

THE PINEWOODS DIABETES MANAGEMENT PROGRAM (PDMP)

FOR HISPANIC AMERICANS LIVING WITH TYPE 2 DIABETES

To promote healthy diabetes self-management behaviors in a low-income, Hispanic community in Athens, Georgia.

Kyla Gaddis
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INTRODUCTION

PDMP Mission Statement

- i** This program aims to promote healthy type 2 diabetes self-management in Hispanic adults living in a low-income, primarily Hispanic immigrant neighborhood of Pinewoods Community in Athens, GA. This program aims to achieve this through providing comprehensive educational material from health education specialists in weekly sessions covering topics such as healthy eating habits, physical activity, diabetes care, and diabetes-related complications. Each session will be delivered in a culturally competent, community centered manner.

Goals and Objectives

1. Recruit key community members to review curriculum and provide feedback to improve the material prior to program implementation

- 1.1 Five key community members, two health educators, and the program director will attend the community meeting
- 1.2 Community members will complete the pre-implementation survey to give feedback on educational material quality, cultural competence, and community values
- 1.3 Community members will participate in interviews to gain qualitative information on the feasibility of the implementation and potential improvements
- 1.4 Curriculum will be modified to address the feedback accordingly

2. The program staff will deliver a culturally competent, effective program plan

- 2.1 One physician and one medical assistant, and two health educators will attend training prior to the baseline assessments
- 2.2 Health education specialists will cover all the established curriculum, activities, and pre-post quizzes in each session
- 2.3 At least 80% of the participants are still enrolled at the halfway point of the intervention

3. To increase the participants knowledge and skills concerning risk factors, management, medications, and complications



- 3.1 At the end of the program, there will be a 15% increase the average score of the Diabetes Knowledge Test of participants
- 3.2 >80% of the participants will correctly answer questions about signs and symptoms of diabetes at the end of session 2 and diabetes-related complications at the end of session
- 3.3 85% of the participants will successfully perform blood glucose testing on themselves and interpret readings at the end of session 9 and successfully administer medication to themselves at the end of session 10
- 3.4 At the end of the program, there will be a 25% increase on the perceived susceptibility, perceived severity, perceived barriers, and perceived benefits sections of the HBMQ

4. Increase the participants' nutritional knowledge and apply it to their current diets

- 4.1 90% of participants will correctly answer questions about the importance of healthy eating at the end of session 4
- 4.2 At the end of session 5, participants will describe a traditional meal they will cook that includes a healthier alternative
- 4.3 By the start of session 6, 90% of participants will have cooked a healthy alternative to a traditional meal in the past week (using the CDC cookbook) at and bring a photo
- 4.4 Increase the average score on the SDSCA nutrition section 15% from baseline to post-assessments

5. Increase the diabetes quality of life for Pinewoods residents

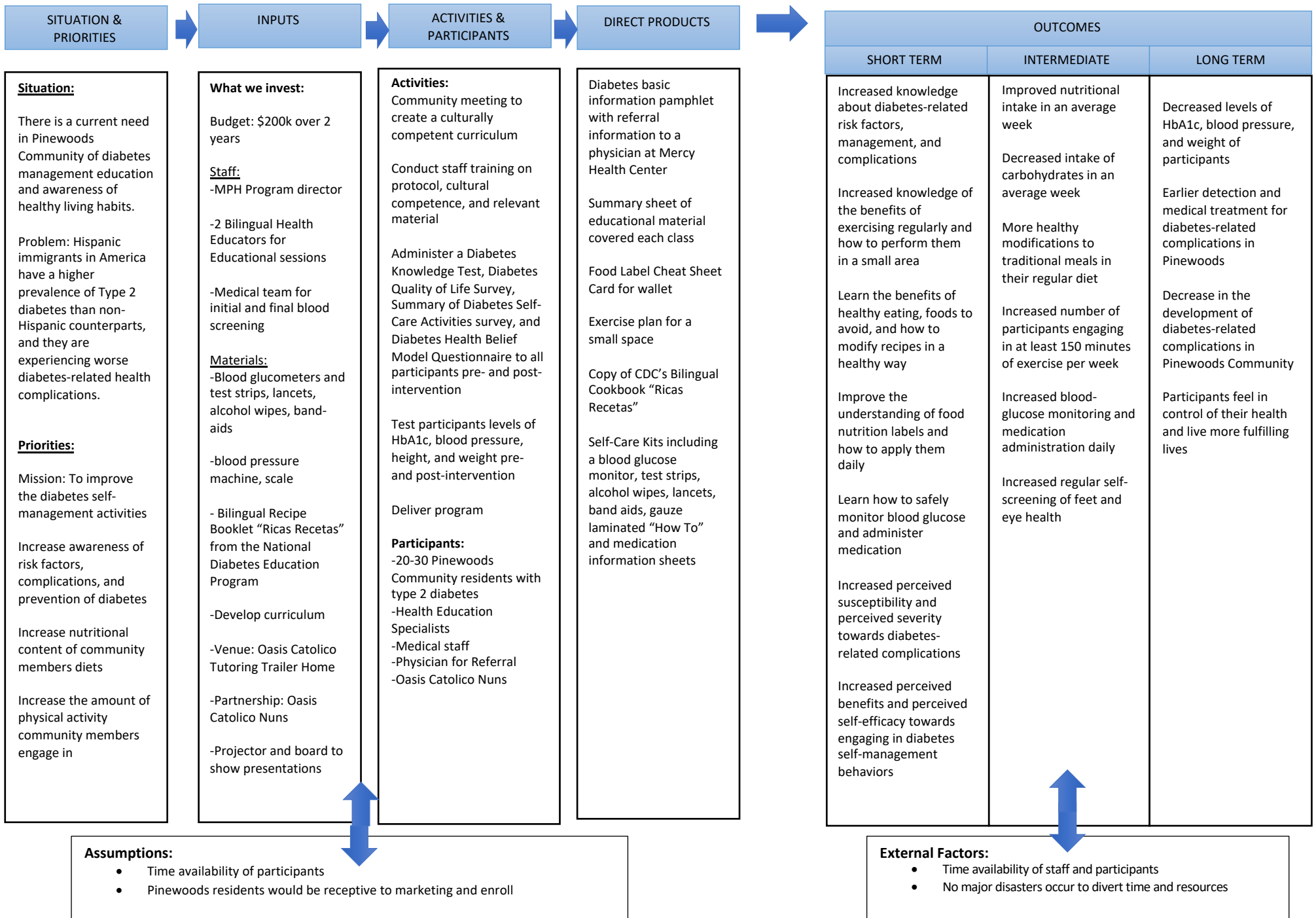
- 5.1 Increase the average participant's score 15% of the Diabetes Quality of Life survey (DQOL) at the end of the program and maintain or increase the score at 6-months post-intervention
- 5.2 Decrease the average HbA1c, blood pressure, and BMI of participants by 10% from baseline to session 12 and maintain the decreased levels for 6 months post-intervention

6. Increase the number of Pinewoods residents with type 2 diabetes that regularly engage in diabetes self-care behaviors

- 6.1 Increase the average participant's score on the Summary of Diabetes Self-Care Activities (SDSCA) survey 15% from baseline to the post-assessment and maintain this increase at the 6-month follow up
- 6.2 Increase the score on the Diabetes Health Belief Model Questionnaire 15% from baseline to post-assessments



Figure 1. PDMP Logic Model



NEEDS ASSESSMENT

The Health Problem: Type 2 Diabetes

Nearly 35 million Americans ages 18 and older had some form of diabetes in 2018, with 90-95% diagnosed with type 2 diabetes, specifically [1]. In the United States, diabetes -related complications is the 7th leading cause of death [1], and the numbers of cases in both America and throughout the world is on the rise [2]. Individuals diagnosed with type 2 diabetes are 1.8 times more likely to die and 1.8 times more likely to suffer a heart attack [3]. Type 2 diabetes is also the leading cause of kidney failure, lower limb amputation, and adult-onset blindness [4]. Type 2 diabetes is largely associated with obesity, and there is growing concern of substantial increases in the prevalence of diabetes-related complications due to the rise in rates of obesity [5].

Type 2 diabetes is a chronic condition that affects the way your body metabolizes sugar (glucose), which is an essential nutrient for your body to function properly [6]. People living with type 2 diabetes are at a higher risk of serious complications, such as heart and blood vessel disease, nerve damage (neuropathy), kidney damage, eye damage, slow healing, hearing impairment, skin conditions, sleep apnea, and Alzheimer's disease [6]. Once diagnosed, the demands of diabetes are never-ending and can lead to a low quality of life if not treated properly. There is no cure for type 2 diabetes, but losing weight, eating well and exercising are essential in managing the disease [6]. In order to live with diabetes, the individual must make decisions daily about proper nutrition, physical activity, and blood glucose monitoring, so it is necessary to ensure diabetes patients are competent in educational materials surrounding their condition.

Factors that may increase the risk of developing diabetes include but are not limited to obesity, inactivity, fat distribution, age, family history [7]. Many lifestyle habits can contribute to the development of type 2 diabetes, and it results most often from a high sugar/carbohydrate diet and lack of physical activity, leading to obesity [8]. Due to the high the rates of obesity in America, being overweight is often overlooked as a serious health condition [9]. This results in many individuals being unaware that they are living with diabetes, and this could lead to extreme blood sugar peaks and serious complications with one's heart, eyes, kidneys, nerves, gums and teeth [1].

One of the methods of preventing or delaying the chronic and acute complications of diabetes is early detection and adherence to proper care to control and prevent the progression of the disease [10]. Diabetes care is directly dependent on the patient's ability to perform adequate care on themselves, since more than 95% of the care associated with type 2 diabetes is performed by the patients themselves [11]. Much of diabetic self-care is performed through healthy-nutrition, on-time medication use, regular blood glucose testing or urine testing, regular exercise, and foot care [12]. Diabetic individuals must be taught the proper protocols and healthy living habits to integrate into their daily lives or the condition will progressively worsen and lead to life-threatening conditions [13].

Type 2 diabetes can be effectively managed through weight loss, healthy eating, regular exercise, possible diabetes medication or insulin therapy, and blood sugar monitoring [14]. Losing weight is the most effective treatment method, and losing just 7% of the body weight can decrease blood sugar levels



significantly [3]. To lose weight, it is recommended that diabetic patients center their diet around fewer calories, fewer refined carbohydrates (specifically sweets), fewer saturated fats, more vegetables and fruits, and food with more fiber [15]. A healthy diet combined with at least 30-60 minutes of moderate exercise 4+ days a week is effective at lowering blood sugar [14]. It is essential for diabetic patients to monitor their blood sugar consistently and deliver proper medications/insulin therapy to avoid blood sugar spikes and decrease the risk of diabetes-related complications [8].

Target Population: Hispanic Immigrants in low-income communities

There is a clear need for supporting Hispanic American adults with diabetes. Hispanics are the largest minority in the United States and have 80% higher rates of diabetes in adults compared to their Non-Hispanic White (NHW) counterparts [16]. In 2016, Hispanics were 2.6 times more likely to be hospitalized for treatment of end-stage renal disease related to diabetes than their NHW counterparts, and in 2017 Hispanics were 1.4 times more likely to die from diabetes [2]. Much of the disparity is thought to be related to the low socioeconomic status of many Hispanic immigrant families, making it difficult to access healthcare, nutritious food, and proper time and space to engage in physical activity [17].

Some social and cultural factors of Hispanic communities have been linked to the increased prevalence of diabetes. The traditional diets of many Hispanic cultures consist of high-fat, high-carb, calorically dense meals, which over time can increase the risk of developing type 2 diabetes [7]. Also, portion control is an issue within these communities because turning down food or leaving any leftover food on your plate is considered rude, therefore leading to social pressure to overeat, especially on celebratory events [17]. Hispanics are 2.09 times less likely than NHW to get adequate exercise due to longer hours working and less access to exercise facilities, so the calories they consume are not burned off adequately [18]. These factors all contribute to the high rates of obesity seen in Hispanics, which is one of the most important modifiable risk factors in the prevention of type 2 diabetes [16]. Aging is also a significant risk factor for developing type 2 diabetes, and the risk begins to rise significantly at about the age of 45 and rises considerably after age 65 [7]. Although 45 is when the risk begins to rise, it is important to modify behaviors and develop lifestyle changes much earlier in life to prevent the onset later in life. Because of this, this program plan will be catered to Hispanic Americans who are over the age of 30 so they have adequate time to change their behaviors before it is too late.

Barriers to Access:

Within Athens, there is a large Hispanic community located in the Pinewoods Estates North community, many of whom are undocumented and do not have health insurance. Nearly 40% of Hispanic American immigrants in America lack health insurance, and health insurance status is a substantial predictor of poor glycemic control in US Latino populations [19]. Many Pinewoods residents have not been to the doctor in years and may be living with undiagnosed diabetes. This often leads to more serious complications with diabetes because the individual is not actively managing their condition and still participating in the risky behaviors like poor nutrition, overeating, and lack of physical activity [20].

These individuals living in the Pinewoods Estates North community speak primarily Spanish, and their Limited English Proficiency (LEP) has been linked to less regular physician visits and lower health



literacy than non-LEP populations [21]. Even if these individuals do visit a physician, unless they had a Spanish-speaking translator, it is unlikely that they retained and implemented the medical advice [18]. Also, Hispanic immigrants have more obstacles in receiving higher levels education, so medical advice is sometimes ignored due to ignorance rather than intention. For example, in 2017, only 72% of Hispanics had a high school education or more, compared with 93.3% of NHW [16]. Hispanic Americans are 36% less likely to perform self-monitoring of glucose, leading to more adverse health outcomes [18]. Acculturation, the process by which an immigrant adopts the culture of a host country, may also contribute to poor diabetes management and glycemic control [19]. It is necessary to deliver a program in a culturally competent way, such as delivering it in Spanish, including healthy modifications to their traditional diets, and acknowledging their social and cultural norms.

What Has Been Done?:

Culturally-competent programs have been implemented previously to address this issue and have been the most successful in creating positive health outcomes for diabetes. A 2019 study determined that the most effective aspects of a culturally-competent program be language interpreter services, inclusion of family and/or community members, and providing culturally tailored nutrition advice [19]. In an inner-city community in California in 2008, a 3-month diabetes education program was conducted entirely in Spanish by a Hispanic educator that tailored the information to their social norms. This study was successful in improving patient knowledge, self-care behaviors, and glycemic control [22]. This program includes aspects of cultural competence, such as delivering all material in Spanish, including traditional Hispanic meals into healthy-alternatives, and including a workout plan that is appropriate for their trailer homes.

Past programs have approached diabetes self-management through delivering educational material through weekly lessons [11, 12, 23]. Past studies have delivered material on the importance of healthy eating, how to cook healthy alternatives, and how to use food labels, all of which were effective at decreasing the average HbA1c and diabetes-related complications in their participants [24-27]. Other studies taught classes on why exercise is important and how to exercise at home and had improvements in blood sugar readings [28, 29]. Lessons on risk factors of diabetes, diabetes-related complications, how to check blood sugar and how to administer medication have also been proven to improve diabetes outcomes in participants in the past [30]. This program will integrate aspects of nutritional information, physical activity, risk factors, complications, and self-monitoring habits to improve the health outcomes in the program participants.

Explanation:

Hispanic Americans are at a significantly higher risk of developing type 2 diabetes, and there is a lack of culturally competent, educationally tailored prevention programs available to them today. It is necessary to provide these communities with the proper diabetes prevention information regarding healthy eating, proper physical activity, and blood glucose monitoring to ensure they make choices that benefit their health in the future and lower their risk of developing type 2 diabetes.



Statement of Problem: Hispanic immigrants are experiencing type 2 diabetes at a higher prevalence and having more severe diabetes-related complications compared to their Non-Hispanic counterparts [5]

Target Population: Hispanic immigrants ages 18+ living with type 2 diabetes

Setting: Oasis Católico Tutoring Trailer, located within the Pinewoods Community

THE PROGRAM: THEORY, DESCRIPTION AND IMPLEMENTATION

Program Theory: The Health Belief Model

The Health Belief Model theorizes that people will take action if they believe they are susceptible to a condition (perceived susceptibility), if they believe they will have serious consequences (perceived severity), if they think the action will pose more benefits than barriers (perceived benefits and barriers), and if they believe they can successfully complete the behavior (self-efficacy) [31]. This theory has been used to promote diabetes self-management behaviors in past studies through educating participants on diabetes risks, self-care benefits, and performing various activities [23, 32] in The curriculum is focused on addressing each of these components to increase the likelihood of the participants engaging in diabetes self-management behaviors, as described below.

Perceived Susceptibility

To increase the participants perceived susceptibility, a variety of activities will be used. The initial blood screening will diagnose individuals with pre-diabetes or diabetes if their HbA1c levels are between 5.7%-6.4% (pre) or over 6.5% on two separate tests of type 2 diabetes [9]. The participants may have not been aware of their health status, so seeing their results compared to the healthy levels will make them feel more susceptible. The first educational session will introduce topics of the health disparity within the Hispanic immigrant population in America. They will be briefly introduced to the numerous diabetes-related health consequences that disproportionately affect Hispanic Americans. Other risk factors such as obesity, high blood pressure, and sedentary lifestyle will be mentioned to increase awareness among people in those categories. Diabetics will feel susceptible to disease progression and non-diabetic community members will feel susceptible to developing type 2 diabetes.

Perceived Severity

Perceived severity will be increased through educational sessions on the life-threatening conditions that can develop if diabetes is not managed properly. A presentation will include graphic photos of the conditions along with descriptions of each disease's symptoms and detailed descriptions of the negative impacts on quality of life that each disease has. Also, the mortality statistics will be included.



Perceived Barriers

Culture is a barrier which will be accounted for through delivering the lessons in Spanish, including all materials in Spanish, and including traditional dishes into the nutrition plan. Also, the referral physician will be bilingual to ensure the patients understand and follow the doctor's orders if they are referred. Family is very important in many Hispanic cultures, so inviting family members to attend the lessons will make the diabetics more likely to attend. Also, teaching the family healthy habits will promote the behavior change in the patients, which will decrease the likelihood of diabetes-related complications in the patients and the risk of developing diabetes in family members. Other barriers may include access to healthy food and lack of space to exercise. To account for this, we will include information on where to purchase healthy foods for low prices and ways to exercise in a limited space.

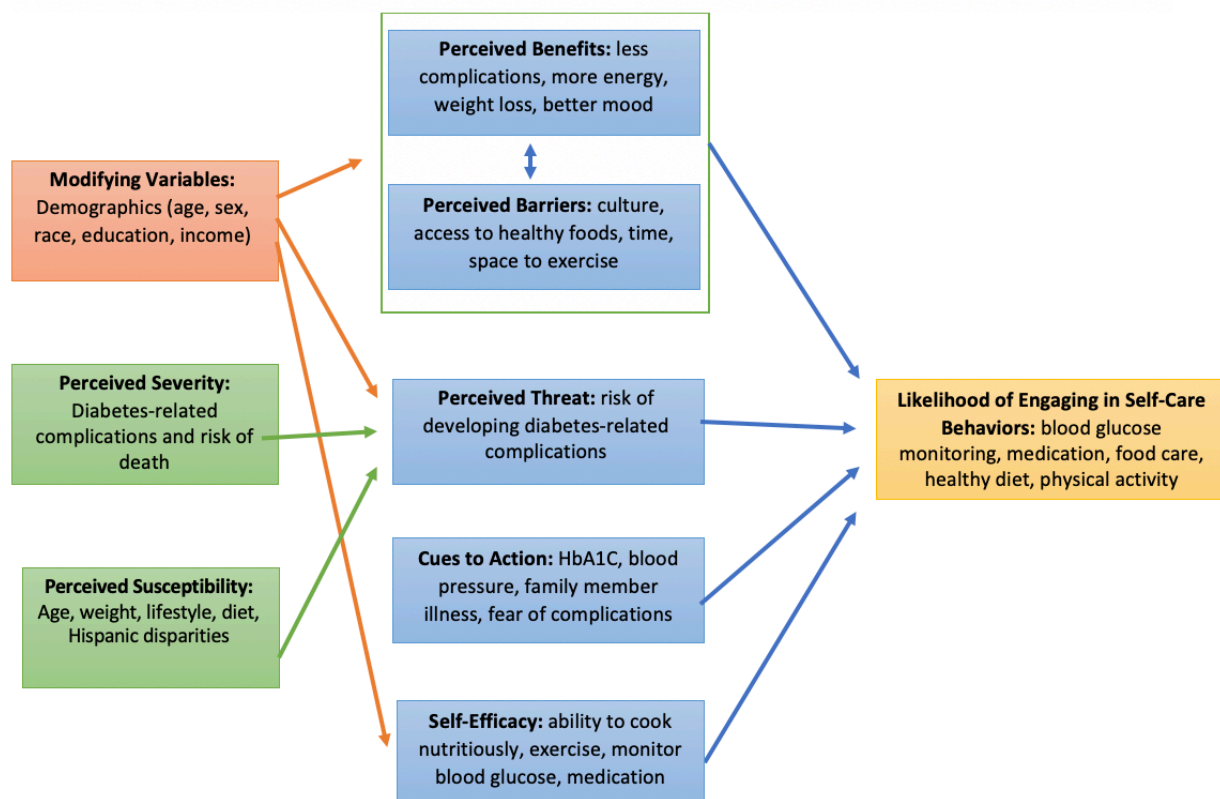
Perceived Benefits

The vast benefits of healthy eating, exercising, and monitoring blood glucose and medication will be included in the lesson-plan. There will be information on how healthy eating and physical activity can improve aspects of life outside of diabetes management, including improved mood, reduced cancer risk, better memory, more energy and others. Discussions of how proper glucose management and medication administration can significantly decrease the risk of developing diabetes-related complications will be included.

Self-Efficacy

Self-efficacy will be improved by teaching the participants the exact steps of self-monitoring blood glucose and administering medication accordingly. This will be measured by asking each participant to perform a finger stick and saline shot on themselves at the end of the program. For nutrition self-efficacy, participants will pick the healthiest food based on the food label and cook a healthy alternative for one of their favorite traditional meals. For physical activity, each participant will be asked to perform one exercise that can be done in a small area during the lesson and integrate that exercise into their week.

Figure 2: Theory Flow Chart
The Health Belief Model



Program Implementation Approach

This program will focus on educating the participants through presentations and activities to give them the knowledge and tools to engage in self-care behaviors daily. Diabetes is a unique condition because the patients have a major role in its control, and this control is directly related to the patients adherence to self-care habits [10]. Many interventions have found education a crucial factor in increasing self-care behaviors. An important aspect of Hispanic immigrant communities is the language barrier [19], so this program will be delivered entirely in Spanish. This program will provide educational material about the symptoms of diabetes, complications, nutrition, physical activity, and how to administer medication. It is important to address this issue with regard to their culture and traditions [33], so the educational material will be catered to their typical diet, social norms, and income level. Using culturally competent educational material has been successful in increasing health outcomes for Hispanic Americans with type 2 diabetes in the past, as described below:

Symptoms of Diabetes

This program will educate participants on the symptoms of diabetes in session 2, which will be shown as a 40 minute PowerPoint and given a post-quiz at the end of the session to measure their understanding of the material. Studies show that individuals that understand the signs and symptoms of type 2 diabetes are significantly more likely to engage in self-care behaviors, ultimately lowering their HbA1c levels [22, 34, 35]. When people are more aware of what symptoms to look for, they are better at identifying when their blood sugar levels are off and better manage their levels.

Diabetes Complications

Participants will be shown PowerPoint presentations on diabetes-related complications in session 3 and 11 to increase their perceived severity of the condition, making them more likely to take action. Studies show that individuals are more likely to engage in healthy behaviors if they are scared of what will happen if they do not, as indicated by the Health Belief Model [10]. Past programs have included education on the potential complications of type 2 diabetes and found a significant decrease in the participants HbA1c levels [22, 25, 35], and an increase in the perceived diabetes-related quality of life [28]. The conditions we will cover are heart disease, kidney failure, neuropathy, Alzheimer's, foot disease, eye disease, depression, skin conditions, and hearing impairment [5].

Nutrition

Nutrition is one of the primary modifiable factors for diabetes-related complications, and it is essential for type 2 diabetics to adhere to a low-fat, low-calorie, high-fiber diet to manage their blood glucose [5]. This program will include information on the importance of a healthy diet in session 4, healthy takes on traditional foods in session 5, and how to read food labels in session 6. Past studies have shown that



Spanish-speaking Hispanic Americans eat significantly healthier after being shown an educational presentation on the basics of nutrition [36].

The CDC's National Diabetes Education Program (NDEP) developed a culturally sensitive presentation covering nutrition and diabetes in the Latin American community called "Diabetes and Nutrition in the Latino Community: The role that nutrition plays in managing and preventing diabetes"[15]. We will present this information in session 5. This presentation, along with the CDC's recipe book titled "Tasty Recipes for People with Diabetes and Their Families" in both Spanish and English will be used to increase their self-efficacy with cooking healthy meals using traditional ingredients. NDEP programs have been successful at decreasing the HbA1c, Cholesterol, blood pressure, and diabetes-related quality of life for Latinos with type 2 diabetes [15].

Session 6 will cover food label components and give them practice on choosing the healthiest options based on food label statistics. Learning how to read food labels has been proven to lead to healthier food choices in previous studies [22, 26, 37]. Participants will be asked to choose 3 healthy items from a food table and explain why it is healthy at the end of the session to show evidence that they understand the concepts before they leave. This will improve their self-efficacy and lead to better choices at the grocery store. We will providing an annotated food label flyer and card for their wallet written in Spanish to use at the grocery store, which has been correlated with better food choices in Latinos with type 2 diabetes [26].

Physical Activity

Sessions 7 and 8 will cover the importance of engaging in exercise and how it relates to diabetes, as well as demonstrating 30 exercises they can complete in a small area at home. Previous diabetes management programs have included components of physical activity and found significant decrease in body weight (BMI), blood pressure, and HbA1c levels at post-intervention [22, 25, 26, 33, 35]. The homes in Pinewoods are mobile homes and do not have much space to allow for exercise, so session 8 will be an instructional exercise class to teach the participants 30 exercises they can do in the space of a yoga mat. This will increase self-efficacy by asking the participants to engage in the exercise with the instructor, showing them they are physically able to do it.

Administering Medication

Controlling type 2 diabetes is mainly about the patient's ability to recognize blood glucose levels and administer the proper amount of insulin in response to the number, but unfortunately many Hispanic immigrants are unaware of what numbers require what amount of medication [35]. Mismanaging insulin intake is the cause of many diabetes-related complications, so it is important to teach them how to physically administer the insulin and check their blood glucose. Participants will be required to perform blood glucose testing and administer an mock insulin injection (saline) to increase self-efficacy. Educating diabetics on properly checking blood glucose and administering insulin has been an effective way of improving health outcomes for Latino Americans in the past decade [22, 25, 26] . A 2015 study on Mexican Americans with type 2 diabetes found that educating participants on recognizing their symptoms,



checking their blood glucose, and how to administer medication significantly decreased their HbA1c levels and increased their quality of life at the end of the program [38].



Table 1: Summary of Curriculum

Session #	Topic	Activities	Materials
1	Baseline Assessments	<ul style="list-style-type: none"> • Administer Diabetes Knowledge Test (DKT-24) to all participants • Administer Diabetes Quality of Life Survey (DQLS) and Health Belief Model Questionnaire (HBMQ) participants with type 2 diabetes • Administer Summary of Diabetes Self-Care Activities (SDSCA) • Measure the HbA1C, blood pressure, height and weight to all participants • Refer anyone with undiagnosed pre-diabetes to a physician and give them informational pamphlets 	<ul style="list-style-type: none"> • DKT, DQLS, HBMQ surveys • Pamphlet with physician referral information and the first steps of living with diabetes in Spanish and English • Lancets, alcohol wipes, test strips, HbA1C machine, gauze, bandages, gloves, blood pressure cuff, scale, tape measurer
2	What is Diabetes: Overview of Signs and Symptoms	<ul style="list-style-type: none"> • Give 40 minute PowerPoint presentation covering what diabetes is, the common signs and symptoms of diabetes, and how blood sugar levels change in relationship to food • Five question post-quiz • Post-lesson handout for each participant to take home 	<ul style="list-style-type: none"> • Educational PowerPoint in Spanish • Summary of PowerPoint (English and Spanish) • Five question post-quiz
3	Diabetes-Related Complications	<ul style="list-style-type: none"> • 40 minute PowerPoint presentation covering signs and symptoms of diabetes-related heart-disease, nerve damage, kidney damage, eye damage, foot conditions, hearing impairment and Alzheimer's • Ask participants to describe one complication from diabetes and symptoms associated with it • Post-lesson pamphlet on each disease 	<ul style="list-style-type: none"> • PowerPoint presentation with diabetes-related complications • Post-assessment quiz with space to describe one complication • Educational take-home pamphlet on complications
4	Importance of Healthy Eating	<ul style="list-style-type: none"> • 40 minute PowerPoint Presentation on the benefits of healthy eating, different food groups, examples of healthy meals, and foods to avoid • Five question post-quiz • Post-lesson handout for each participant to take home 	<ul style="list-style-type: none"> • Educational PowerPoint in Spanish • Summary of PowerPoint (English and Spanish) • Five question post-quiz



5	Nutritious takes on traditional foods	<ul style="list-style-type: none"> • 30 minute PowerPoint presentation using the CDC's National Diabetes Education Program titles "Diabetes and Nutrition in the Latino Community: The role that nutrition plays in managing and preventing diabetes." • 10 minute overview of the CDC bilingual cook book titled "Tasty Recipes For People with Diabetes and Their Families" • Post-assessment: Write out how you will modify one typical meal this week 	<ul style="list-style-type: none"> • CDC's Diabetes and Nutrition in the Latino Community: The role that nutrition plays in managing and preventing diabetes • Cook Book: Tasty Recipes For People with Diabetes and Their Families • Post-assessment
6	How to make Food Labels work for you	<ul style="list-style-type: none"> • 35 minute presentation on nutrition labels • 5 minute introduction to food tracking website • Post-assessment: ask participants to pick foods from a table that have the best nutritional value • Annotated food label cards for wallets and flyers 	<ul style="list-style-type: none"> • Nutrition label presentation • Annotated food label cards for wallets and flyers • Various packaged food for participants to read the food labels of
7	Importance of Physical Activity,	<ul style="list-style-type: none"> • 40 minute presentation on the importance of physical activity • 5 question post quiz on the benefits of exercising • Take home pamphlet on the recommended amount of exercise 	<ul style="list-style-type: none"> • Educational presentation • Pamphlet • Post quiz
8	Tips on Exercising Anywhere	<ul style="list-style-type: none"> • 10 minute discussion of physical activity done in the last week • 40 minute demonstration of full exercise routine that can be done in a small space • Take home pamphlet of the exercises learned 	<ul style="list-style-type: none"> • Take home pamphlet of exercises
9	Checking blood-glucose	<ul style="list-style-type: none"> • 40 minute presentation on monitoring blood glucose throughout the day • 15 minute demonstration of participants checking their own blood sugar and interpreting the number 	<ul style="list-style-type: none"> • Blood glucometer, test strips, alcohol swabs for each participant • Take-home pamphlet on optimal blood sugar ranges and what to do for certain readings • Presentation PowerPoint
10	Administering Medication	<ul style="list-style-type: none"> • 40 minute presentation on the importance of medication, when and how to use it • 15 minute demonstration of participants administering saline medication in a hypothetical scenario of blood sugar level 	<ul style="list-style-type: none"> • Needles, saline insulin tubes, alcohol wipes • Take home summary of how to properly administer insulin and when



11	Early Detection: eyesight, kidneys, heart, and foot care.	<ul style="list-style-type: none"> • 40 minute presentation on signs of complications and what to do/how to prevent them • 10 minute discussion on how each participant plans to care for their eyes, kidneys, heart, and feet 	<ul style="list-style-type: none"> • PowerPoint presentation on caring for eyes, kidney, heart and feet • Summary flyer on signs of complications and how to prevent it
12	Post-Assessments	<ul style="list-style-type: none"> • Administer Diabetes Knowledge Test (DKT) to all participants • Administer Diabetes Quality of Life Survey (DQLS) and Health Belief Model Questionnaire (HBMQ) participants with type 2 diabetes • Administer Summary of Diabetes Self-Care Activities (SDSCA) • Measure the HbA1C, blood pressure, height and weight to all participants 	<ul style="list-style-type: none"> • Lancets, alcohol wipes, test strips, HbA1C machine, gauze, bandages, gloves, blood pressure cuff, scale, tape measurer • DKT, DQLS, HBMQ surveys
6-month Follow up	Post-Assessment	<ul style="list-style-type: none"> • Administer Diabetes Knowledge Test (DKT) to all participants • Administer Diabetes Quality of Life Survey (DQLS) and Health Belief Model Questionnaire (HBMQ) participants with type 2 diabetes • Administer Summary of Diabetes Self-Care Activities (SDSCA) • Measure the HbA1C, blood pressure, height and weight to all participants 	<ul style="list-style-type: none"> • Lancets, alcohol wipes, test strips, HbA1C machine, gauze, bandages, gloves, blood pressure cuff, scale, tape measurer • DKT, DQLS, HBMQ surveys



Implementation Plan

To implement this program, we will recruit 20-30 Pinewoods residents living with type 2 diabetes to enroll in the program. The program director and health education specialists will be responsible for gathering the participants through a series of marketing tactics, discussed later in the program (See Marketing for more information).

The main goal of this intervention is to change the attitudes about diabetes self-care habits among adult Hispanic Immigrants living with type 2 diabetes in Pinewoods Community of Athens Clarke County to reduce the number of diabetes-related complications they experience. This program will consist of educational seminars held in one of the trailer parks within the community that is used for a non-profit afterschool tutoring program called Oasis Católico Tutoring. Oasis is run by a group of Nuns, and they have given permission for the trailers to be used when tutoring is not in session. The sessions will be held once per week for 60 minutes for 3 months, totaling twelve sessions. Prior to the session, there will be a meeting with community members to determine which day and time would accommodate the most participants and to learn more about community values, traditions, and any accommodations. Two of the twelve sessions will focus on pre and post screening and questionnaires, and 10 will focus on delivering educational material. While the meetings are in session, there will be an option for the participants to drop their kids off in one of the trailers next door to be watched by Oasis Nuns and tutors, who have agreed to stay for an hour after their usual tutoring session once a week to assist with childcare at the sessions.

Session One will provide the participants with three questionnaires to fill out: The Diabetes Knowledge Questionnaire (DKQ-24), The Diabetes-Related Quality of Life (DRQL) survey, The Health Belief Model: Diabetes Care (HBMDc) survey, and the Summary of Diabetes Self-Care Activities survey (SDSCA) all written in Spanish. The DKQ-24 will measure the participant's retention of **knowledge** of the correct diabetes self-care life behaviors, potential risks and complications, and risk factors of diabetes [39]. Session one will also include taking baseline measurements of blood hemoglobin A1C levels, blood pressure, height and weight, all of which are reliable indicators of the diabetes disease progression [6]. The medical staff will consist of a bilingual (Spanish and English) physician and medical assistant hired to work the pre and post screening days to test and record the values for each patient. The medical staff will be hired through partnership with Mercy Health Center, and the program director will hire a Physician and Medical assistant part-time for both years. We will purchase medical equipment like the HbA1C machine lancets, gloves, alcohol wipes, and test strips from medical vendors to use at the baseline and follow-up measurements. The physician and medical assistant will be trained prior to program start date to familiarize them with the program set up, identify abnormal HbA1c levels, blood pressure, and weight, communicate these abnormalities to the patients, and our referral procedure. If a patient has not received medical attention for their diabetes, they will be given a pamphlet covering basic information on managing diabetes and a referral to a Spanish-speaking doctor at Mercy Health Center. Medical staff will be trained on expressing the urgency of actually scheduling the appointment to the patient, and this will be reiterated on the pamphlet.

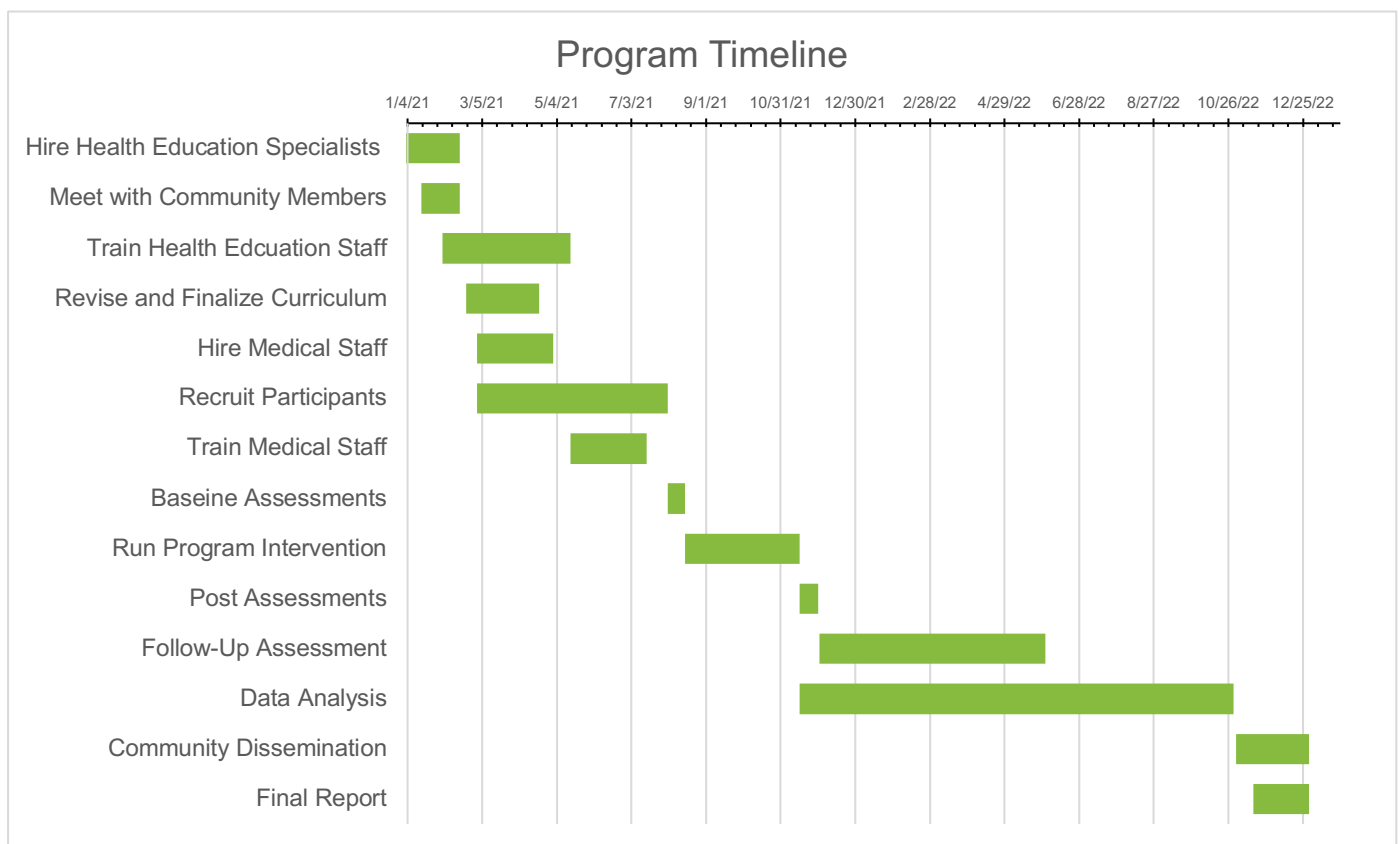
The following ten sessions will cover a variety of material on diabetes-care habits. The two health education specialists must also speak Spanish and English, and they will be responsible for delivering the material each week in a PowerPoint presentation, performing activities, and administering post-quizzes at the end of each session. The primary health educator and will focus on delivering the material while the



assistant health educator watches the participants and provides assistance when necessary. The health educators will be recruited through job searches and hired 3 months prior to the program start date. With their expertise, the program director will create presentations for each of the following topics: 1) What is Diabetes: Overview of Signs and Symptoms, 2) Diabetes-Related Complications, 3) Importance of Healthy Eating, 4) Nutritious takes on traditional foods, 5) How to make Food Labels work for you, 6) Importance of Physical Activity, 7) Tips on Exercising Anywhere, 8) Checking blood-glucose, 9) Administering Medication, 10) Early Detection: eyesight, kidneys, heart, and foot care. These presentations will be summarized in a flyer for each participant to take home after the session. Each session will close with a brief post-quiz to ensure they retained the material. A bilingual cook book created by the CDC's National Diabetes Education Program called "Tasty Recipes For People with Diabetes and Their Families" will be provided during the Healthy Eating Seminars which will be downloaded for free from the CDC website and printed prior to the session. There will be free blood glucometers, lancets, test strips, and alcohol wipes for the patients to take home at the session covering blood glucose, and we will purchase these prior to the session.

Session 12 and the 6-month follow up will serve as the post-intervention assessments. The project director and health educators will deliver the same surveys from the baseline assessment: DKQ-25, SDSCA, DQOL, and HBMQ. The medical staff will be present to gather the physical data; blood pressure, height, weight, and HbA1c. All data recorded during the intervention and at each follow-up session will be entered into a shared database with the Data Analyst to continuously monitor the progress of the intervention,. This will ensure the program runs smoothly and is measuring the correct variables in a reliable way. After the intervention, the data analyst will work with the program director to interpret the results. The health educators will call the participants and summarize the results and encourage them to spread them to the community by word of mouth. The health educators will also produce a flyer with the simplified results to the study and put them in every mailbox in Pinewoods. The program director will work with the data analyst to write a final, publishable paper by December 2021 and send it out for publicatio

Figure 3. PDMP Timeline: January 2021-December 2022



EVALUATION PLAN

The goal of this evaluation is to measure how effectively the Diabetes-Self Management Community Program is at reaching its goals and objectives throughout the program. The evaluation will begin during the preparatory phase (formative), during the implementation phase (process), directly after the program (impact), and 6 months after the program's termination (outcome). The evaluation methods are tailored to measure the specific goals and objectives of the program, as described below:

Formative Evaluation

Formative evaluation will occur during the preparatory phase of the intervention to guide the curriculum towards the needs of the community members. The focus of this evaluation is to ensure the program curriculum and activities are culturally competent and reflect the values of the community members. Formative evaluation is also used to improve the program or its components.

i Goal 1: Recruit key community members to review curriculum and provide feedback to improve the material prior to implementation

1.1 Five key community members, two health educators, and the program director will attend the community meeting

This evaluation will occur during a meeting with at least 5 key community stakeholders, the program director, and both health education specialists. Attendance will be taken at the meeting to determine how many community members and staff attend. Community stakeholders will be chosen by Sister Uyen Chi of Oasis Catolico tutoring who lives within the community and is familiar with community dynamics. She will provide us the contact information. The health educators will reach out to the chosen stakeholders by reaching out to the by phone, mail, and house visits.

1.2 Five community members will complete the pre-implementation survey to give feedback on educational material quality, cultural competence of the program, and alignment with community values

1.3 Community members will participate in interviews to gain qualitative information on the feasibility of the implementation and potential improvements

At the meeting, the community members will be given a brief overview of the curriculum, activities, and program plans and asked to complete a survey. The survey will address community values, traditions, usual diets, literacy level, potential meeting times, and attitudes towards the curriculum and activities. Interviews will also be held to gather qualitative data on how the program could be improved to address potential barriers. The program director and both health education specialists will attend the meeting and collaboratively adjust the curriculum and program activities according to the feedback from community members.



Process Evaluation

Process evaluation will occur after the start of the program at the baseline assessments and continue through the duration of the program. This evaluation method is focused on how closely the program was implemented to the original plan and measures how well the staff delivered the contents of the program. It is important to know what went well and what did not during the intervention to know what to improve in further implementations.

i Goal 2: Staff will deliver a culturally competent, effective program plan

2.1 One physician, one medical assistant, and two health educators will attend training prior to the baseline assessments

To prepare for successful intervention delivery, each staff member will be required to attend training sessions before the start, and attendance will be taken each session to measure the staff participation. To make sure the baseline assessments run smoothly, the program director will be present to watch the medical staff and ensure they are following protocol and that the health education specialists are administering the surveys properly. Timesheets will be used to make sure the staff is devoting enough time to their tasks.

2.2 Health education specialists will cover all the established curriculum, activities, and pre-post quizzes in each session

To ensure the health education staff is delivering the material properly during the sessions, they will record the amount of curriculum they covered each session and report it to the program director weekly. The program director will attend session 6 to observe the material delivery to make sure all of the educational material is covered properly. The program director will also stay after session 6 to talk with some participants and determine their satisfaction with the intervention thus far.

2.3 At least 80% of the participants are still enrolled at the halfway point, and last session of the intervention

To measure participant retention, attendance will be taken at the beginning of each session. For ideal participant retention, we aim to have at least 80% of the participants still enrolled and coming consistently at the halfway and last session of the intervention.

Impact Evaluation

This evaluation is focused on measuring short term outcomes directly after the intervention ends. These are key indicators that would lead to an increase in self-care behaviors, and they will be measured in a series of surveys given to participants at the baseline assessment session, post-intervention session, and 6-month follow up.



i Goal 3: To increase the participants knowledge and skills concerning risk factors, management, medications, and complications

3.1 At the end of the program, there will be a 15% increase the average score of the Diabetes Knowledge Test of participants

To measure goal 3, the increase in diabetes-related knowledge, the Diabetes Knowledge Questionnaire-24 (DKQ-24)[39] will be administered by the health education specialists at session 1 for baseline measurements and at session 11 for post-intervention results. The DKQ-24 is an evidence-based questionnaire that was modified from the original 60-question Diabetes Knowledge Questionnaire in 2006. A copy of the DKQ-24 is attached below (**Figure 1**). This survey will assess the basic understanding of diabetes, including risk factors, signs, symptoms, and management. An increase in diabetes-knowledge should lead to more perceived susceptibility, severity, and benefits and less perceived barriers towards self-care behaviors [23]. To measure the increase, the data analyst will compare the participant's pre-and post-intervention scores with a two-sample t-test and to determine if there was a significant change. By looking at these changes, we are determining if the program was successful in reaching its goal of 15% increase in score.

3.2 >80% of the participants will correctly answer questions about signs and symptoms of diabetes at the end of session 2 and diabetes-related complications at the end of session 3.

To ensure the participants are retaining the knowledge, the post-session quiz scores will be entered into the database to measure the percentage of participants that correctly answered each question. This will measure the participants knowledge gain throughout the program.

3.3 85% of the participants will successfully perform blood glucose testing on themselves and interpret readings at the end of session 9 and successfully administer medication to themselves at the end of session 10

To measure the participant's ability to successfully perform blood glucose monitoring and administer medication, they will be asked to perform the behavior as a post-quiz activity during sessions 9 and 10. The health educators will grade each individual on their adherence to protocol and enter it into the survey. The behavior is considered successfully complete if the participants do 95% of the steps correctly. The health educators will spend time with those who fail to complete the behavior and practice with them again before they leave.

3.4 At the end of the program, there will be a 25% increase on the perceived susceptibility, perceived severity, perceived barriers, and perceived benefits sections of the HBMQ

The HBMQ assess the participants understanding of the severity of diabetes symptoms and complications, the barriers they perceive, and the many benefits self-care has on diabetics. The scores for each of these sessions will be compared from pre and post assessments to determine the magnitude of increase, signifying the participants increased knowledge in each category. This will determine if the program maintains its integrity to the Health Belief model theory.

i Goal 4: To increase the participant's knowledge of nutrition and apply it to their current diets



4.1 90% of participants will correctly answer questions about the importance of healthy eating at the end of session 4

To measure the participant's understand of the importance of nutrition, the post-quiz scores will be entered in to the database and the data analyst will measure the percent of participants that answered the questions correctly. If 90% of the participants got all 5 questions correctly, this objective will be considered met.

4.2 At the start of session 6, 90% of participants will have cooked a healthy alternative to a traditional meal (using the CDC cookbook) and bring a photo as evidence

Self-efficacy is a large contributor to the likelihood of engaging in a behavior, according to the Health Belief Model [10]. This intervention will increase self-efficacy by giving a presentation on the behavior, demonstrating it to the class, and asking the participants to perform the behavior before they leave the session. If the participants successfully complete it, the health educators will record the participant to have mastered that skill. This evaluation method will be used after session 5 by asking participants to bring a photo of a healthy alternative meal before the next session to ensure they practice healthy cooking.

4.3 Increase the average score of the nutrition section of the SDSCA 15% from baseline to post-assessments

The SDSCA measures the participants current lifestyle habits in regards to diabetes self-care behaviors. To measure if the participants are regularly implementing the healthy eating habits they learned in the sessions, the scores of the nutrition section of the SDSCA will be compared. To successfully meet this objective, there should be at least a 15% increase in the scores of this section from baseline to session 11, and maintain this increase through the 6-month follow up.

Outcome Evaluation

This evaluation is focused on measuring the longer term behavior changes seen by implementing the knowledge, attitudes, or skills learned from the program. This part of evaluation is focused on longer term effects of the intervention on the participants overall health and quality of life.

i Goal 5: To increase the diabetes quality of life for Pinewoods residents

5.1 Increase the average participant's score 15%of the Diabetes Quality of Life survey (DQOL) at the end of the program and maintain or increase the score at 6-months post-intervention

The Diabetes-Related Quality of Life survey is an evidence-based questionnaire that is used to measure the well-being of diabetics in their physical, emotional, social, and spiritual aspects of life [40]. The participants will take this survey at the baseline, post-intervention, and 6-month follow up sessions and the data will be entered by the Health Education Specialists. The data analyst will determine changes between each check point using two-sample t test. If the increase is 15% or greater, the program will be considered successful in reaching that goal.



A key indicator for diabetes health is the amount of self-care the diabetic engages in [29]. We will measure the degree of self-care that each participant engages in at the baseline assessment, session 11, and the 6-month follow up. The health educators will administer the Summary of Diabetes Self-Care Activities (SDSCA) to measure the engagement in the following diabetes self-care behaviors: general diet, specific diet, exercise, blood-glucose testing, foot care, and smoking. This has been successful in predicting self-care behaviors in previous studies [41].

5.2 Decrease the average HbA1c, blood pressure, and BMI of participants by 10% from baseline to session 12 and maintain the decreased levels for 6 months post-intervention

To measure the participant's diabetes health status, we will compare the levels of HbA1c, blood pressure, and BMI between baseline to session 11 to the 6-month follow up. The medical staff will measure these levels and enter them into a database for the data analyst. We expect these levels to decrease as the participants engage in more self-care behaviors (SDSCA), which will increase their quality of life.

i Goal 6: To increase the number of Pinewoods residents with type 2 diabetes that regularly engage in diabetes self-care behaviors

6.1 Increase the average participants' score on the Summary of Diabetes Self-Care Activities (SDSCA) survey 15% from baseline to post-assessment and maintain this increase at the 6-month follow up

A key indicator for diabetes health is the amount of self-care the diabetic engages in [29]. We will measure the degree of self-care that each participant engages in at the baseline assessment, session 11, and the 6-month follow up. The health educators will administer the Summary of Diabetes Self-Care Activities (SDSCA) to measure the engagement in the following diabetes self-care behaviors: general diet, specific diet, exercise, blood-glucose testing, foot care, and smoking. This has been successful in predicting self-care behaviors in previous studies [41].

6.2 Increase the score on the Diabetes Health Belief Model Questionnaire 15% from baseline to post-assessments

To further measure the components of the Diabetes Health Belief Model, a 30 question Health Belief Model Questionnaire will be administered at the baseline assessment and post-intervention. The Diabetes Health Belief Model Questionnaire is an evidence-based survey that has been used to measure behavior change in Hispanic immigrant populations in previous studies [23, 32]. The change in each component (perceived susceptibility, severity, benefits, barriers, self-efficacy) will be measured using a two-sample t test. A 15% increase in each of these will indicate the program was successful in using the health belief model to promote diabetes self-management behaviors.



FIGURE 1

		Diabetes Knowledge Questionnaire		
	Preguntas	Si	No	No se
Item #	Questions	Yes	No	Idk
1.	El comer mucha azucar y otras comidas dulces es una cause de La diabetes.		*	
1.	Eating too much sugar and other sweet foods is a cause of diabetes.		*	
2.	La cause comun de la diabetes es la falta de insulina efectiva en el cuerpo.	*		
2.	The usual cause of diabetes is lack of effective insulin in the body	*		
3.	La diabetes es causada porque los rinones no pueden mantener el azucar fuera de la orina.		*	
3.	Diabetes is caused by failure of the kidneys to keep sugar out of the urine.		*	
4.	Los rinones producir la insulina.		*	
4.	Kidneys produce insulin.		*	
5.	En la diabetes que no se esta tratando, la cantidad de azucar en la sangre usualmente sube.		*	
5.	In untreated diabetes, the amount of sugar in the blood usually increases.		*	
6.	Si yo soy diabetico, mis hijos tendran mas riesgo de ser diebeticos.		*	
6.	If I am diabetic, my children have a higher chance of being diabetic.		*	



7. Se puede curar la diabetes. *
7. Diabetes can be cured. *
8. Un nivel de azucar de 210 en prueba de sangre hecha en ayunas es muy alto. *
8. A fasting blood sugar level of 210 is too high. *
9. La mejor manera de checar ml diabetes es haciendo pruebas de orina. *
9. The best way to check my diabetes is by testing my urine. *
10. El ejercicio regular aumentara la necesidad de insulina u otro medicamento para la diabetes. *
10. Regular exercise will increase the need for insulin or other diabetic medication. *
11. Hay dos tipos principales de diabetes: Tipo 1 (dependiente de insulina) y Tipo 2 (no-dependiente de insulina). *
11. There are two main types of diabetes: Type 1 (insulin-dependent) and Type 2 (non-insulin-dependent). *
12. Una reaccion de insulina es causada por mucha comida. *
12. An insulin reaction is caused by too much food. *
13. La medicina es mas importante que la dieta y el ejercicio pare controlar mi diabetes. *
13. Medication is more important than diet and exercise to control my diabetes. *



14. La diabetes frecuentemente cause mala circulacion. *
14. Diabetes often causes poor circulation. *
15. Cortaduras y rasgunos cicatrizan mas despacio en diabeticos. *
15. Cuts and abrasions on diabetics heal more slowly *
16. Los diabeticos deberian poner cuidado extra al cortarse las uñas de los dedos de los pies. *
16. Diabetics should take extra care when cutting their toenails. *
17. Una persona con diabetes deberia limpiar una cortadura primero yodo y alcohol. *
17. A person with diabetes should cleanse a cut with iodine and alcohol. *
18. La manera en que preparo mi comida es igual de importante que las comidas que como. *
18. The way I prepare my food is as important as the foods I eat. *
19. La diabetes puede danar mis rinones. *
19. Diabetes can damage my kidneys. *
20. La diabetes puede causar que no sienta en mis manos, dedos y pies. *
20. Diabetes can cause loss of feeling in my hands, fingers, and feet. *
21. El temblar y sudar son senales de azucar alta en la sangre. *
21. Shaking and sweating are signs of high *



blood sugar.

22. El orinar seguido y la sed son senales *
de azucar baja en la sangre.
22. Frequent urination and thirst are signs *
of low blood sugar.
23. Los calcetines y las medias elasticas *
apretadas no son malos para los
diabeticos.
23. Tight elastic hose or socks are not bad *
for diabetics.
24. Una dicta diabetica consiste *
- principalmente de comidas especiales.
24. A diabetic diet consists mostly of *
- special foods.

Includes the DKQ-24 and correct responses.

(*.)=correct answer.



TABLE 2: Evaluation Data Collection Overview

Indicators/Variables	Source	Collection Overview		
		Staff	Time Period	Methods
<i>Formative Evaluation</i>				
Community Member Attendance	Attendance Sheet	Project director, Health education specialists	January 2021	Program director will ask community members to sign in
Attitudes towards program curriculum/activities	Answers to pre-implementation surveys	Project director, Health education specialists	January 2021	Fill out pre-intervention survey
Barriers to the program	Answers to interview questions	Project director, Health education specialists	January 2021	Qualitative data analyzed by staff
<i>Process Evaluation</i>				
Participant Attendance at Sessions	Attendance Sheet	Health Educators	August 2021-October 2021	Staff personally roll call, coordinator tracking online participation
Participant comprehension of the curriculum	Post-quizzes at the end of sessions	Assistant Health Educator, Data analyst	August 2021-October 2021	Quizzes will be passed out on paper at the end of each session and answers will be entered into database
Participant satisfaction	Qualitative interviews	Project director	September 2021	In person interviews



Curriculum delivery	Adherence to Curriculum	Health Educators Project director	August 2021- October 2021	Health educators report their progress of curriculum after each session Program director will sit in on a session and record the curriculum delivered
Time spent on duties by program staff	Staff timesheets and staff meetings	All staff	Continually between January 2021 and December 2022	Use of staff timesheets, personnel reports, and data collection points
<i>Impact Evaluation</i>				
Knowledge of Diabetes	Pre- and post-score on the Diabetes Knowledge Test	Health Education Specialists, Project Director, and Data Analyst	August 2021- November 2022	Health Educators will pass out printed DKQ-24 at sessions 1 and 11 and enter results into excel sheet
Ability to substitute nutritious ingredients in traditional meals	Photo of healthy alternative meal	Health Education Specialists	September 2021	Picture of healthy alternative to a traditional meal the participants cooked in the last week
Ability to check blood-glucose	Participants physically check their own blood glucose	Health Education Specialists, Medical Staff	September 2021 (Session 9)	Participants will check their blood glucose in front of a staff member before leaving the session
Ability to administer medication	Participants administer saline	Health Education Specialists,	September 2021 (Session 10)	Participants will administer a syringe of saline



	medication to themselves	Medical Staff		in front of a staff member before leaving the session
Increased self-efficacy, perceived susceptibility, severity, benefits, costs, and decreased perceived barriers towards diabetes-self management behaviors	Pre- and post-HBM questionnaire	Project Director, Health Education Specialists and Data Analyst	August 2021 and November 2021	Self-report HMB questionnaire answers given by Health Educator Specialists during sessions 1 and 12
Outcome Evaluation				
Diabetes health status	Pre- and post-levels of HbA1c, blood pressure, and BMI	Project Director, Health Education Specialists, Medical Staff and Data analyst	August 2021, November 2021, and May 2022	Participant's diabetes-health indicators will be measured
Engagement of diabetes self-care activities regularly	Pre- and post-score on the Summary of Diabetes Self-Care Activities Survey (SDSCA)	Health Education Specialists, Data Analyst	August 2021, November 2021, and May 2022	Participants will take the SCSDA on paper at sessions 1, 11, and 12 and entered in to the database
Diabetes-Related quality of Life	Pre- and post-scores of the Diabetes-Related Quality of Life survey (DQOL)	Health Education Specialists, Data Analyst	August 2021, November 2021, and May 2022	Participants will take the DQOL on paper at sessions 1, 11, and 12, and health educators will enter answers into the database



MARKETING PLAN

Overview

The Pinewoods Community Diabetes Program will recruit its participants through the collaboration of the Project Director, the Health Education Specialists, and Sister Uyen Chi of Oasis Católico tutoring. The primary goal of the marketing plan is to recruit 20-30 Hispanic immigrants adults ages 18+ living with type 2 diabetes that live in or near Pinewoods Community Trailer homes.

Pinewoods community is a neighborhood of mobile homes located at 2060 Epps Bridge Pkwy, Athens, GA 30606. Although many of the residents are undocumented immigrants, Sister Uyen Chi (a Catholic nun, director of Oasis Católico tutoring, and Pinewoods resident) estimates that about 700-800 low-income Hispanic immigrants reside in Pinewoods at a given time (September 2020 estimate). The staff will travel to Pinewoods Community to complete all of the marketing, such as announcements at Oasis, flyers, door-to-door recruitment, and email to recruit residents living with type 2 diabetes.

Participant Inclusion Criteria	Participant Exclusion Criteria
<ul style="list-style-type: none"> Hispanic 	<ul style="list-style-type: none"> Those who plan to move out of Pinewoods Community before December 2022
<ul style="list-style-type: none"> Type 2 diabetic 	<ul style="list-style-type: none"> Wheelchair-bound individuals
<ul style="list-style-type: none"> 18+ years old 	

Population reach

Announcements at Oasis

Oasis Católico tutoring operates weekdays from 3-5pm, and tutors approximately 100 elementary-aged children living in Pinewoods each semester. In March of 2021, the project director will attend the Oasis tutoring pick-up once a week and make an announcement to the parents in Spanish regarding the program. The project director will pass out a flyer explaining what the program will do, the timeline, the benefits, a phone number to call for more information, and a link to the google form to sign up for the screening. Participants will be incentivized with \$20 at the first session and \$20 at the last session.

Flyers

The project director and health education specialists will create a flyer advertising the Pinewoods Diabetes Management Program. This flyer will include statistics of diabetes disproportionately affecting Hispanic Americans, the \$40 incentive, the free screening, equipment, and classes, the dates of the program, and how to register. These flyers will be posted around the neighborhood and replaced every two weeks with different, eye-catching designs to increase interest.

Door-to-door recruitment

The health education staff and project director will visit Pinewoods twice a month July and August and go door-to-door to discuss the program with residents. They will pass out flyers and encourage



residents to join by discussing shocking disparity statistics and explaining how the program will benefit them or their loved ones.

Email

Sister Uyen Chi uses an email list-serve to contact the parents of Oasis students, and she has agreed to send an email blast for this program to recruit members. The project director will send Sister Uyen Chi an recruitment email each month from March 2021-September 2021. This announcement will be attached in Oasis's monthly email to encourage residents to join.

Population Retention

It is important for participants to complete the entire program to get reliable data, so measures must be taken to ensure participants do not stop attending sessions half-way through. To achieve this, the health education specialists will use the attendance sheet to identify any absent participants. The health education specialists will call the participants and encourage them to attend the next session, highlighting why this particular session is important for them to attend. Also, the individual will be reminded that they can only receive the last \$20 if they attend 11 of the 12 sessions. The health educator will ask why the participant missed to identify the barriers for future programs. If a participant is absent for 2+ sessions, the individual will be cut from the sample size and their data will not be used in analysis.

To maintain retention into the 6-month follow-up, the health educators and project director will call each participant to remind them to attend. Follow-up sessions will be held on 3 separate days to account for different schedules. If a participant still does not show up to the follow-up, the health education specialists will call and schedule an appointment for a home visit if necessary. The additional \$20 will be given at this session.

Considerations

Documentation and Healthcare

The program participants may be undocumented immigrants which could make them hesitant to join the program because of fear of being reported to the police. To account for this, we will market the program as completely separate from any governmental agency and have them sign a confidentiality agreement stating that this data cannot be used against them in a legal situation. We will communicate the fact that the report will not have any real names or personal information, and their identities will remain anonymous to anyone outside of the program.



BUDGET JUSTIFICATION

UNIVERSITY OF GEORGIA

PERSONNEL

Health Education Specialist: Primary Educator – 4.6 Calendar Months (38% effort) in Years 1-2

The Primary Health Educator should have a degree in Health Education be fluent in English and Spanish and should have experience in Diabetes-Related knowledge. They should be comfortable speaking in front of crowds and be able to communicate health-related knowledge through PowerPoint presentations, fact sheets, and activities. They must cater the education material to the level of understanding for each participant and be aware of their culture.

The Primary Health Educator will carry out the following duties on the proposed projects:

- Year 1: The Primary Health Educator will work with the program director to recruit participants. They will attend a training session to review diabetes-related information, how to interact with Pinewoods residents and cultural considerations. They will then work with her assistant to create educational PowerPoint presentations in Spanish for the topics covered in each session from reputable sources. They will administer the Diabetes-Knowledge Test (DKT), Diabetes Quality of Life Survey (DQLS), and Health Belief Model Questionnaire (HBMQ) at the baseline assessment. They will deliver the presentation in the Pinewoods community Oasis tutoring trailer for the allowed presentation time and run any post-presentation activities. They will administer the post-quiz surveys in the indicated sessions and enter the responses into the database prior to the next session. They will answer any questions the participants may have regarding the information covered in each session.
- Year 2: The Health Educator will attend each follow-up session and administer the DKT, DQLS, HBMQ surveys. They will enter the data into the database for the data analyst to use. They will talk to the participants and determine how well they have retained the knowledge and how much they have implemented it into their lives. They will perform follow-up calls to each participant to encourage them to attend the follow-up sessions.

Health Education Specialist: Assistant Educator – 4.2 Calendar Months (35% effort) in Years 1-2

The Assistant Health Educator should have a degree in health education be bilingual (Spanish and English) and have experience in educating low SES individuals. The Assistant Health Educator will carry out the following duties on the proposed projects:



- Year 1: The Assistant Health Educator will assist the other health educator and program director recruit participants. They will attend the training sessions with the Primary Health Educator before the program. They will meet with community members to get specific cultural characteristics of Pinewoods and adjust the curriculum accordingly. They will create the referral handout to give at-risk patients at the baseline screening. They will be responsible for assisting the participants during the PowerPoint presentations with any questions or concerns. They will prepare any activities while the Primary Health Educator presents, and will pass out the post-quiz surveys at the end of the sessions. They will also create the summary documents, fact sheets, and handouts given at the end of each session. They will prepare and print any take-home materials including assembling the self-monitoring kits after sessions 9 and 10.
- Year 2: The Assistant Health Educator will attend each follow-up session to help administer the post surveys. She will help enter the data into a database and act as a resource for participants to discuss their progress with since the program.

Physician – 0.2 Calendar Months (2% effort) in Years 1-2

The Physician must be a board certified Physician who is bilingual in English and Spanish and carry out the following duties on the proposed projects:

- Year 1: The Physician will attend a training session prior to the program start to become familiar with the location, equipment, and cultural differences in Pinewoods community. They will run the baseline screening in session 1 and collect the patient's HbA1c, blood pressure, weight, and height and oversee the Medical Assistant performing the same tasks. They will communicate medical advice to those at risk and provide a referral to people with abnormal readings. They will review the presentations for checking blood sugar and administering insulin prior to delivery, and will attend those sessions to oversee the medical advice.
- Year 2: The Physician will attend the post-assessment and 6-month follow-up to take the HbA1c, blood pressure, height, and weight on all participants and record the data.

Medical Assistant- 0.2 Calendar Months (2% effort) in Years 1-2

The Medical Assistant must be bilingual and carry out the following duties on the proposed projects:

- Year 1: The Medical Assistant will work under the supervision of the Physician to perform all the baseline assessments and assist during sessions 9 and 10. They will attend the training sessions before to become familiar with diabetes-related indicators and the culture of Pinewoods.



- Year 2: The Medical Assistant will attend the post-assessment and 6-month follow-up to record the HbA1c, blood pressure, height, and weight on all participants.

Data Analyst- 1.2 Calendar Months (10% effort) in Year 1-2

The Data Analyst will carry out the following duties on the proposed projects:

- Year 1: The Data Analyst will collaborate with the Health Education Specialists to determine appropriate post-quiz questions for each session. They will create a database for the Health Education Specialists to enter data each week and communicate any improvements from week to week.
- Year 2: After the program, they will compile the data from each pre and post survey and determine the trends among the data. They will create figures and charts to communicate the data in an academic setting.
-

MPH Project Director- 1.2 Calendar Months (10% effort) in Year 1-2

The Project Director must be bilingual, have a master's degree in Public Health, and have past experience with working with Hispanic immigrant communities. The Project Director will carry out the following duties on the proposed projects:

- Year 1: The project director will locate and hire each staff member and create training modules for the Health Educator training and medical staff training. They will coordinate with community members to hold a preliminary community meeting to determine the class schedule, community priorities, and how to cater the material to their education level. They will attend the baseline assessments to oversee other staff members. They will talk with each staff member regularly to keep progress on the project.
- Year 2: The project director will work with the data analyst to determine changes that occurred within the program. They will attend the post-test and 6-month follow up to get qualitative data by talking to the participants. They will create the final report and be responsible for the dissemination of results.

EQUIPMENT AND SUPPLIES

Blood Glucose Monitors (\$1,350 Year 1)

- We request funds to purchase 30 blood glucometers (\$45 per glucometer) in Year 1. These glucometers will be used to demonstrate how to measure their blood glucose in session 9 and allow each participant to bring it home to effectively check their own blood sugar daily.



Hemoglobin A1C Machine (HbA1c) (\$500 Year 1)

- We request funds to purchase one HbA1c to use at the baseline, post-intervention and follow-up sessions. This will be used to measure the HbA1c of the participants at the beginning of the program to determine the disease management for the diabetics and to diagnose/refer community members with elevated levels. HbA1c is a reliable predictor of blood glucose over the past 3 months and is therefore a good indicator of diabetes progression (CDC).

Projector (\$80 Year 1)

- We request funds to purchase one projector to display the educational PowerPoints on the white boards at Oasis for the weekly sessions during the program.

Laptop (\$400 Year 1)

- We request funds to purchase one laptop for the Health Educators to create the presentations and project them each week at the sessions. This laptop will be used to enter all the data from the surveys, post quizzes, and medical measurements into the database for analysis. The laptop will only be used for this program and this program only.

Blood Glucose Test Strips (\$140 per year, Year 1-2)

- We request funds to purchase two 100 count packs of Blood Glucose test strips to give to the participants after session 9 and at the 6-month follow up. Each participant (up to 30) will receive 5-10 test strips to practice taking their blood glucose on and take the remainder home during session 9. At the 6-month follow up, the remaining 200 strips will be donated to the participants to encourage daily blood sugar monitoring.

Lancets (\$30 per year, Years 1-2)

- We request the funds to purchase two 100 count packs of lancets per year for the participants to use during session 9 and at the 6-month follow up to practice taking their own blood glucose. Any extra lancets will be split among the participants for them to bring home to take their own blood sugar daily.

Syringes (\$75 per year, Years 1-2)

- We request the funds to purchase two 90 count packs of syringes per year for the participants to use during session 10 to practice injecting medication with a practice saline solution. The excess syringes will be donated to diabetic participants to use with their insulin to encourage proper medication management.



Alcohol Wipes, Gloves, and Band Aids (\$35 per year, Years 1-2)

- We request the funds to purchase a 200 count of alcohol wipes, gloves, and band aids each year for the baseline screenings, sessions 9 and 10, the post assessment, and the 6-month follow-up screenings.

Automatic Blood Pressure Cuff (\$30 Year 1)

- We request the funds to purchase an automatic blood pressure cuff to use for the baseline, post assessment, and 6-month follow up assessment.

Scale (\$25 Year 1)

- We request the funds to purchase a scale to gather the weight on the participants for the baseline, post assessment, and 6-month follow up assessment.

Packaged Food (\$100 per year, Years 1-2)

- We request the funds to purchase various packaged foods with food labels to use as a demonstration activity in session 6 to simulate shopping at a grocery store. We will ask the participants to choose the healthiest food options based on the nutrition label and allow them to take those home.

Printing (\$1,000 Years 1-2)

- We request the funds to purchase \$500 worth of printing each year to produce the pre and post surveys, post quizzes, handouts, CDC cookbook, and marketing material.

OTHER EXPENSES**Participant Compensation** (\$1200 Year 1-1)

- We request the funds to pay an the participants a compensation fee of \$20 at the baseline assessment and \$20 at the 6 month follow-up to incentivize enrollment in the program.

Community Meetings (\$100 Year 1-2)

- We request the funds to purchase a meal for the five community members that attend the community meeting, along with drinks and a dessert.

Marketing (\$350 Year 1-2)

- We request the funds to create flyers for recruitment, follow-up and community dissemination.



Oasis Compensation (\$900 Year 1-2)

- We request the funds to donate \$900 to the Sisters of Oasis Catolico Rafaela that allow the program to take place in one of their trailers. These trailers are run and operated by Nuns and do not charge anything for rent, but as gratitude to the Nuns for their partnership, we will donate \$400 the first year and \$500 the second.

Total personnel costs are \$72,292 in year 1 and \$74,461 in year 2 and include annual fringe benefit rates of 42% for personnel making \$50,000 or more, and 50% for personnel making under \$49,999 (the University negotiated benefit rate for TIAA-CREF). Year 2 includes annual salary increase of 3%.

Indirect costs are \$23,006 in year 1 and \$22,896 in year 2 at the negotiated Facilities and Administration rate of 30% for UGA Cooperative Extension locations.

Personnel	Salary		% effort	Calendar Months	Year 1	Year 2	Total
Health Education Specialist: Primary Educator	\$44,000		38%	4.6	16,720	17,222	33,942
	benefits @	50%			8,360	8,611	16,971
Health Education Specialist: Assistant Educator	\$43,000		35%	4.2	15,050	15,502	30,552
	benefits @	50%			7,525	7,751	15,276
Physician	\$150,000		2%	0.2	3,000	3,090	6,090
	benefits @	42%			1,260	1,298	2,558
Medical Assistant	\$30,000		2%	0.2	600	618	1,218
	benefits @	42%			252	260	512
Data Analyst	\$55,000		15%	1.8	8,250	8,498	16,748
	benefits @	42%			3,465	3,569	7,034
MPH Project Director	\$55,000		10%	1.2	5,500	5,665	11,165
	benefits @	42%			2,310	2,379	4,689
Total Personnel					72,292	74,461	146,753
Equipment					\$2,330	-	2,330
Blood Glucose monitors x 30					\$1,350		
HbA1c Machine					\$500		
Projector					\$80		
Laptop					\$400		
Travel					-	-	-
Foreign							
Domestic							
Supplies					\$965	410	\$1,815
Blood Glucose test strips (100 count) x 4					\$140	\$140	\$280
Lancets (100 count) x 4					\$60	\$60	\$60
Syringes (90 count) x 4					\$75	\$75	\$150
Alcohol Wipes, gloves, bandages					\$35	\$35	\$70
Automatic Blood Pressure Cuff					\$30		\$30
Scale					\$25		\$25
Packaged Food					\$100	\$100	\$200
Printing					\$500	\$500	\$1,000
Other Expenses					1,100	1,450	2,700
Participant Compensation					\$600	600	\$1,200
Community Meetings (snacks)					\$50	\$50	\$100
Marketing					\$50	\$300	\$500
Oasis Compensation					\$400	\$500	\$900
Total Direct Costs					76,687	76,321	153,598
	Indirect Costs @	30%			23,006	22,896	46,079
Total Costs					99,693	99,217	199,677

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