

**An evaluation of the Diabetes Education Program at St. John's Well Child and Family Center servicing
the Hispanic population within South Los Angeles: Summer 2013**

Marcqwon Day

**GE National Medical Fellowship
Primary Care Leadership Program**

Introduction

St. John's Well Child & Family Center

St. John's Well Child and Family Center (SJWCFC) is an independent community health center. SJWCFC serves patients of all ages through a network of Federally-Qualified Health Centers and school-based clinics that span the breadth of Central and South Los Angeles and Compton. St. John's has a total of 10 different locations that are broken down into five regular clinics and unified school-based clinics based in Los Angeles and Compton. St. John's work embraces the broader concept of well-being. In addition to providing a broad array of primary care services, they place a high priority on developing supportive services to address families' educational, socio-economic, and mental health needs.

The breakdown of St. John's current patient population ethnicity is 74% Latino, 17% African American, 5% White, 3% other, and 1% Asian. It offers services such as outreach, health education, child development and literacy education, case management, insurance enrollment, and mental health assessments. St. John's strives to deliver a wide range of services that are responsive to community needs within LAC.

According to Los Angeles County Department of Public Health, the overweight and obesity rates in LAC exceeds the national percentage averages for children in grades 5, 7, & 9 and adults. This is also true for the rate of adults ever diagnosed with diabetes and diabetes-related deaths. This trend continues for cardiovascular disease in the categories of adults ever diagnosed with hypertension, adults ever diagnosed with a heart problem, and the coronary heart disease rate. LAC exceeds the national average in both uninsured for ages 18-64 and both adults and children age 0-17 years with no regular source of health care. LAC also exceeds the percentage of adults who binge drink, but is below the national average of adults who consume five or more servings of fruits and vegetables a day.

St. John's mission is to eliminate health disparities and foster community well-being by providing and promoting the highest quality care in South Los Angeles. Moreover, the territories they service, which includes South LAC, present with much more distressing/adverse statistics than its surrounding neighbors within LAC, with poorer health outcomes related to diabetes, cardiovascular disease, and overweight/obesity. The statistics

suggest that the health behaviors of South LAC residents are less than optimal, which is coupled with much less access to care than its surrounding neighbors.

St. John's Well Child and Family Center's vision is to be a leader, catalyst, and model for the best care; long-term community health improvements; and sustainable, health-enhancing systems and structures in Los Angeles in the battle to reverse these harsh statistics. St. John's offers a myriad of services, including medical services, dental services, children's services, teen health, women's health, mental health, podiatry, HIV/AIDS, pharmacy services, disability and senior services. The medical services range from routine preventive care to management of chronic diseases such as diabetes and high blood pressure. These services include comprehensive primary medical care for all life stages, screening for chronic medical conditions (asthma, diabetes, high blood pressure), weekly fitness and lifestyle management classes, comprehensive diabetes, asthma, and high blood pressure care. Specialized teams work with individuals with complex or severe diseases. They provide physical exams and routine screenings for disease indicators and for all life cycles and medical care for diabetics, including nutrition and fitness, retinopathy screenings (diabetic eye testing), cancer screening and diagnostic and laboratory procedures.

St. John's also offers a variety of programs, including case management, health education, school readiness, early childhood, environmental health, and Right to Health Committee. The health education programs provide educational presentations on various health topics to individuals, community organizations, faith-based organizations and schools in the Los Angeles area. Presentations are conducted to increase awareness and knowledge of health conditions, provide information to support healthy lifestyles and increase knowledge of services available at its network of clinics. St. John's uses health education to enhance patient care, providing group and one-on-one education regarding nutrition, disease management, reproductive health, family planning, prenatal care, child safety, pediatric literacy, and dental health.

Diabetes Education Program

The study, "Health education intervention on diabetes in Sikkimhe," concluded that there is a need to provide better health information to the patients through large scale awareness interventions regarding diabetes (Pal, Pal, Barua, & Ghosh, 2010). The American Association of Diabetes Educators (AADE) has shown that

measurable behavior change should be the desired outcome of diabetes education as educating the patient is one of the most effective ways to manage such chronic diseases as type II diabetes. The type II diabetic patient must then apply the knowledge gained about their illness by modifying health behavior/engaging in a healthier lifestyle through appropriate self-management.

The Center for Disease Control and Prevention (CDC) defines pre-diabetes as blood glucose levels that are higher than normal, but not at the diabetic level. Its research shows that individuals with pre-diabetes can greatly reduce the chance they will develop type II diabetes through appropriate lifestyle changes. The Diabetes Education Program at St. John's works to educate individuals about the disease process with the goal of helping them implement lifestyle changes with one of the desired outcomes of aiding in breaking the cycle or preventing the onset of diabetes type II in the individual as well as in successive generations.

According to the Los Angeles County Department of Community Health, diabetes was the number six (6) and seven (7) leading cause of death and premature death in LA County in the year 2005 with coronary heart disease being number one (1) in both categories. Poor diabetes management can also lead to coronary heart disease, which may increase these numbers even more.

The Diabetes Education Program is a health education program that has been implemented to combat these adverse outcomes in the patients that St. John's service within LAC. The Diabetes Education Program (DEP) is held on Wednesdays, Thursdays, and Fridays of every week at different locations. On Wednesdays, the program is housed at their Williams location; Thursdays, at their Magolia location and, on Fridays, their Compton location. The DEP offers weekly blood pressure readings, blood glucose checks, nutrition lectures, 30 minutes of exercise, and a healthy snack for its participants. The program also offers hemoglobin A1C (HA1C) and lipid panel checks every two-three months to track the progress of their patients' long-term diabetes management.

This program was founded and formerly overseen by Dr. Louis Frayser, M.D., who provided lectures pertaining to diabetes education in addition to individual consultation to patients concerning their HA1C levels and their personalized management plans. He also served as a stress manager listening and providing advice to

the patients as they would share stories of hardship with him. The program is now managed by Mrs. Ivy Marx, R.D., and Mrs. Maria Naranjo, diabetes outreach specialist.

Materials and Methods: Needs Assessment

A mixed needs assessment was conducted that consisted of windshield surveys, key informant interviews, and focus groups. Windshield surveys were conducted at two sites where the DEP takes place -- the Compton and Williams locations. Key informant surveys were conducted with Dr. Farid Hassanpour, CMO, Dr. Frayser, Mrs. Marx, and Mrs. Narnez. Focus groups were also conducted with the patients at the Williams and Magnolia sites.

Windshield Survey

The windshield survey was accomplished by dividing the communities of Magnolia and Williams site into four quadrants through which I traveled on foot to take notes and capture images during the week of 6/10/2013. This survey remained constant throughout the entirety of the assessment. While walking around the community, I was able to observe many individuals, the physical environment, and community resources. The data obtained were hand-recorded notes as well as photographs.

Key Informant Interviews

A group of four St. John's providers were selected for the key informant interviews (Table 1); three were Hispanic and one, African American. All participants were adults who worked closely with the Diabetes Education Program (DEP). They were interviewed at the Williams location by me and were asked a predetermined set of questions (Appendix) regarding the state of the DEP between 6/3/2013 and 6/14/2013.

Table 1 provides some snapshot data on the key informants and Table 2 summarizes their responses.

	<i>Race</i>	<i>Location</i>	<i>Interview Date</i>
Chief Medical Officer	Hispanic	St. John's	06/13/2013
Pediatrician	African American	St. John's	07/03/2013
Registered Dietician	Hispanic	St. John's	06/05/13
Diabetes Outreach Specialist	Hispanic	St. John's	06/05/13

Table 2. Key Informant Remarks

<i>Major Findings</i>	
Changes in community affecting patients	<ul style="list-style-type: none">- Fast food restaurants accepting EBT- Retirement of Dr. Frayser- Loss of jobs- Homeless
Strengths of Diabetes Education Program	<ul style="list-style-type: none">- Patients have stable HA1C levels- Provides exercise, nutrition lectures, BP & BG checks- 2-3 month HA1C and lipid panels blood drawings- Provides nutritious snack
Biggest needs of Diabetes Education Program	<ul style="list-style-type: none">- More space for both Magnolia and Compton sites- Replacement for Dr. Frayser’s lecture and consultation- Implementation of stress management- Provide daily exercise- Hire more people
Concerns for future	<ul style="list-style-type: none">- Growing diabetic population- Need to expand Diabetes Education Program

Focus Groups

Using both the information from the windshield surveys and key informant interviews, I identified the target population to be interviewed via focus groups. Focus group participants were contacted through the registered dietician and diabetes outreach specialist. The composition of the two focus groups is shown Table 3. As shown in Table 4, there were the emerging themes from the focus groups.

Table 3. Focus Group Demographics

<i>Focus Group</i>	<i>#/Gender</i>	<i>Race</i>	<i>Age</i>	<i>Date</i>
Williams Patients	3M/5F	Hispanic	35-55	6/19/13
Compton Patients	2M/3F	Hispanic	35-55	6/21/13

Table 4. Focus Group Themes

<i>Major Findings</i>	
Socioeconomic Issues	<ul style="list-style-type: none">- Family not considerate of diet restrictions for patients- Not enough time to eat right or exercise due to job-
Strengths of Diabetes Education Program	<ul style="list-style-type: none">- Patients support each other- Learning how to best manage their diabetes- Lectures and exercise- Good to talk to others about their condition
Greatest needs of Diabetes Education Program	<ul style="list-style-type: none">- Needs a motivational person- Need physician for explanations- More space to exercise at Compton- Begin recording weight weekly again (good motivation)- Better patient noise control during lectures- More organization

Methods and Materials: Interventions

After conducting the program needs assessment, I devised and suggested several interventions for the providers that addressed the needs of the patients, which included: 1) providing diabetes group lectures to the patients in the DEP; 2) developing graphs and utilizing them to show patient health trends; 3) providing individual consultations with patients; 4) helping the informaticist establish and provide data for the education tab within Centricity. (I also worked with Laurie -- the informaticist -- to pool all the patients within the DEB program together to formulate population data that could be analyzed as a group.); 5) developing a DVD that captured components of the DEP; and 6) arranging was for a personal trainer and life coach, to provide regular stress management and exercise for the patients within the DEP.

Diabetic Lecture Interventions

The diabetic lecture interventions were conducted for all patients within the Diabetes Education Program at all three locations and were assessed through pre- and post-test. A supporting study was found in which a registered dietician taught healthy eating habits to mothers and their children, and showed improved nutritional knowledge through pre- and post-tests (Yousey, Leake, Wdowki, & Janken, 2007). Through the needs assessment conducted, I learned that the retirement of Dr. Frayser has left a void in that the patients no longer have a person with a medical background to deliver lectures surrounding diabetes. Given the resources available to St. John's, an effective way to provide reliable information to those in the DEP was to conduct the lecture series that was missed by the patients. Table 5 displays the seminar topic, instructor, date, location, and number of participants for each seminar and Table 6 provides the SMART (specific, measurable, achievable, realistic, time-scaled) objectives.

Table 5. Components of the Diabetic Seminal Lecture Series

<i>Seminar Topic</i>	<i>Instructor</i>	<i>Date</i>	<i>Location</i>	<i>Number of Participants</i>
Diabetes Overview	Marcqwon Day	6/14/13	Compton	27
Diabetes Overview	Marcqwon Day	6/19/13	Williams	19
Stress & Diabetes	Macqwon Day	6/27/13	Williams	21
Stress & Diabetes	Marcqwon Day	6/28/13	Magnolia	12
Stress & Diabetes	Marcqwon Day	6/29/13	Compton	31

Table 6. Diabetes Education Program Seminars SMART Objectives

	<u>SMART Objectives</u>
Overall	<ol style="list-style-type: none">1. By the start of the session, a minimum of 20 patients from the Diabetes Education Program will complete both the pre and posttest.2. By the end of the session, 60% of participants to have scored 70% or higher on the post exam.3. By the end of the session, 25% of the participants to attend both lecture series.4. By the end of the session, a +20% average change from pre to posttest.
Diabetes Overview	<ol style="list-style-type: none">1. By the end of the session, 60% of the participants will be able to identify the difference between Type I and II diabetes.2. By the end of the session, 60% of the participants will be able to identify the symptoms of diabetes.3. By the end of the session, 60% of the participants will be able to identify the symptoms normal fasting and non-fasting blood glucose levels for diabetic patients.4. By the end of the session, 60% of the participants will be able to identify the difference between blood sugar checks and HA1C.5. By the end of the session, 60% of the participants will be able to describe the importance of exercise and healthy eating habits as it pertains to their diabetes management.
Stress & Diabetes	<ol style="list-style-type: none">1. By the end of the Stress & Diabetes session, 70% of participants will be able to explain the negative effects stress can have on their diabetes management.2. By the end of the nutrition session, 70% of participants will be able to describe the importance of negative thinking can affect their stress levels.3. By the end of the nutrition session, 70% of participants will be able to describe the importance of cortisol and the role it plays in the human body.4. By the end of the nutrition session, 70% of participants will be able to describe positive ways to control their stress levels.5. By the end of the nutrition session, 70% of participants will be able to list at least three effects of their sympathetic nervous system can have on their bodies.

Diabetes Overview. I led an educational/informational session on how to better manage the diabetes. I adopted material from an already established PowerPoint presentation, “Diet and Diabetes,” developed by the University of Missouri. The seminar started with the disease process of diabetes and the differences between Types I and II diabetes, which was followed by the complications that may arise from poorly managed diabetes and the parts of the anatomy involved with the process of diabetes. I created a pre- and post-test from an already-established quiz from Januvia.

Stress & Diabetes. I again led an informative session on how to better manage stress levels and how stress can adversely affect diabetic patients. I adopted material from a *Medical News Today* article “What is Stress? How to Deal with Stress” in developing a PowerPoint for presentation to the group. The seminar began with establishing the definition of stress and what determines whether events are considered to be stressful or not. The next component consisted of how stress can further exacerbate the complications associated with diabetes. The last component focused on the anatomy involved in the release of cortisol. I created a pre- and post-test for the lecture.

Graph Implementation

The graph interventions were created for all patients within the Diabetes Education Program at all three locations. Through my needs assessment conducted from an interview with Mrs. Marx, I learned that the patients needed to see something visual to better track their diabetes management in the forms of a graph. I used Centricity, the online patient chart database, to create three different graphs to show trends of improvement or regression in values pertinent to assess their diabetes management. One graph consisted of BMI and HA1C levels. Another graph indicated triacylglycerides, weight, and fasting blood glucose over time. The final graph represents patients' total cholesterol, LDL and HDL levels. These graphs reflected the patients' management over the course of years.

Individual Consultation

These individual interventions were conducted for all patients within the Diabetes Education Program at all three locations. Through my needs assessment, I learned that Dr. Frayer used to provide individual consultations and that his retirement left a void in this area. Given the resources available to St. John's, I determined that an effective way to address this need was for me to provide those consultations on an interim basis. In each consultation, I spoke with the patients about their personal management of diabetes. The visual aids I created show how they were trending with regard to their HA1C, BMI, total cholesterol, triacylglycerides, HDL LDL, levels and weight.

Education Tab Development

Centricity is St. John's online patient database that contains all pertinent information, including educational programming for patients. The educational tab, however, has not been utilized in measuring patient knowledge gained from lectures provided within the context of any of their educational programs, including the Diabetes Education Program. I worked very closely with the on-site informaticist in developing a measurable way in charting patients' knowledge acquisition through average percent change from pre- to post-test.

DVD

The DVD was created for the patients within the Diabetes Education Program and will also be extended to all diabetic patients at St. John's. Through the key informant interviews that I conducted with Dr. Hassanpour

, I learned that he would like to extend the benefits of the Diabetes Education Program to all diabetic patients at St. John's. In addition, with the health education and manpower void left by Dr. Frayser's retirement, a resource seemed the most effective way to address both these needs of extending the DEP to more patients while also filling the hole created by Dr. Frayser's departure.

Stress Management & Exercise Regimen Implementation

Both the DEP's staff and patients have expressed the need for a stress management and daily exercise component for the education program. I recruited a personal trainer/life coach to devise a program that addresses both these needs. He has agreed to implement this program over the course of next year. We will measure all patient parameters that are currently measured through the Diabetes Education Program for the patients within his program and compare their results to the patients who are not in the program.

Results

Windshield Survey Results

To evaluate the available resources surrounding the St. John's Well Child and Family Center for the locations that house the Diabetes Education Program, windshield surveys were conducted in the locations of Williams and Magnolia. The physical environment, psychological environment, social environment and lifestyle of the neighborhood are described below in Table 7.

<i>Table 7. Windshield Survey Results</i>	
<i>Category</i>	<i>Description</i>
<i><u>Physical Environment</u></i>	
Community Location	- Urban
Housing	- Some well-kept homes, but many boarded up homes
Businesses	- Many small community businesses
Day Care Facilities	- One facility near Magnolia location
Sewage and Waste Disposal	- Trash visible on street curbs
Hazards	- Not many crosswalks at Compton location
<i><u>Psychological Environment</u></i>	
Protective Services	- Ambulance and Police presences
<i><u>Social Environment</u></i>	
Race and Ethnicity	- Hispanic, Black/ African-American
Education	- Many schools in both Williams and Magnolia location
Transportation	- Metro bus station stops frequent
Social Services	- None found
<i><u>Lifestyle</u></i>	
Nutrition	- Several corner market stores - Major grocery stores present

	- Fast food restaurants accept EBT
Alcohol and Drug	- Many advertisements for alcohol and cigarettes
Exercise	- Very few places present, park near Magnolia location

Diabetes Education Lectures

I was able to record the pre- and post-tests of an average of 22 people during each session. In each lecture given, there was an increase in the score of the participants after each seminar. Of these recorded pre/post-test match, the majority of the patients attended each seminar, which provided a continuity of scores. I was able to reach the goal of at least 25% of the patients returning for the second session. The educational goal was not achieved as only one of the averages of each of the tests was above 70%. The average percentage change of +20% was met four of the five lectures given. The results are given below in Table 8. The results are also shown graphically in Figures 1 and 2.

Table 8. Diabetes Lectures

<u>Seminar</u>	<u>Location</u>	<u>Number of Participants</u>	<u>Pre-Test Average Percentage</u>	<u>Pre-Test Standard Deviation</u>	<u>Post-Test Average Percentage</u>	<u>Post-Test Standard Deviation</u>	<u>Average Percentage Change</u>
Diabetes Overview	Williams	19	58.9%	18.8	75.5%	11.5	+28.2%
Diabetes Overview	Compton	27	57.4%	20.5	69.1%	17.2	+20.4%
Stress & Diabetes	Williams	21	48.3%	17.9	54.1%	22.4	+12%
Stress & Diabetes	Compton	31	43.8%	17	63.2%	17.6	+44.3%
Stress & Diabetes	Magnolia	12	46.7%	15.6	66.7%	14.4	+42.8%

Figure 1 Diabetes Overview Pre/Posttest Averages

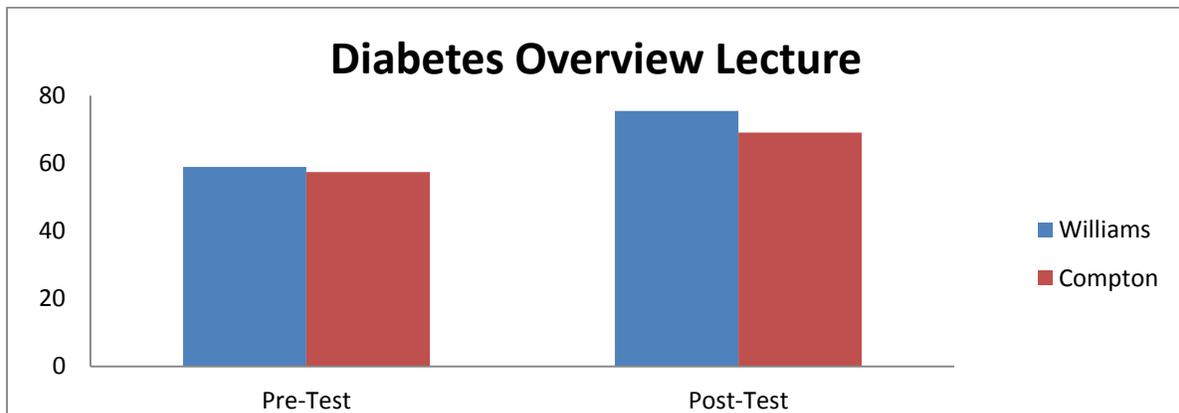
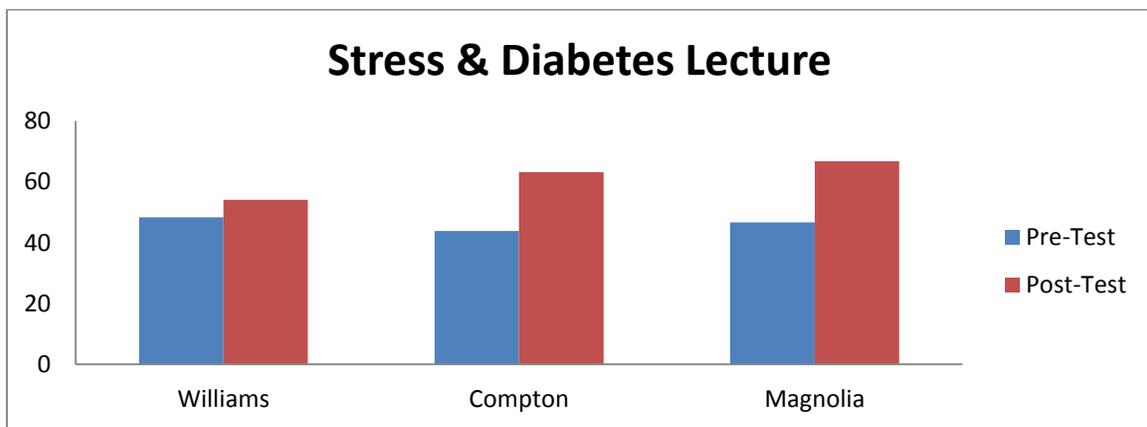


Figure 2 Stress & Diabetes Pre/Posttest Average



Discussion & Conclusions

According to the assessment, the Diabetes Education Program is well received by the patients and is effective in managing its patients' chronic disease. The patients understand the importance of each component of the program and how they all play a collective role in their diabetes management. The key findings of the needs assessment reveal that the population of diabetic patients in LAC outside the DEP needs similar intervention due to the nutritional, educational, and medical challenges faced by the communities served by St. John's. Improvements, however, also need to be made to the Diabetes Education Program as well ranging from stress management, regular exercise as a component, greater structure, physician replacement and space considerations. Additional manpower/staffing and space are core themes surrounding the DEP.

The first intervention consisted of ways to help improve the Diabetes Education Program. The implementation of the lecture series, the further development of the education tab within Centricity, creation of patient graphs, patient consultations, and securing the services of a personal trainer/life coach were all interventions to help better serve the patients within the Diabetes Education Program. The DVD intervention is unique in that it was designed to help serve additional patients; those not currently in the DEP by providing them with educational/informational materials to review and utilize. The DVD resource can also be utilized by the patients in the program until another physician can step in to fill the void left by the retirement of Dr. Frayser.

Diabetes Education Program Improvements

As stated throughout this report, the retirement of Dr. Frayser has left a huge void in the Diabetes Education Program -- lectures, medical consultations, and stress management. I gave two lectures; each was meant to address the patients understanding of their chronic disease. The area of focus of each seminar was as follows: Diabetes Overview and Stress & Diabetes. I administered a pre-test and a post-test. Overall, the goal of the intervention was to increase the knowledge of the diabetic patients in certain topics. After analyzing the results of each test, all averages increased from pre to post, which indicates that the program participants were taking in and processing the material presented. This also helps in understanding why the patients in the DEP have better management of their HA1C levels compared to those not in the DEP at St. John's.

The Diabetes Education Program, although very effective in helping their patients maintain stable HA1C levels, had no measurable way to document how much their patients were, indeed, learning from the lectures provided through the program. I worked with the informaticist in creating a measurable way of documenting the learning outcomes from the patients through using percent average increase from pre- to post-test for/of patients. This will now be recorded within Centricity. I also created graphs that show patient trends of HA1C, non-fasting blood glucose, LDL, HDL, total cholesterol, BMI and triacylglyceride levels over the course of years in the patients' diabetes management. This allowed them to see how they are trending in their management. Through the consultations, I was able to point out and explain those trends, in addition to their usual individual numbers, and discuss with them whether or not they were in a healthy range for particular values. Based on the feedback from the patients, this method of using graphs will be incorporated in future patient consultations as the program goes forward.

Diabetes Education Program Extension

The need to introduce new forms of regular exercise and stress management that will help the patients maintain and improve their health will be addressed through a partnership with a personal trainer/life coach and St. John's to promote better health in their patients. The trainer's program will add an hourly daily session of health management broken down into two 30 minute sessions. The session will be (life) coaching or stress management and the second will be exercise training. The progress of this component of the DEP will be

tracked. The same patient indicators that the program checks will continue to be done and these results will be compared to patients who are not participating in the stress management exercise component of the DEP. During my final week of July 8th, the trainer went to all three sites and introduced himself and his program to the patients at the Williams, Magnolia, and Compton locations.

The need to reach additional diabetic patients outside the education program will be addressed through the incorporation of a DVD. This disc will include lectures on diabetes, nutrition tips, the importance of an exercise routine, physician explanation of the common medications, blood glucose monitoring, problem-solving, and taking medication as prescribed. This disc will adopt the guidelines set forth by the American Association of Diabetes Educators using their AADE7 model. The seven self-care behaviors are healthy eating, being active, monitoring, taking medication, problem-solving, reducing risks and healthy coping.

Recommendations

After evaluating the success of the Diabetes Education Program, I recommend that similar programs centered on chronic disease management be developed. I also propose that these programs be opened up to not only the patients that have been diagnosed with disease, but also to those that are at risk for the disease. I believe that this would serve as a very effective way of helping to address this persistent and costly chronic disease in the communities of Southern Los Angeles that are leading its surrounding neighbors in deleterious health outcomes.

Limitations to Study

Translators were used in talking with Spanish-speaking patients. The pre and post-test did not easily translate over from English to Spanish, which may have affected patient responses when answering questions. Pre- and post-test questions were not validated.

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Appendix

Diabetes Overview Pre/Posttest

- 1) People with diabetes are at a greater risk of which complications?
 - a) Serious eye issues
 - b) Circulation problems
 - c) Gum Disease
 - d) Heart attack or Stroke
 - e) All of the above
- 2) Your doctor may tell you that to take care of your diabetes, you need to make some lifestyle changes. Which of these is a common recommendation?
 - a) Eat more pasta, rice, and bread
 - b) Choose more foods high in saturated fat
 - c) Become more physically active
 - d) Protect your immune system by reducing your activity
- 3) According to the American Diabetes Association, for most people with diabetes, what is a balanced blood sugar level when fasting?
 - a) Up to 100 mg/dL
 - b) Up to 130 mg/dL
 - c) Up to 180 mg/dL
 - d) Up to 200 mg/dL
- 4) What is A1C?
 - a) A blood test that shows your average blood sugar level over the past 2 to 3 months
 - b) A blood test performed daily by people with diabetes
 - c) A blood test that measures cholesterol
 - d) A urine test done to help diagnose diabetes
- 5) What is the difference between types 1 and 2 diabetes?
 - a) Type 1 diabetics produce more insulin than they should whereas Type 2 produces too little
 - b) Type 1 diabetics make insulin from their kidneys and Type 2 from their pancreas
 - c) Type 2 diabetics produce more insulin than they should whereas Type 1 produces too little
 - d) Type 2 diabetics make insulin from their kidneys and Type 1 from their pancreas
- 6) True or False: People with type 2 diabetes cannot eat foods that contain sugar.
 - a) True
 - b) False
- 7) Experts typically recommend being active for how much time each day?
 - a) 10 minutes
 - b) 30 minutes
 - c) 60 minutes
- 8) True or False: A good method for maintaining a healthy weight is to skip meals.
 - a) True
 - b) False
- 9) True or False: A type 1 diabetic could have prevented the onset of diabetes through exercise and healthy dieting.
 - a) True
 - b) False
- 10) True or False: A type 2 diabetic can eat whatever they like as long as they control their portion sizes.
 - a) True

b) False

Stress & Diabetes Pre/Posttest

1. What is stress?
 - a. Anything that poses a threat or challenge to us
 - b. Our thoughts about a given situation
 - c. Any emotion that arises from a given situation
 - d. None of the above are true
2. How does stress affect the body?
 - a. Increases blood sugar
 - b. Increases blood pressure
 - c. Increases heart rate
 - d. All of above are true
3. Which of the answer choices is considered to be the “stress hormone”?
 - a. Glucagon
 - b. Insulin
 - c. Cortisol
 - d. Estrogen
4. True or False: The single most important factor in managing stress is our thoughts surrounding life events.
 - a. True
 - b. False
5. True or False: The feeling of having skills and resources to handle a given situation determines if the event is stressful or not.
 - a. True
 - b. False
6. What organ is responsible for the all responses to a stressful situation?
 - a. Heart
 - b. Brain
 - c. Liver
 - d. Pancreas
7. Which nervous system is activated in a stressful situation?
 - a. Parasympathetic Nervous System
 - b. Sympathetic Nervous System
 - c. Central Nervous System
 - d. All of the above are true
8. What are the effects of TOO much cortisol?
 - a. Increased weight gain
 - b. Increased blood sugar
 - c. Cushing’s Syndrome
 - d. Greater diabetic complications
 - e. All of the above
9. True or False: Some situations that you consider to be NOT negative can be stressful.
 - a. True
 - b. False
10. Which below are consistent with the parasympathetic nervous system?
 - a. Excitement
 - b. Digestion
 - c. Exercise
 - d. Embarrassment