducted a study to analyze the cost effectiveness of a telephone intervention to promote dilated fundus examination (DFE) of adults with diabetes. Subjects were telephoned up to seven times over 6 months to discuss diabetic eye complications, the rationale for routine DFEs, and the logistics of arranging a DFE (Winters et al., 2016).

Patients responded to the office taking an interest and showing that they really cared about the eye health of their diabetics. Results showed a 74% increase in screening over a standard printed intervention, which was a 14-page, mailed booklet on preventing diabetic related eye problems (Winters et al., 2016).

Moreover, another study by Keenum et al. (2016) suggested having mobile or telemedicine screening programs that use non-mydriatic cameras and telemedicine reading centers that have established efficacy in detecting DR compared with the criterion standard of dilated fundus examination. These telemedicine screening programs also have the advantage of being brief, cost-effective, less burdensome to patients and conveniently based within primary care clinics (Keenum et al., 2016). However, a key element of DR screening programs is whether participating patients actually adhere to the timetable of follow-up comprehensive eye care recommended by the screening program. This study implemented a DR screening program using non-mydriatic cameras in a publicly funded county health system that primarily serves African American patients. As a result of this study and studies like this one, a growing body of evidence indicates that implementation of DR screening programs leads to more persons with diabetes receiving retinal screening, lower rates of sight threatening DR in the future, and reduced incidence of blindness (Keenum et al., 2016).

Additionally, Liu and Swearingen (2017) identified multiple workflow and systems-level barriers along with patient barriers including a limited understanding of screening and lack of access to care. Though interventions have been developed, barriers exist which interfere with sustainability and the impact the interventions have on managing complications of diabetes. This study corroborates that more research is needed to identify and implement best practices to increase diabetic eye screening rates (Liu & Swearingen, 2017). Continued research is needed to

optimize diabetic eye screening given the rising demand that cannot be met by the current eye care provider workforce (Liu & Swearingen, 2017).

### **Methods**

The purpose of this project was to increase the referrals of annual diabetic eye examinations in the clinic to a qualified optometrist or ophthalmologist and to increase the compliance of patients completing their eye examination with results of the eye examination being documented in the EMR. The objectives of this project were to improve diabetic eye examination referrals by 30% and close the referral loop by 40%. The intervention plan, which included changes to the referral process, training, development of referral forms and modification of how results are entered into the current EMR are described within this section. There were 13 total interventions for this project. However, while many of the interventions were successfully implemented, some were not implemented due to factors that are described in this section. Additionally, there were three interventions that were added to the project during implementation. These interventions are described in this section along with the rationale for adding these interventions during implementation.

### **Project Interventions**

This project was an immense undertaking for diabetic eye examinations that was supported by the entire clinic as evidenced by the collaborative approach in the development of the interventions. Each intervention was broken down into three sections, except for the interventions that emerged after the project began, in order to provide context for the planned interventions. The first section describes the status quo or how things were done before the project was initiated, referred to as pre-intervention. The second section provides a detailed explanation of the intervention plan with rationales for the decisions made. Finally, the third

section describes the outcome of the intervention including any challenges that occurred (Table 2).

Table 2

*The Project Interventions: Planned, not Implemented, and Implemented*

Category	Planned	Not Implemented	Implemented
Training Changes			
DFE Education	Yes	---	Yes
Scheduled Meetings	Yes	---	Yes
Process Changes			
Scan and Close Loop	Yes	---	Yes
Focused Referral Staff	Yes	---	Yes
Reports Instead of Binder	Yes	---	Yes
EMR Changes			
Numbered List of Providers	Yes	---	Yes
Reports by Type	Yes	No	---
Add Providers to Contact	Yes	No	---
Patient Refused Option	No	No	---
Paper Resources			
Provider List with Map	Yes	---	Yes
Insurance List	Yes	No	---
Personal Quote Poster	No	---	Yes
Diabetic Eyes Poster	No	---	Yes

**Training changes.**

***Pre-intervention training.*** There were limited opportunities for in-services in the clinic. Office meetings for the entire staff were conducted about every 2 months with limited discussion about role responsibilities. Consequently, the staff did not understand their individual roles in the larger health care process including their roles in diabetic eye examination scheduling and referrals.

***Planned training.*** An informal lunch in-service was to be provided to the three medical providers reviewing their previous referral rates for diabetic eye examinations and completed diabetic examinations rates based on those referrals. I also planned on providing a rudimentary presentation of the project, outlining the guidelines and some statistics on diabetic eye complications to explain the impetus and importance of this project to the providers. Additionally, the staff who directly participate in diabetic eye examination referral, scheduling, and results documentation processes were also to receive a similar training which focused on the process changes that directly affect their day-to-day job. During both these in-services, the new paper forms and resources for the project were to be reviewed.

***Actual training implemented.*** It was difficult to train everyone that was involved in the process of referrals for diabetic eye examinations. Therefore, the trainings were done in small groups with a PowerPoint presentation on a laptop. The smallest group consisted of a one on one in-service with the office manager. The clinic personnel that were trained were given a quiz that had the pre-presentation quiz on the front part of the paper (appendix A) and a post presentation survey on the back part of the paper (appendix B). Clinic personnel were given the opportunity to correct their answers to the quiz as the presentation progressed. The quiz engaged the staff and established a basic knowledge about eye complications associated with diabetes. The completed

surveys provided a means to evaluate whether the clinic personnel now understood the importance of diabetic eye examinations as well as the goals and interventions of the project including the revised referral process and their part in the process.

The in-services provided education about the prevalence of diabetes at the global, state, city and clinic level showing how the clinic compared to national trends. The in-service also included information about how diabetics are at risk for various eye complications. The presentations included definitions, illustrations and examples of glaucoma, xerophthalmia, cataracts and DR with data comparing the frequency of these disorders in diabetic patients verses the general population. The administrators, providers and staff were also shown the number of referrals that were written in the clinic and the number of referrals that were implemented at their clinic apportioned by provider and how this compared to the national data. Finally, the various project interventions were presented with rationales explaining how each clinic employee would be helping to achieve the project objectives. Seventeen out of 36 staff members were trained because these staff members were directly involved in the diabetic eye examination referral and documentation of results process. The only three departments in the clinic that were not trained were the billing department, front office personnel and the contracted technicians.

As a result of the diabetic eye examination campaign, the clinic began to have more regularly scheduled training sessions, which ultimately led to weekly meetings being added to the calendar. These regular training sessions stressed the importance of everyone completing the eye examination referrals in the same manner both in the paper chart and the EMR. The training sessions also allowed clinic staff to ask questions about how to handle particular issues they encountered during the implementation process.

**Process changes.**

*Pre-intervention referral process.* The current referral process is convoluted due to the multiple steps that are required to obtain the referral, schedule the appointment, receive the referral results, and document the results in the EMR. First, the providers and the medical assistants (MAs) looked to see if the patient was due for a preventative screening around 3:00 PM the day before their appointment. Second, the provider writes a referral for a diabetic eye examination once the diabetes diagnosis has been confirmed based on standard clinical guidelines and after a physical assessment, which includes a non-dilated eye examination with an ophthalmoscope. The provider writes the referral on a small pink slip on the day of the appointment and paper clips it to the paper chart. Both the small pink slip referral and the paper chart move together throughout the process. Third, the providers and/or scribes document the referral in the EMR the day of the appointment. Fourth, either the health administrator or an individual from medical records completes the pre-authorization for the preventative screening referrals. Fifth, most of the referral offices call the patients directly to schedule their appointments for diabetic eye screenings. Sixth, the office administrator receives the results via the fax machine and alphabetizes the results in an indexer in his office. When the patient does not show up for a referral visit, the referral office calls the clinic to tell them that the patient did not show for the scheduled appointment. Seventh, the doctor reviews and signs each of the received referral results for all the patients in the clinic including those seen by the PAs. Eighth, the medical records staff scans the signed, faxed results into the EMR and shreds the faxed results that were normal. The abnormal results are placed in the paper chart. Ninth, the health administrator then closes the loop in the EMR. Tenth, the provider usually completes or checks off the Health Maintenance Quality Measures form. This is a clinic created form that lists all the

diagnostics a patient may require. It includes a list of 26 measures including everything from colonoscopies to the influenza vaccinations. Eleventh, during the patient's next appointment, both the MAs and the providers discuss the referral with the patients. If the patient did not complete the referral, the process starts all over again. Twelfth, the scribes, MAs and x-ray technicians all take turns documenting the referrals in a binder and later highlight the referral entries when the results are received. Thirteenth, the entire process is checked with a measures or "drill down" report generated by the health administrator.

*Pre-intervention referral form.* The current referral form is a bright pink quarter sheet of paper that the providers fill in and attach to the paper chart. The referral process then follows the procedures outlined earlier. The current referral form includes the (a) name of the provider who is making the referral, (b) today's date, (c) the patient's name, (d) the patient's date of birth (DOB), (e) the name of the patient's insurance, (f) the type of referral the provider wants the patient to complete, (g) the patient's diagnosis, (h) the preferred date for the referral, (i) four places where the patient can be sent for the referral, (j) an area for documentation of patient notification with staff initials, (k) the date of the appointment with staff initials, and (l) a note area at the bottom for additional documentation.

*Planned referral process changes.* First, the planned referral process change started with having the same person who scans the normal referral results into the chart closing the referral loop on the EMR because this last step in the process has often been neglected. Second, the health administrator who manages the entire office and many of the other administrative processes including the diabetic eye examination referrals has chosen to manage most of the diabetic eye examination referral results herself because the staff that she had placed in charge of the task had previously failed. Therefore, the plan is for her to delegate more of the diabetic eye



examination referral results to an individual in medical records that has the time to dedicate to this process. Third, the staff are not going to document the referrals in the “follow-up binder” because a new process will replace this aspect of the current process. The staff will run monthly reports and follow-up with the referral offices to gather patient referral results or re-schedule missed referral appointments. These “drill down” reports show all of the referrals ranging from colonoscopies to diabetic eye examinations. The current data programs cannot separate referrals by specific referral types. However, specific referral types can be extrapolated based on who inputted the referrals into the EMR.

*Planned referral form changes.* A new 8 ½ by 11-inch referral form will be used instead of the small pink referral slip (appendix C). This will help eliminate the chances of the slip falling off the chart or being misplaced. The new referral form has a checklist for people to initial and date as each step of the referral process is completed. This reminds people of the various steps involved in the referral process and allows for individuals to take ownership for their part in the process. The new bright pink 8 ½ by 11-inch referral sheet will be placed in the chart once the referral has been completed. There is a check off box to sign once the results have been received. This makes it less likely that the referral will be lost and that the entire referral process is complete. Additionally, the new referral form has four squares with referral information available so the same form can be used for the same patient multiple times. This allows the clinic providers to see the names and contact information of referral providers from previous visits. This makes it easier for clinic staff and patients to refer patients to a provider they previously enjoyed and prevent referral to providers where the patient had a negative experience. The new form also allows providers to keep track of the previous referrals.

*Actual referral process implemented.* The 17 people who directly work with diabetic eye examination referrals were trained on the referral process, how to close the loop and how to input referral results into the EMR. This meant that the entire staff was now following a consistent process for making referrals for diabetic eye examination. It also meant that the entire staff was assisting in closing the loop once referral results were received thereby increasing the documentation rate of completed diabetic eye examinations. Initially, the staff was excited about implementation of a consistent process that would help increase the number of complete diabetic eye examinations. This was evidenced by the many questions and “what if” scenarios that arose in the days following the training. The staff noted that the new process was simple and just took three extra clicks on the EMR to make a significant difference in patient outcomes.

Interestingly enough, the health administrator not only delegated the responsibility of managing diabetic eye examination results to another person at the office, she made that individual the administrator for referrals, thus making the diabetic eye examination referral results a priority. There was only one individual in the office, who was influential, that felt the diabetic eye examination referrals should not be a priority nor a full time position. However, the rest of the administrators did not agree. Having someone directly overseeing referrals assured them that the diabetic eye examination referrals would not be neglected and that the patient referrals would be properly implemented with appropriate follow-up thereby improving patient care.

It was surprising to note that there were a few staff members who did not know that there was a binder where referrals were tracked prior to implementation of the project. These individuals were not affected by the binder being removed from the referral process. For the staff who dutiful wrote every referral in the binder by hand, it was a relief not having to complete that

part of the process. The “drill down” lists were easier to use for following up on patients. Even though the “drill down” lists were already being used occasionally, the lists were now be used more consistently after implementation of the project. The binders were not helpful and were not routinely used as intended thus the binders did not help with the referral process.

*Actual referral form implemented.* The new referral form created the most resistance of all the interventions. The staff were comfortable and accustomed to working with the current referral form for the past couple of decades. This resulted in the staff voicing their concerns often and resisting the change process for this project. The same individual who expressed concerns about diabetic eye examination referrals being a priority also voiced concerns that use of the new referral form would create more work and more paper than the current process. I re-educated this individual on the revised referral process explaining that the new referral form was not an additional form but rather a replacement form to the current form being used. I also informed this individual that other clinic staff were looking forward to taking credit for their work so having someone initial and sign off on the referral form was not a heavy burden. Moreover, the clinic staff were already checking off parts of the referral form as they completed different tasks. This was due to the eagerness of the staff to begin the new referral process. Having established a rapport with the clinic staff, I was accustomed to the clinic staff being candid with me. It was unexpected to hear from the one staff member that everyone was complaining about “more work” before the implementation of the project began. This statement was not substantiated by the other clinic staff.

Some of the providers were also resistant to the change in the referral form despite supporting it during the training presentations and expressing their support on the post training survey. It was brought to my attention that some of the providers thought this project was more

of a suggestion or hypothetical exercise because a previous student that was at the clinic had only provided education as a project intervention. Therefore, some of the providers thought that the training presentation was the intervention being implemented. The MD was very supportive at first but reconsidered supporting the change in the new referral form. I met with the MD and discussed the purpose of the new referral form and how it would improve patient outcomes. In the end, the MD decided to implement the new referral form as a temporary process and would evaluate its effectiveness before deciding if this would be a sustainable change for the clinic. The providers insisted on a few revisions to the referral form, so it underwent some modifications before it could be implemented causing a delay by several weeks.

#### **EMR changes.**

***Pre-intervention EMR.*** The EMR does not offer a customized list of providers with demographics, such as clinic name, provider name, address, and phone number. Thus, the entire clinic is unable to simply click a provider from a pre-populated list and insert that information into the system. Regularly used provider demographic information must be typed in each time or some clinic staff members had their own custom created list paired with their individual accounts. Furthermore, the EMR combined all of the referrals for colonoscopies, mammograms, preventive services and diagnostic radiology into one aggregate report also known as a “drill down” report for statistical tracking of closing referral loops. The EMR cannot generate any report that breaks down the specific types of referrals. All referral type patient results that have been completed for clinic patients are included in one aggregate report.

***Planned EMR changes.*** I planned on incorporating an electronic list of preferred providers for referrals into the EMR, which included provider names, addresses, and phone numbers. This should make the process of adding a referral provider into the EMR easier and

more efficient. Correspondingly, I planned on working with the EMR software administrator to divide the referrals into groupings that permits clinic staff to run individual reports based on specific referral types such as diabetic eye examinations. Currently, there is no way to identify which specific referrals are not being documented in the EMR because all referrals are grouped together. Breaking down the data by specific referrals allows for better data collection and accountability.

*Actual EMR changes implemented.* I was able to use the administrator's account to edit and customize a list of providers that corresponded to the eight preferred diabetic eye examination providers (appendix D). The list included the providers' location, name, address, and phone number. Additionally, the staff were trained on how to use this list in conjunction with the paper resource that also included the preferred eight providers.

The second planned EMR change that would have divided the referrals into individual groupings by referral type was not implemented. I e-mailed and spoke with the EMR software customer service representative who explained that changes to the EMR take about a year to complete. She explained that suggested revisions are investigated and discussed by a committee that must vote on proposed revisions before any changes are made. However, the proposed revisions to the EMR may be the catalyst that leads to improvements in next year's EMR that will help clinics improve their data collection.

Another change that was requested as the project progressed was the addition of a "patient refused" option to the EMR to reflect patient data more accurately. Without this option, it would appear as if the clinic failed to encourage the patients to get their annual diabetic eye examination when the patients refused to obtain the examination. However, as previously

described changes to the EMR would take about a year to implement according to the EMR software administrator.

**Paper resources.**

***Pre-intervention paper resources.*** The clinic currently does not have any paper resources available to either the staff or the patients for diabetic eye examinations. There is no official list of preferred providers, which results in patients picking a referral provider based on the recommendation of the MAs, friends or family members.

***Planned paper resource additions.*** I planned on creating a list of preferred optometrists and ophthalmologists, which would include the providers' names, addresses, phone numbers, language options, and hours. This will help the patients feel more involved in the process of choosing a provider based on location and preferred language. The preferred provider list will also help establish stronger working relations with a select group of referral providers.

Additionally, I also planned on creating a list of insurances that the preferred referral providers accept and that covers annual diabetic eye examinations. This will help patients select a referral provider that accepts their insurance coverage.

***Actual paper resources implemented.*** I created a preferred provider list of optometrists and ophthalmologists, which included locations, names, addresses, phone numbers, language options and hours (appendix E). This helped patients feel more involved in the process of choosing their provider as well as making it easier for them to choose a location near them. The insurance list never came to fruition because the list of accepted insurances for each provider was extensive and every insurance plan covers annual diabetic eye examinations. Consequently, the preferred providers did have a list of accepted medical insurances developed for their practice.

*Actual supplementary paper resources implemented.* A few posters were added to the project that were not in the original proposal at the request of the clinic personnel. One of the providers suggested that the clinic have posters educating patients about diabetic eye complications. It was suggested that one of the posters that was used during the initial project training sessions be used. The second poster was a simple poster reminding diabetic patients to get their diabetic eye examination. Since the patient population had to be taken into consideration, the posters had to be available in both English and Spanish. Both posters were available in English and Spanish from the National Institute of Health (NIH). NIH has granted permission to duplicate the posters if used for educational purposes (appendix F-H). The informational posters were placed in the phlebotomy room so patients could read them while having their blood drawn. The personal quote poster was placed on the door at eye level in three of the examination rooms. A review of the literature supported that personalized posters in the examination room was an effective tool to motivate patients to get their annual diabetic eye examinations. Winters et al. (2016) showed a positive correlation that education and caring can have on patient compliance.

### **Organizational Barriers and Facilitators**

**Original barriers.** There were many organizational barriers at this clinic that interfered with patients being referred for their annual diabetic eye examinations and having results from those referrals received back at the clinic. Providers did not always remember to prioritize referring their patients for annual diabetic eye examinations. The providers knew the importance of annual diabetic eye examinations, but they became focused on the chief complaint of the patient for that visit and did not remember to refer the patients for their diabetic eye examinations if the patients were due.

The old, small referral slips the providers completed for the referrals were often lost. The referral slips were the size of a quarter sheet of paper and easily fell out of the paper charts as the paper charts were moved during the patients' visits. This was compounded by the fact that the office staff did not routinely schedule the referral appointments for the diabetic eye examinations. The office staff share the responsibility of making these appointments and it was easy for someone to miss scheduling a patient because the staff believed that someone else was taking care of that job responsibility. The patients sometimes did not receive notification of their appointments. This would occur if the clinic had a wrong contact number or if the patient's telephone did not have voicemail capabilities.

Patients did not go to referral appointments for a myriad of reasons. The most cited reasons the patients provided was not liking the provider they were referred to, transportation issues or thinking they really did not need to go get their annual diabetic eye examination. If the patients did have their diabetic eye examination performed there was still a problem the problem of obtaining the results from the referral office. The two top reasons identified for results not being sent back to the clinic were that patients were going on their own to their preferred provider without providing the clinic contact information or patients failing to bring the referral reports with them to their next clinic appointment and the referred office not automatically sending patient results to the clinic.

Once results of the completed eye examinations were received at the clinic there was an issue with the documents not being scanned or documented in the EMR. The clinic staff often forgot to enter the results of the referral into the binder, which resulted in no follow-up either in the EMR or paper chart. Due to the fact that the clinic used both paper charting and an EMR, there was a need for documentation to occur in both formats serving as an additional barrier.



**Project implementation barriers.** Resistance to change was the most challenging implementation barrier for this project. There was a couple of clinic staff that were insistent on not changing and could not be convinced to accept change. There was a direct correlation between the length of time a clinic staff member was employed at the clinic and the level of resistance to change. The longer the employment at the clinic, the more that staff member resisted change. As the implementation portion of the project progressed, everyone slowly implemented the change but not all clinic staff accepted the change. The planned EMR changes were the most challenging barrier to implementation since it was too difficult to change the EMR software in less than a year.

**Organizational facilitators.** The clinic had many facilitators who assist in improving the referral process of annual diabetic eye examinations. The clinic's healthcare administrator recognized that there were serious deficiencies in the "referral loop" for diabetic eye examination referrals demonstrating a readiness for change. The fact that the clinic's ability to receive additional financial reimbursement from Medicare also served as a facilitator. If the clinic improved the numbers of documented patients who receive annual diabetic eye examinations, the clinic would receive additional payment reimbursements from Medicare (CMS, 2017). This project was designed with the intention of making the process easier for the staff and getting them to collaborate with one another.

The most important organizational facilitator was the patients' motivation to complete their diabetic eye examination screenings to prevent permanent life altering complications associated with diabetes such as blindness from DR. Doing what was best for the patients, receiving additional financial incentives and doing something that makes the clinic staff's jobs easier all served as means to engage the key clinic stakeholders.

**Letter of Support**

A letter of support to formally ask the clinic to support the implementation of a doctorate of nursing practice (DNP) project was obtained. The letter encouraged a partnership between the DNP student and the clinic in completing the project to increase the referral rate and completion of diabetic eye examinations thereby minimizing eye complications that can result in decreased quality of life, disability and blindness for diabetic patients (appendix I).

**Ethical Considerations**

There were three ethical considerations for implementing this project. The primary ethical consideration was the protection of patient data according to the standards of the Health Insurance Portability and Accountability Act (HIPAA) because I collected and had access to aggregate patient data from both the paper charts and the EMR. It was important that I minimized any chance that private medical information could be exposed. The other two ethical considerations focused on implementation of the project. I struggled with personal feelings about sticking to the project implementation timeline when I wanted to implement interventions immediately in order to fix problems sooner in order to improve patient outcomes. However, it was important to ensure that the project was implemented according to the plan in order to avoid creating unforeseen complications. Additionally, I wondered what would happen if an employee failed to do their part in the implementation of the project as the project depended on the clinic staff's participation. The MD and health administrator would have to consider what changes to clinic staff job descriptions needed to be made and how to hold clinic staff accountable for meeting these revised job responsibilities. There was a risk that some clinic staff may fail to adapt to the changes resulting in disciplinary action or termination. I was pleased that no one was reprimanded or terminated as a result of the project.

This quality improvement project was submitted to the Institutional Review Board (IRB) of the University of the Incarnate Word and deemed not regulated research, NRR17-012. Therefore, this project did not require approval by the IRB.

### **Evaluation Plan**

A microsystem assessment was performed to identify a patient care issue that needed to be addressed. Once the project plan was developed and approved by my advisor and clinical mentor, implementation began. Pre-intervention data were collected for 3 weeks prior to implementation of the interventions and post-intervention data were collected for 6 weeks following completion of the interventions.

The primary outcomes for this project were evaluated by the percentage of change that occurred post-intervention in the areas of diabetic eye examination referrals by providers, documentation of the referrals by clinic staff, and documentation of completed diabetic eye examinations with accompanying patient reports in the EMR. This required auditing of the charts to extract the necessary data to determine if the interventions made a difference in the process. The data from the medical records was the best data available even though it sometimes was incomplete or incorrect due to the duplication of paper charting and EMR usage.

## **Results**

### **EMR Results**

One of the objectives of this project was to improve diabetic eye examination referrals by 30% — this objective was not met. Pre-intervention data were collected using the EMR from January 1, 2018 to January 28, 2018. Post-intervention data were collected using the EMR from March 26, 2018 to April 22, 2018. Both pre- and post-intervention data represented exactly 4 weeks of patients seen at the clinic including the one holiday and one day that the office was

closed during the post-intervention time frame. The results showed either a marginal improvement or regression in the number of referrals made by the providers with the largest difference being a 1.79% improvement. Provider 1 had 104 type 2 diabetic patients during the pre-intervention time period and wrote 21 referrals for eye examinations (20.19% referral rate). Provider 1 had 102 type 2 diabetic patients during the post-intervention time period and wrote 22 referrals for eye examinations (21.57% referral rate), which demonstrated a slight increase of 1.38%. Provider 2 had 122 type 2 diabetic patients during the pre-intervention time period and wrote 11 referrals for eye examinations (9.02% referral rate). Provider 2 had 143 type 2 diabetic patients during the post-intervention time period and wrote 9 referrals for eye examinations (6.29% referral rate), which demonstrated a slight decrease of 2.73%. Provider 3 had 75 type 2 diabetic patients during the pre-intervention time period and wrote 1 referral for eye examinations (1.33% referral rate). Provider 3 had 64 type 2 diabetic patients during the post-intervention time period and wrote 2 referrals for eye examinations (3.12% referral rate), which demonstrated a slight increase of 1.79%. The clinic as a whole saw a total of 301 type 2 diabetic patients during the pre-intervention time period and wrote 33 referrals for eye examinations (10.96% referral rate). The clinic as a whole saw a total of 309 type 2 diabetic patients during the post-intervention time period and wrote 33 referrals for eye examinations (10.68% referral rate), which demonstrated a slight decrease of 0.28% (Table 3).

Two other objectives of this project were to increase the documentation of those patients that had completed their annual diabetic eye examination in the paper chart and EMR by 40%—this objective was not met—and to increase documentation of the diabetic eye examination reports in the medical record by 40%—this objective was not met. This process was referred to as “closing the loop.” As the data for the “closing the loop” reports was printing it became

Table 3

*2018 Referral Information for Diabetic Eye Examinations from January 1, 2018 to January 28, 2018 and March 26, 2018 to April 22, 2018*

Category	<u>Pre-Interventions</u>			<u>Post-Interventions</u>		
	DM2	Referrals	%	DM2	Referrals	%
Provider 1 (MD)	104	21	20.19	102	22	21.57
Provider 2 (PA)	122	11	9.02	143	9	6.29
Provider 3 (PA)	75	1	1.33	64	2	3.12
Total Referrals	301	33	10.96	309	33	10.68

apparent to both the administrator of the clinic and myself that the numbers for the patients seen during the last 4 weeks immediately prior to the conclusion of the project were near zero. We were both initially perplexed until we realized that it takes months after a referral is written for the patient to complete their diabetic eye examination and for the clinic to receive the results. However, the patients that were seen in January 2018 before the intervention was implemented were now having their results come to the clinic and the staff were able to close the loop electronically when they followed the project plan for scanning the results into the EMR. As a result, data were run to compare the results of the pre-intervention group to the previous year's group of patients from the same dates. These results showed improvements in documentation rates and indicated that the clinic was heading in the right direction. Provider 1 had 20 referrals between January 1, 2017 and January 28, 2017 with 4 loop closures resulting in a 20% closure rate. In comparison, during the same time frame in 2018, Provider 1 had 27 referrals with 11 loop closures resulting in a 40.74% closure rate. Provider 2 had 31 referrals with 2 loop closures

in 2017 with a closure rate of 6.45% and 39 referrals with 8 loop closures in 2018 with a closure rate of 20.51%. Provider 3 had 21 referrals with 2 loop closures in 2017 with a closure rate of 9.52% and 39 referrals with 10 loop closures in 2018 with a closure rate of 25.64%. The clinic as a whole had 72 referrals with 8 loop closures in 2017 resulting in an 11.11% closure rate and 105 referrals with 29 loop closures in 2018 resulting in a 27.62% closure rate. This data would more accurately reflect outcomes associated with the interventions as the post-intervention patients completed their diabetic eye examinations. However, due to time constraints associated with this project, that data is currently unavailable (Table 4).

Table 4

*Comparison of Completed Eye Examination (Closed Loop) Information from January 1, 2017 to January 28, 2017 with January 1, 2018 to January 28, 2018*

Category	<u>Pre-Interventions</u>			<u>Post-Interventions</u>		
	DM2	Referrals	%	DM2	Referrals	%
Provider 1 (MD)	20	4	20	27	11	40.74
Provider 2 (PA)	31	2	6.45	39	8	20.51
Provider 3 (PA)	21	2	9.52	39	10	25.64
Total Referrals	72	8	11.11	105	29	27.62

### **Paper Referral Data**

The last objective for this project was to increase the supporting clinic staff documentation of annual diabetic eye examination referrals to an appropriate eye specialist by 30% - this objective was not met. When the post-intervention reports that included patients diagnosed with diabetes were developed for the time period of March 26, 2018 to April 22, 2018,

the reports identified 450 patients (33.71%) out of the original 1,135 diagnosed diabetic patients for the same time frame that had subsequent clinic appointments following completion of the diabetic eye examination referral. This prompted me to perform a chart audit of the 450 patients to identify whether the chart had documentation of these patients' last clinic visit and whether or not there was the presence of a diabetic eye examination referral. As part of this process, I reviewed the referral form for completeness when the form was present in the charts. I also examined the referral forms that were in the patients' charts to verify if the clinic staff had documented completion of the referral components which included (a) referral in EMR, (b) patient schedules, (c) patient notified, (d) results received, (e) closed in EMR, and (f) health flow sheets. I also verified whether there was a copy of the last diabetic eye examination report in the charts. Figure 4 provides a panel view of appendix C, which was the form used for this project.

<input type="checkbox"/> MD Provider # 1	<input type="checkbox"/> PA # 2	<input type="checkbox"/> PA # 3
Date: _____	Insurance: _____	
Refer to _____		
Reason: <i>Preventive</i> or <i>Diagnostic</i> & send w/ _____		
Preference: _____		
Location/Phone: _____		
Appointment: _____		
Authorization #: _____		Notes: _____
Referral in EMR: <input type="checkbox"/> initials: _____ date: _____		
Patient scheduled: <input type="checkbox"/> initials: _____ date: _____		
Patient notified: <input type="checkbox"/> initials: _____ date: _____		
Results received: <input type="checkbox"/> initials: _____ date: _____		
Closed in EMR: <input type="checkbox"/> initials: _____ date: _____		
Health flowsheets: <input type="checkbox"/> initials: _____ date: _____		

Figure 4: Panel view of the updated referral form with accountability.

An Excel spreadsheet was created to track the chart audit findings. Out of the 450 patients who had scheduled appointments between March 26, 2018 and April 22, 2018, those patients who did not show up for their scheduled appointments were excluded from the chart audit. Also, those patients who already had completed a diabetic eye examination within the past year and did not receive a referral were also excluded from the chart audit. Those patients whose charts could not be found were also excluded from the chart audit. This resulted in 319 charts (70.89%) being excluded from the chart audit. The remaining 107 charts (23.78%) were audited by hand. Out of the 107 charts audited, only 27 charts (25.23%) had a diabetic eye examination referral form included in the charts. This was an improvement from the clinic's best referral rate of 16.42% pre-intervention, which begs to reason that if this project was given more time, it may have improved the referral process to the point the objectives could have been met. However, based on the chart audit, it appears that the referrals were not being used correctly. Thus it is impossible to tell where in the process a gap occurred. Only 1 of the 27 charts (3.7%) that had a diabetic eye examination referral form in the chart was fully completed. Sixteen of the 27 charts (59.3%) had the first three accountability lists completed with the diabetic eye examination results pending (Table 5).

### **Discussion**

As the project evolved, a few interventions were added to the original planned interventions resulting in 13 total interventions that were considered for this project. In the end, nine of these interventions were implemented in an attempt to increase the number of diabetic eye examination referrals and completion of those referrals with documentation of patient results in the medical record, thus closing the loop. The fact that the clinic was willing to implement so many interventions at once was a positive indication of the clinic staff's willingness to improve



Table 5

*Use of the New Referral Form Post Intervention from March 26, 2018 to April 22, 2018*

Category	Number	Percentage
Diabetes Diagnosis	1,135	32.3%
EMR Patients	450	39.64%
N/A Charts	319	70.89%
Applicable Charts	107	23.78%
Referrals Included	27	25.23%
Completed Accountability Checks	1	0.93%
Three Accountability Checks Complete and Results Pending	16	14.95%

patient outcomes. However, despite the clinic staff's willingness to improve patient outcomes, there were several reasons that may have contributed to not achieving the objectives for this project, although some improvement was noted in the referral process.

The clinic staff were willing to participate in the planned project interventions as long as it did not affect their daily routine. For example, the staff in-services, the two posters, the referral provider information sheet and the EMR changes were not a problem, but when the providers were asked to use a new referral form, they were initially against its use. The number of completed referral forms in the patients' charts highlights the resistance that occurred during the implementation phase of the project. The post in-service surveys the clinic staff completed illustrates that the staff supported the project plan and understood why the interventions, especially the referral form, were needed. Despite these findings, their actions suggest that the clinic staff were not as supportive when changes altered the long held routine of the clinic.

Another issue was the time between the in-service and implementation of the project. About one month elapsed between the in-services and use of the new referral form. The clinic was provided with half a ream (250 sheets) of referrals when the in-services were completed, but the administrator and the office manager explained that the MD no longer wanted to use the referral form. Convincing the MD to use the referral form took some time. By the time the referral was being used by the MD, the other two providers had forgotten about it and complained to everyone that they did not understand why they were using the new referral form having forgotten the training I had provided. This time gap between the in-services and implementation also caused other confusions. I was surprised that the other two providers were not communicating with me directly about their concerns with the referral form. I asked both of these providers if they were using the new referral forms, if they had any concerns, and offered to answer any questions or concerns they may have about using the new referral form. Neither of these two providers expressed any concerns about the referral form. There were a few other clinic staff that did not communicate with me directly regarding their concerns about the project implementation plan. This was frustrating as I felt some personal failure for not being able to gain the trust of all the clinic staff. I was also concerned that this type of avoidance communication might be a part of the clinic culture that I failed to recognize during my microsystem assessment.

Despite the in-services provided to the entire clinic staff, the MD and a few other clinic staff thought that this project was “pretend” and that the interventions were a “what if” scenario. They failed to realize that the project would be implemented rather than be a hypothetical scenario. Furthermore, the MD and these clinic staff members also thought that I was soliciting

input into how to make this hypothetical project better. Later, I learned that their experience with a previous DNP student had contributed to this confusion as previously described.

Notwithstanding these challenges, I am happy to report that I observed a newfound understanding of the referral process by the clinic staff and a deeper respect for the importance of these referrals. It was apparent in the end that the clinic staff were more aware that every single step in the referral process mattered and failure to follow through with these steps had consequences that could lead to a cascading failure of the patient obtaining their annual diabetic eye examination. It was also apparent that the clinic staff better understood why it was important to ensure that diabetic patients receive their annual eye examinations. This will assist the providers and clinic staff in answer patient questions when asked, “Why do I have to get my eyes checked if I don’t use glasses?” The providers and clinic staff can also inform diabetic patients about the eye risks that are associated with diabetes such as cataracts, glaucoma, DR and dry eye.

### **Relationship to Evidence**

There is a body of literature that addresses the implementation of change and how to sustain that change within a healthcare environment. Barriers to implementing evidence based practice (EBP) include (a) lack of knowledge and skills by healthcare providers, (b) misperceptions about EBP, (c) time, (d) organizational politics, (e) inadequate numbers of EBP mentors in healthcare systems, (f) resistance to EBP by managers and leaders, and (g) inadequate investment in EBP by chief executives (Melnik, 2016; Melnyk & Fineout-Overholt, 2014; Melnyk & Gallagher-Ford, 2015; Willis et al., 2016). The process of implementing EBP in this particular clinic resulted in some similar barriers. Implementation of this project highlighted that change does not come easy and implementing interventions can be a slow, tedious process. When implementing an EBP, one can expect there to be many instances in the process where failures can occur. In

this case there were several instances where I had to problem solve to ensure that referrals were being made and documentation of diabetic eye examination results was occurring. Even though I was not able to meet my planned objectives, there was overall improvement in the clinics ability to refer patients for their diabetic eye examinations and obtain patient results of those visits in order for that information to be entered into patients' medical records.

Willis et al. (2016) identified six guiding principals for sustaining change (a) align vision and action, (b) make incremental changes within a comprehensive transformation strategy, (c) foster distributed leadership, (d) promote staff engagement, (e) create collaborative relationships and (f) continuously assess and learn from change. These principles are interconnected with contextual elements such as local power distributions, pre-existing values/beliefs and readiness to engage (Willis et al., 2016). As previously described, there were many obstacles and barriers that fell within these principles and contextual elements.

It is interesting to note that aligning a vision and action was not an issue with this project. The clinic was very clear that a positive patient outcome was an important component of the clinic's mission. Since this project involved so many interventions, it is no wonder that the clinic staff had some difficulty in adjusting to the changes. However, in the end as each intervention was implemented and the clinic staff was afforded time to adjust, the changes ended up being a permanent component of clinic operations. That is not to say that ongoing monitoring for compliance should be forgone but the initial implementation of change has taken root. One change that was implemented that will help to ensure sustainability of the project was getting one person whose sole job was to coordinate referrals identified in the clinic. This helps to foster distribution of leadership. Additionally, I felt that that I was able to promote staff engagement and create collaborative relationships despite the final outcomes of the project.

Time was the main obstacle that I could not overcome in the implementation of this project. Course requirements for completing the project dictated the amount of time that could be allocated to this project. Therefore, I was not able to help the clinic staff establish a process by which they could continuously assess and learn from the change. Perhaps if I had one more month, it might have made a difference. Melnyk (2016) explains that the one major factor that rises to the top in building and sustaining EBP is organizational culture. Because shifting culture often is a “character-building process” that takes years to change, a team vision, persistence, and patience are also needed for the journey (Melnyk, 2016). As previously mentioned, having only one semester to implement a project and collect data is not enough time to foster the “character building process” and a change in an organization’s culture. However, I do believe that if the project was to continue for the next few months it would reveal that further improvement was occurring since the clinic is just now starting to fully implement the project interventions as part of their processes. This project may have just been the catalyst that was needed to encourage change in providers practice as well as a change in organizational culture.

### **Limitations**

The primary limitation to implementation of this project was time as previously discussed. However, organizational culture also served as a limitation as many of the processes of the clinic have been in place for a long period of time. Thus, changes to those processes created a sense of uneasiness both for the providers and the clinic staff. The volume of patients seen at the clinic further compounded this. I was grateful that the MD and the office administrators were consistent champions for overall implementation of the project. Moreover, resource allocation both from a financial and personnel standpoint was another limitation. Providers and staff having to attend in-services created an expense to the clinic and took these

individuals away from their regularly assigned duties. There were also the additional costs associated with printing the referral forms and obtaining the posters for the clinic.

### **Recommendations**

Based on how implementation of this project occurred in the clinic, I would recommend that the accountability components on the referral form be eliminated since the clinic staff rarely used it as it was intended. I would continue to use the full-page referral form as it prevented the document from falling out of the chart or getting misplaced. If the referral form is expanded to include the other preventative services, a method to prioritize the referrals needs to be established. This will allow patients to know how to determine which provider they should see first based on their medical visit at the clinic. The continued use of both the English and Spanish posters addressing diabetic eye examinations should also continue. This helps to relay the importance of these preventative services to patients in addition to the communication that occurs with the providers.

It was noted that the weekly staff meetings seem to help improve processes within the clinic as well as improve morale. I would recommend that the weekly staff meetings continue. I would recommend that the clinic follow-up with their EMR software company representative to implement suggested changes into the EMR. I would also encourage the clinic to continue to transition to the exclusive use of an EMR while phasing out the paper charting. The current method of using both systems creates redundancy with entering patient information and provides a venue for medical errors if special attention is not taken to ensure that both documents are complete.

**Implications for Practice**

Quality improvement projects are imperative to primary care clinics because they offer potential solutions for health care barriers. Primary care providers must coordinate care across the spectrum for each individual patients and this is a daunting task that can always be improved to optimize health care. Despite the fact that this project did not meet the objectives established for this evidenced based project, quality improvement/evidence based projects such as this one are important in improving patient outcomes over time, in this case increasing screenings for eye complications associated with diabetes which can have a significant impact on the quality of life of a patient. This project plan could be modified to address other preventative screenings not necessarily associated with diabetes such as colonoscopies, mammograms, etc. Moreover, the strategies used in this project are universal and can be applied to any evidence based improvement project in any primary care setting. This project encourages and highlights the need for further study in implementing evidence based practice changes into a primary care setting with a particular focus on the effects of organizational culture and the change process.

**Conclusion**

This project started with a meticulous assessment of a primary care clinic in south Texas. The patient population was mostly Medicaid and Medicare insured Hispanics of which a large number preferring to speak Spanish. After learning the day-to-day operations of the clinic and getting to know the staff, it became apparent that one of the areas that could use improvement was getting their diabetic population to obtain and complete an annual diabetic eye examination. Pre-intervention data and population demographic data were collected before the project was developed. There was a myriad of problems with the referral process that resulted in the failure of referring patients for diabetic eye examinations, implementing the referrals, and documenting

results from the referrals in the medical record. As a result, 13 interventions were planned for implementation to address the many system deficiencies that contributed to this problem. Each intervention addressed a different obstacle in the referral process. There were two training changes, three clinic processes changes, four EMR changes and four paper resource changes. Nine of the 13 interventions were successfully implemented. Despite the implementation of the interventions, the results showed either a marginal improvement or a regression in the number of diabetic eye examination referrals made, completed, and documented in the medical record. Time limitations, resource limitations, lack of investment from the clinic staff and a culture that was resistant to change impacted the success of this project. Although, this project failed to meet the outcome objectives, the project still had merit and encourages further study of how to create a culture of change for EBP in a primary care clinic.



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## Appendix A: Training: Pre-Presentation Quiz

Increasing the Incidence of Referrals and Execution of  
Diabetic Eye Exams in a South Texas Primary Care Clinic

## DNP Project Presentation Pre-Test:

## True or False:

- |    |          |          |  |
|----|----------|----------|--|
| 1. | T        | <b>F</b> | Bexar county has the highest number of diabetics in the state of Texas.                    |
| 2. | <b>T</b> | F        | Diabetics are at a higher risk for eye complications and eye diseases.                     |
| 3. | <b>T</b> | F        | Diabetic eye exams are recommended by the AACE, ACE and the ADA.                           |
| 4. | T        | <b>F</b> | Medicare, Medicaid & private insurance will not pay for diabetic eye exams.                |
| 5. | T        | <b>F</b> | This clinic has a similar percentage of Hispanics as the population of the state of Texas. |

## Multiple Choice:

6. Diabetics are at higher risk for which of the following eye complications?
- |                            |                         |
|----------------------------|-------------------------|
| A. Cataracts               | C. Glaucoma             |
| B. Xerophthalmia           | D. Diabetic retinopathy |
| <b>E. All of the above</b> |                         |
7. Which of these is the leading cause of blindness in working adults in the U.S.?
- |                  |                                |
|------------------|--------------------------------|
| A. Cataracts     | C. Glaucoma                    |
| B. Xerophthalmia | <b>D. Diabetic retinopathy</b> |
| E. Eye Trauma    |                                |
8. Which of the following eye complications has no early symptoms making screening essential?
- |                          |                         |
|--------------------------|-------------------------|
| A. Cataracts             | C. Glaucoma             |
| B. Xerophthalmia         | D. Diabetic retinopathy |
| <b>E. Both C. and D.</b> |                         |
9. Nationally, what percentage of diabetic patients were referred for their diabetic eye exams by primary care providers last year?
- |        |        |        |               |        |
|--------|--------|--------|---------------|--------|
| A. 93% | B. 73% | C. 53% | <b>D. 43%</b> | E. 23% |
|--------|--------|--------|---------------|--------|
10. In 2017, what percentage of diabetic patients were referred for their diabetic eye exams here at this Clinic?
- |          |          |          |                 |          |
|----------|----------|----------|-----------------|----------|
| A. 82.5% | B. 62.5% | C. 42.5% | <b>D. 32.5%</b> | E. 22.5% |
|----------|----------|----------|-----------------|----------|

*Please write in the correct answers for the previous questions after the presentation.*

## Appendix B: Training: Post Presentation Survey

Increasing the Incidence of Referrals and Execution of  
Diabetic Eye Exams in a South Texas Primary Care Clinic

## Post Presentation Survey:

1. What are the goals and objectives of the DNP project?

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2. What are the interventions or how will the goals and objectives be accomplished?

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3. Did this presentation inform or educate you? How?

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4. Do you have any suggestions to improve any part of this DNP Project?

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Thank you so much for your time and attention.  
Marisa C. Macias, BSN, RN  
University of the Incarnate Word DNP Student

## Appendix C: Updated Referral Form with Accountability

Name: \_\_\_\_\_ Phone Number: \_\_\_\_\_ DOB: \_\_\_\_\_

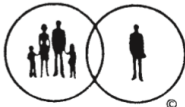
<input type="checkbox"/> MD Provider # 1 <input type="checkbox"/> PA # 2 <input type="checkbox"/> PA # 3 Date: _____ Insurance: _____ Refer to _____ Reason: <i>Preventive</i> or <i>Diagnostic</i> & send w/ _____ _____ Preference: _____ Location/Phone: _____ Appointment: _____ Authorization #: _____ Notes: _____ _____ Referral in EMR: <input type="checkbox"/> initials: _____ date: _____ Patient scheduled: <input type="checkbox"/> initials: _____ date: _____ Patient notified: <input type="checkbox"/> initials: _____ date: _____ Results received: <input type="checkbox"/> initials: _____ date: _____ Closed in EMR: <input type="checkbox"/> initials: _____ date: _____ Health flowsheets: <input type="checkbox"/> initials: _____ date: _____	<input type="checkbox"/> MD Provider # 1 <input type="checkbox"/> PA # 2 <input type="checkbox"/> PA # 3 Date: _____ Insurance: _____ Refer to _____ Reason: <i>Preventive</i> or <i>Diagnostic</i> & send w/ _____ _____ Preference: _____ Location/Phone: _____ Appointment: _____ Authorization #: _____ Notes: _____ _____ Referral in EMR: <input type="checkbox"/> initials: _____ date: _____ Patient scheduled: <input type="checkbox"/> initials: _____ date: _____ Patient notified: <input type="checkbox"/> initials: _____ date: _____ Results received: <input type="checkbox"/> initials: _____ date: _____ Closed in EMR: <input type="checkbox"/> initials: _____ date: _____ Health flowsheets: <input type="checkbox"/> initials: _____ date: _____
<input type="checkbox"/> MD Provider # 1 <input type="checkbox"/> PA # 2 <input type="checkbox"/> PA # 3 Date: _____ Insurance: _____ Refer to _____ Reason: <i>Preventive</i> or <i>Diagnostic</i> & send w/ _____ _____ Preference: _____ Location/Phone: _____ Appointment: _____ Authorization #: _____ Notes: _____ _____ Referral in EMR: <input type="checkbox"/> initials: _____ date: _____ Patient scheduled: <input type="checkbox"/> initials: _____ date: _____ Patient notified: <input type="checkbox"/> initials: _____ date: _____ Results received: <input type="checkbox"/> initials: _____ date: _____ Closed in EMR: <input type="checkbox"/> initials: _____ date: _____ Health flowsheets: <input type="checkbox"/> initials: _____ date: _____	<input type="checkbox"/> MD Provider # 1 <input type="checkbox"/> PA # 2 <input type="checkbox"/> PA # 3 Date: _____ Insurance: _____ Refer to _____ Reason: <i>Preventive</i> or <i>Diagnostic</i> & send w/ _____ _____ Preference: _____ Location/Phone: _____ Appointment: _____ Authorization #: _____ Notes: _____ _____ Referral in EMR: <input type="checkbox"/> initials: _____ date: _____ Patient scheduled: <input type="checkbox"/> initials: _____ date: _____ Patient notified: <input type="checkbox"/> initials: _____ date: _____ Results received: <input type="checkbox"/> initials: _____ date: _____ Closed in EMR: <input type="checkbox"/> initials: _____ date: _____ Health flowsheets: <input type="checkbox"/> initials: _____ date: _____

\*referring clinic scheduled or notified patient (write clinic info)

@ patient's doctor's office (write info)




## Appendix D: Diabetic Eye Examination Preferred Providers (front)




## **Diabetic Eye Exam Preferred Providers**

**Most private health insurance companies, Medicaid and Medicare cover annual diabetic eye exams at no cost—free.**

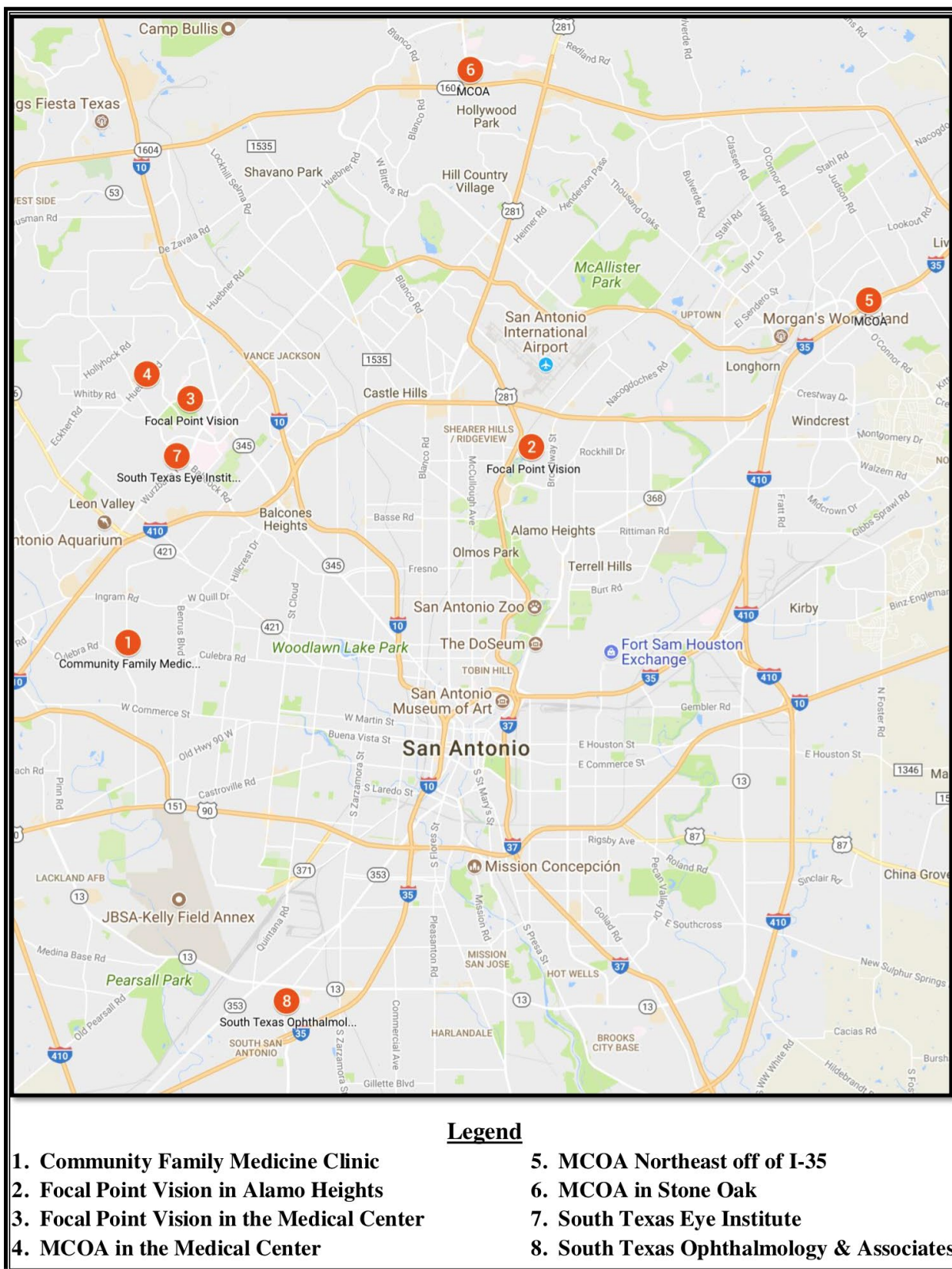
<p><b>1. Dr. James Anderson, Optometrist</b>            Location: Community Family Medicine Clinic            Bilingual: no, but uses an office interpreter            1616 Callaghan Rd.            San Antonio, TX 78228            Phone: (210) 435-1218      Availability:            Every other month on Tuesday, 8:00-12:00</p>	<p><b>5. Medical Center Ophthalmology Associates</b>            Location: Northeast (I-35)      Bilingual: 3 of 12            11900 Crownpoint, Suite #140            San Antonio, TX 78233            Phone: (210) 697-2020      Office Hours:            Mon – Thurs, 8:00-5:00 and Friday 9:00-5:00</p>
<p><b>2. Focal Point Vision</b>            Location: Alamo Heights      Bilingual: 5 of 6            343 West Sunset, Suite #1            San Antonio, TX 78209            Phone: (210) 614-3600      Office Hours:            Monday – Friday, 7:30 AM to 4:30 PM</p>	<p><b>6. Medical Center Ophthalmology Associates</b>            Location: Stone Oak      Bilingual: 3 of 12            109 Gallery Cir, # 139            San Antonio, TX 78258            Phone: (210) 697-2020      Office Hours:            Mon – Thurs, 8:00-5:00 and Friday 9:00-5:00</p>
<p><b>3. Focal Point Vision</b>            Location: Medical Center      Bilingual: 2 of 6            4775 Hamilton Wolfe Rd., Building 2            San Antonio, TX 78229            Phone: (210) 614-3600      Office Hours:            Monday – Friday, 7:30 AM to 4:30 PM</p>	<p><b>7. South Texas Eye Institute</b>            Location: Medical Center      Bilingual: 4 of 4            2424 Babcock Rd, Suite #101            San Antonio, TX 78229            Phone: (210) 265-6989      Office Hours:            Mon – Thurs, 8:00-5:30, Friday 8:00- 3:30</p>
<p><b>4. Medical Center Ophthalmology Associates</b>            Location: Medical Center      Bilingual: 3 of 12            9157 Huebner Rd            San Antonio, TX 78240            Phone: (210) 697-2020      Office Hours:            Mon – Thurs, 8:00-5:00 and Friday 9:00-5:00</p>	<p><b>8. South Texas Ophthalmology &amp; Associates</b>            Location: Southwest      Bilingual: 1 of 1            102 Palo Alto Rd,            San Antonio, TX 78211            Phone: (210) 922-0555      Office Hours:            Monday–Thursday 8:00-12:00 and 1:00-4:00            Fridays 8:00-12:00</p>



***Please refer to the back of this sheet for a map of locations.***



## Appendix E: List of Preferred Providers with Map (back)



Appendix F: Diabetic Eye Poster, English

# Diabetic Eye Disease in Hispanics/Latinos

Hispanics/Latinos have high rates of diabetes and are at higher risk for vision loss and blindness from diabetic eye disease.



## What is diabetic eye disease?

Eye problems that people with diabetes may have. These include—



### Cataract

(clouding of the lens of the eye).



### Diabetic retinopathy

(damage to blood vessels in the retina).



### Glaucoma

(damage to the optic nerve).

## What are the numbers?



**1.2 million**  
Hispanics/Latinos  
have diabetic retinopathy.



This number will more than double to  
**2.9 million by 2030.**



of severe vision loss from diabetic retinopathy can be prevented by early detection, timely treatment, and appropriate follow-up.

### 1

There are often **no early warning signs** of diabetic eye disease so don't wait until you notice problems with your vision.

### 2

Get a **comprehensive dilated eye exam** at least once a year.

### 3

Keep your health on **TRACK**:  
**T**ake your medications.  
**R**each and maintain a healthy weight.  
**A**dd physical activity to your daily routine.  
**C**ontrol your blood sugar, blood pressure, and cholesterol.  
**K**ick the smoking habit.

### 4

**Help is available.**  
If you've already lost vision, talk to your eye care professional about vision rehabilitation.

**How can you protect your sight?**

**Where can I learn more? Visit [www.nei.nih.gov/diabetes](http://www.nei.nih.gov/diabetes)**

Source: National Eye Institute, 2013



Appendix G: Diabetic Eye Poster, Spanish

# La enfermedad diabética del ojo en los hispanos/latinos

Los hispanos/latinos tienen altos índices de diabetes, y mayor riesgo de perder la visión y desarrollar ceguera por la enfermedad diabética del ojo.



**¿Qué es la enfermedad diabética del ojo?**  
Son problemas de los ojos que las personas con diabetes pueden tener. Estos incluyen —

**La catarata**  
(cuando se nubla el cristalino o "lente" del ojo)



**La retinopatía diabética**  
(daño en los vasos sanguíneos de la retina)



**El glaucoma**  
(daño en el nervio óptico)



**¿Cuáles son los números?**

1.2 millones

de hispanos/latinos tienen retinopatía diabética.

2.9 millones, para el 2030.

Este número será más del doble, cerca de

95%

de la pérdida de visión severa causada por la retinopatía diabética se puede prevenir con detección y tratamiento tempranos y cuidado de seguimiento apropiado.

**¿Cómo puede proteger su vista?**

1 Muchas veces la enfermedad diabética del ojo **no da señales de aviso**. No espere a notar problemas con su visión para ver a su oculista.

2 Hágase un **examen completo de los ojos con dilatación** de las pupilas por lo menos una vez al año.

3 Siga estos consejos para mantenerse **saludable**:

- Tome sus medicamentos.
- Adopte y mantenga un peso sano.
- Participe en actividades físicas a diario.
- Controle los niveles de azúcar en la sangre, presión arterial y colesterol.
- No fume.

4 **Hay ayuda disponible.** Si usted ya perdió parte de su visión, hable con su oculista sobre la rehabilitación visual.

**¿Dónde puede aprender más? Visite [www.nei.nih.gov/diabetes/espanol](http://www.nei.nih.gov/diabetes/espanol)**

Fuente: Instituto Nacional del Ojo, 2013

## Appendix H: Personal Quotes Poster

**Diabetic Patients:**

*“ Because this clinic and Dr. \_\_\_\_\_ care about your eye health and preventing diabetic eye complications that may lead to blindness, we need to schedule your annual diabetic eye exam. ”*

**Pacientes con Diabetes:**

*“ Debido a la diabetes, está en riesgo de perder su visión. Porque su salud de los ojos nos importa a Dr. \_\_\_\_\_ y la clínica, necesitamos hacerle su examen anual de los ojos para prevenir complicaciones. ”*

## Appendix I: Letter of Support Sample



|  
**UNIVERSITY OF THE INCARNATE WORD**  
**SCHOOL OF NURSING AND HEALTH PROFESSIONALS**

December 13, 2017

Dear Dr. Mentor:

This letter serves as a letter of support between the Dr. Mentor's clinic and the University of the Incarnate Word (UIW) Ila Faye Miller School of Nursing, Doctor of Nursing Practice (DNP) program in support of Marisa Cecilia Macias implementing her proposed DNP project at your clinic. This project aims to increase the referral rate of diabetic patients' annual eye exams and receipt of referral reports in patients' charts. This project is consistent with the mission of the Community Family Medicine clinic by helping to reduce health discrepancies among diabetics and by increasing patients' participation in preventive services—helping to reduce the prevalence of diabetic eye complications.

We appreciate your dedication and collaboration with UIW's DNP students both as a preceptor and mentor. Correspondingly, this project will be implemented during the spring 2018 semester. Dr. Michael D. Moon will serve as the UIW Faculty project advisor and is available to discuss any concerns that you may have regarding the project requirements. He can be reached at (210) 216-5086.

As an organization you have demonstrated your commitment to improving patient care while helping mold future medical practitioners. UIW is delighted to be collaborating with you once again to maximize the care that your clinic provides to the residents of San Antonio. We look forward to a productive partnership between the Community Family Medicine clinic and UIW.

_____ Mentor Signature	<u>Mentor, M.D.</u> Print Mentor Name	_____ Date
_____ Student Signature	<u>Marisa Cecilia Macias, RN</u> Print Student Name	_____ Date
_____ UIW DNP Project Advisor	<u>Michael D. Moon PhD, RN, CNS</u> Print UIW DNP Project Advisor	_____ Date

**The Universe is Yours<sup>™</sup>.**

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