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Impact of Group Medical Visits for Adult Patients with Type 2 Diabetes Mellitus

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IMPACT OF GROUP MEDICAL VISITS FOR ADULT PATIENTS

WITH TYPE 2 DIABETES MELLITUS

By

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Abstract

Diabetes is a condition that is primarily self-managed and lifestyle modifications such as diet, exercise, and weight management are necessary to reduce morbidity and mortality. Motivation to implement lifestyle modifications through self management is an integral part of disease management and studies have shown group medical visits are more effective than individual appointments in this patient population.

The purpose of this project was to develop, implement and evaluate an evidence-based group medical visit program for up to a maximum of 8 adult patients with type 2 diabetes in a family practice setting for six months. Seven participants with abnormal A1C results accepted the invitation to attend group medical visits. Here surrounded by peers with the same diagnosis, they were able to learn and discuss methods to self manage their type 2 diabetes.

At the conclusion post survey results indicate positive change in some lifestyle behaviors and improvement with hemoglobin A1C. However there was no improvement in weight management. A cost analysis reveals group medical visits may generate a small profit when compared to individual visits. Group medical visits may offer an effective means to motivate patients to make lifestyle change to reduce risk.

Chapter One: Introduction

The number of patients diagnosed with diabetes is climbing at an alarming rate and is considered to be epidemic by some experts. The Centers for Disease Control (CDC, 2008) estimated the prevalence rate for diabetes in the United States at nearly 24 million or 8 percent of the population. This figure is up from the 2002 estimates of 18.1 million or 6.3% of the population. At first glance this increase may not seem so alarming but the overall incidence of type 2 diabetes tripled from 1980 to 2006 with greater than one third of the patients being 65 years or older (CDC, 2007a).

Type 2 diabetes accounts for 90 to 95 percent of all diabetes cases and approximately one-third of patients are unaware they even have the disease. The National Diabetes Information Clearinghouse (NDIC, 2005) estimates that approximately 54 million individuals have a pre-diabetic condition (impaired glucose tolerance or impaired fasting glucose) that if left untreated will likely develop into diabetes within 10 years.

Health care costs associated with diabetes are quite significant. Medical expenditures for diabetic patients are 2.3 times greater than non diabetics (American Diabetes Association [ADA], 2007). The ADA (2007) estimated expenditures of $174 billion in 2007, of which $116 billion was spent on direct medical care. Hospitalizations for diabetes related problems totaled 24.3 million days with $58.3 billion spent. Outpatient care rates were the highest for diabetic patients and totaled $9.9 billion. There were 15 million work absences and 120 million reduced performance workdays. Approximately 107 million work days lost due to disability attributed to diabetes related

complications with 445,000 cases of permanent disability, a 32% increase or $42 billion since 2002 (ADA, 2007).

Management of chronic conditions involves significant provider time with education and counseling as well as time for pharmacological management (De Vries, Darling-Fisher, Thompson, & Belanger-Shugart, 2008). Diabetes is a disease that is primarily self-managed. Generally, patients should be seen 3 to 4 times a year and the health care provider has limited time during traditional medical visits for patient education. Motivation to implement lifestyle modifications through self management education is an integral part of disease management to optimize glycemic control and minimize complications (ADA, 2009). Group medical visits are an alternative care delivery format that may improve outcomes in patients with chronic conditions (De Vries et al., 2008). Group medical visits are a combination of three types of visit: individual, education and support (Jaber, Braksmajer, & Trilling, 2005). Patients are given ample time and opportunity with the provider and are surrounded by peers who are coping with the same disease and many of the same issues. Listening to others who have the same disease and problems that are empathetic and supportive can be the best change agent (Powell, 2007).

 Purpose

The purpose of this project was to develop, implement and evaluate an evidence-based group medical visit program for up to a maximum of 8 adult patients with type 2 diabetes in a family practice office for six months. Specifically, outcomes related to behavior changes and clinical improvements were evaluated at baseline, 3 and 6 months

after participation in group medical visits. Additionally cost of providing group medical visits in private primary care practice was computed.

Definition of Terms

    Diabetes self-management. For the purposes of this project, diabetes self-management was defined as the cornerstone behaviors necessary for improved health outcomes (Funnell et al., 2009). Diabetes self-management outcomes were measured using five survey scales from the Stanford Patient Education Research Center (2008). Scales selected for this project were eating breakfast, glucose testing, exercise, self efficacy for diabetes, and communication with physicians.

    Behavior change. Behavior changes are based on the American Association of Diabetes Educators (AADE), outcomes standards (Tomky, Cypress, Dang, Maryniuk, & Peyrot, 2008). Behavior changes are the adoption of identified activities that will improve clinical outcomes and ultimately health status. Behavioral activities include exercise, healthy eating habits, monitoring of blood glucose, and problem-solving.

    Self efficacy. Self efficacy is an individual's belief in their capabilities to accomplish a specific task and affects their motivation to succeed (Bandura, 1994).

    Clinical improvement. Clinical improvement was measured by a decrease in glycated hemoglobin A1C, weight and body mass index (BMI).

    Time. The time of the proposed project was six months once participants were recruited and group medical visits began.

    Program cost. An analysis of program cost was calculated using the amount of time and resources for the group medical visit and compared to individual visits.

Patient satisfaction. Patient satisfaction was defined as the liking and approval participants have for their care provider. It was measured by the patient-provider relationship, specifically their confidence in communicating with the provider.

Chapter Two: Review of the Literature

This chapter will begin with an overview of Type 2 diabetes, its pathophysiology, complications, treatment and prognosis. This will be followed by a discussion of the concepts of group medical visits. The chapter will conclude with identification and evidence related to the use of group medical visits in diabetes management.

Diabetes

Diabetes is a complex, chronic metabolic disorder characterized by elevated blood glucose levels resulting from defects in insulin production or action (ADA, 2009; CDC, 2007b). There are three major classifications of diabetes, type 1 diabetes, type 2 diabetes, and gestational diabetes. The focus of this discussion is on type 2 diabetes, the more prevalent form of this disease.

Type 2 diabetes is an insidious disease that quietly progresses undetected for many years as the clinical manifestations are often non specific (Hawkins et al., 2002). Frequently the diagnosis is not made until complications appear or the patient is acutely ill and seeks treatment (ADA, 2009). Based on established criteria, a diagnosis of diabetes is made if a fasting plasma glucose is greater than or equal to 126 mg/dl on two occasions; or if during an oral glucose tolerance test with a 75 gram glucose load, a two hour post prandial test is greater than or equal to 200 mg/dl; or a casual glucose is greater than or equal to 200 mg/dl in a symptomatic patient (ADA, 2009). Criteria to test for pre-diabetes and diabetes in asymptomatic patients has been established as the length of the glycemic burden is a predictor of unfavorable outcomes and management exists to reduce the risk of progression and complications of the disease.

Pathophysiology. While the precise cause of type 2 diabetes is unknown, there are

many common risk factors that are linked to its development (Hawkins et al., 2002). The

most common are obesity and inactivity. Type 2 diabetes is characterized by insulin

resistance and impaired beta cell function (Cnop et al., 2007). During the early stage, the

body compensates by increasing insulin secretion. This stage of hyperinsulinemia may

last for many years before the appearance of hyperglycemia. Next there is impaired

regulation of hepatic glucose production with both overproduction and overuse of

glucose. A declining beta cell function will eventually lead to beta cell failure (Maitra &

Abbas, 2005).

Complications. Individuals with diabetes have an increased risk of death at a rate

of two times greater when compared to people without diabetes of similar age (CDC,

2007b). In 2006, diabetes was the seventh leading cause of death and contributed to

greater than three times as many additional deaths. It is believed these figures are

conservative as diabetes is likely to be under reported when patients have multiple

chronic conditions. The majority of deaths are the results of macrovascular complications

such as stroke and myocardial infarction (CDC, 2007b). The long term effects of diabetes

may be devastating since the disease process affects virtually every body system.

Complications associated with the disease are sobering, life altering and as mentioned

even life threatening. In a 24 hour period there are 4100 new cases, 810 deaths, 230 limb

amputations, 120 needing dialysis or transplant and 55 newly blind (Beckley, 2006). It is

estimated that 57.9% or three of five persons with type 2 diabetes have at least one other

serious associated medical problem (American Association of Clinical Endocrinologists

[AACE], 2007) (see Table 2.1). Recently the AACE (2007) has identified prevalence

rates of macrovascular and microvascular problems in people with diabetes compared to those without the disease (see Table 2.2).

Table 2.1

Diabetes Complications by System

System Affected	Complication
Cardiovascular	Heart disease
	Stroke
	Hypertension
	Worsens hyperlipidemia
	Peripheral artery disease
Eye	Blindness / Diabetic retinopathy
Dental	Periodontal diseases
Gastrointestinal	Gastroparesis
Genital Urinary	Diabetic nephropathy / End-stage renal failure needing dialysis or transplant
	Urinary incontinence in females
	Erectile dysfunction in males
Musculoskeletal	Amputations
	Diabetic foot wounds
Nervous System	Peripheral neuropathy
Complications of Pregnancy	Major birth defects
	Spontaneous abortions
	Fetal growth abnormalities
Fluid & Electrolyte	Electrolyte imbalance
	Ketoacidosis
Other	More susceptible to other illnesses
	Associated with worse prognoses
	Premature death

From "National Diabetes Fact Sheet, 2007: General Information and National Estimates on Diabetes in the United States," by Centers for Disease Control and Prevention, 2007, Copyright 2007 by the U.S. Department of Health and Human Services.

Treatment. The best defense against diabetes is prevention of the disease with early life style modifications including diet, exercise, and weight control. The Diabetes Prevention Program (Knowler et al. 2002) enrolled 3234 pre-diabetic patients and randomly assigned them to one of three interventional groups: intensive program of lifestyle modification, standard lifestyle recommendations plus metformin and standard

Table 2.2

Prevalence Rates for Comorbid Complications

Problem	Prevalence among Diabetics	Prevalence among Non-diabetics
Macrovascular Problems		
Myocardial infarction	9.8%	1.8%
Coronary artery disease	9.1%	2.1%
Congestive heart failure	7.9%	1.1%
Stroke	6.6%	1.8%
Microvascular		
Chronic kidney problems	27.8%	6.1%
Foot problems	22.8%	10%
Eye damage	18.9%	Not Available

From "State of Diabetes Complications in America," by American Association of Clinical Endocrinologists, 2007, *State of Diabetes Complication in America: A Comprehensive Report*, p 4. Copyright 2007 by the American Association of Clinical Endocrinologists.

lifestyle recommendations plus placebo. The intensive program of lifestyle modifications consisted of a 7% weight loss, low fat, low calorie diet, 150 minutes of brisk exercise a week coupled with some counseling and behavior modification activities. The study was stopped a year earlier than expected because of a 58% reduction in the development of diabetes with lifestyle changes over a three year period. The combination of lifestyle recommendations and metformin resulted in a 31% reduction.

Early diagnosis and aggressive treatment are required to minimize complications. Treatment of Type 2 diabetes includes lifestyle management. The ADA released their revisions and updated evidence based standards in January 2009 (ADA, 2009). Management includes medical care from a team approach with the patient assuming a dynamic role as diabetes is primarily self managed. All patients need to attend initial classes and updates as needed to be self sufficient. Self monitoring of blood glucose and A1C measurements should be carried out with the frequency depending on the glycemic

control, generally 2 to 4 times a year. Medical nutrition therapy and daily exercise are fundamental to the management of diabetes.

The ADA (2009) recently addressed comorbid conditions in the prevention and management of complications and clearly reaffirmed the need for treatment of hypertension, hyperlipidemia and obesity. Also recommended were appropriate uses of aspirin, statins, angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARB). Other recommendations include smoking cessation, immunizations, annual labs and exams. Lastly, hyperglycemia may be treated with a variety of pharmacotherapy agents including oral medical and subcutaneous insulin (ADA, 2009).

Prognosis. The sequelae of complications can be delayed or prevented by intensive glycemic control (Murphy, Chapel, & Clark, 2004). The results of the United Kingdom Prospective Diabetes Study, a landmark study, and the largest and longest ever conducted on type 2 diabetes, clearly demonstrated that lowering blood glucose levels decreased complications (Genuth et al., 2002). The treatment groups received various pharmacotherapies and the control group intervention was diet. The study answered many questions regarding diabetes care and contributes to the basis for which the guidelines used today are developed (Genuth et al.).

Clinical guidelines for adults with diabetes can be found at the National Guideline Clearinghouse. Other sources of guidelines are the ADA and AACE. Essentially the guidelines are all very similar. One difference is ADA recommends an A1C of < 7%, while AACE recommends a goal of ≤6.5% (Clark, 2005). For fasting blood sugar, the ADA recommends 70 to 130mg/dl, while AACE recommends <110mg/dl. For the two

hour post prandial, the ADA recommends < 180mg/dl and AACE at 140mg/dl.

Recommendations for diabetes surveillance are listed in Table 2.3.

Behavior Change

Patients present to primary care for management of their chronic conditions. Generally they are scheduled in 15 minute blocks of time. Providers ask questions, examine and formulate diagnoses. With such limited time advice is given with only the most important topics covered and often guidance is skimmed over (Magar, Dabova-Missova, & Gjerdingen, 2006). When the patient returns for follow up, it is frequently noted there has been little to no improvement and patients tend to be labeled as noncompliant or not motivated.

Even though patients are told they need to modify their lifestyle and know the consequences of not following the recommendations, many find it difficult to get started or stick with the recommended changes (Haskard-Zolnierek, & Dimatteo, 2009). This lack of compliance and adherence to the prescribed plan is often due to a lack of motivation. The other problem is in these short visits, patients set goals to lose weight, start exercising, or stick to a low fat diet but are not taught how to accomplish this (Riley & Marshall, 2010).

Chronic conditions such as diabetes are significantly influenced by lifestyle behaviors. To effectively change behaviors, the ADA recommends programs using a combination of behavioral and psychosocial strategies as having improved outcomes (ADA, 2009). Recognizing the need to provide knowledge and skill training to produce change, the American Association of Diabetes Educators (AADE) developed an evidence-based framework of seven self care behaviors with measurable clinical

Table 2.3

General Recommendations for Type 2 Diabetes

Guidelines	Recommendations
A1C	Monitored 2 – 4 times a year depending on control and stability
Lipids	Monitored 2 – 4 times a year depending on control
Other laboratory testing – Renal, Liver, Thyroid,	Monitored annually or as needed
SMBG	Optimal frequency in unknown, will vary to meet goals
Exercise	Regular activity at least 150minutes / week of moderate intensity with some strength resistance exercise
DSME	All should receive with a diabetes certified educator
Medical nutritional therapy	Limit saturated & trans fatty acids, high fiber foods
Obesity	Weight loss, low carbohydrate or low calorie diet up to one year
Smoking	None, smoking cessation
Dilated eye exam	Monitored annually
Podiatry exam	Monitored annually
Dental exam	Monitored biannually
Neuropathy	Monitored annually
Immunizations	Kept up to date
Prevention & management of complications	Risk stratification for cardiovascular disease; monitor B/P at each visit and treat if indicated with ACE / ARB; treat hyperlipidemia with statins; treat cardiovascular risk with aspirin

From "Standards of Diabetes Care – 2009" by the American Diabetes Association, 2009), *Diabetes Care, 31,* pp. S12-S54. Copyright 2008 by the American Diabetes Association.

improvement indicators for improved health. The seven behaviors include healthy eating, being active, taking medication, monitoring, problem solving, healthy coping and reducing risks (Tomky et al., 2008).

Motivating patients with chronic conditions presents many challenges for the health care provider (Miller, 2005). It is extremely difficult to motivate patients to change a life time of undisciplined behaviors and habits to modify and sustain a healthy lifestyle. Diet and exercise have been identified as the most difficult to control (Nelson & Tuttle, 2007; Sullivan & Joseph, 1998). Asking patients to make multiple changes at once may be overwhelming. Selecting one goal and focusing on it encourages adherence and it will

have a ripple effect (Powell, 2007). Patients must identify barriers, deal with the ambivalence of change and adhere to lifestyle changes that can significantly prolong and improve their quality of life (Miller, 2005).

As health care providers one of our goals should be to develop methods to improve patient motivation. In the Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, the National Institutes of Health (1998) states it is the duty of the primary care practitioner to heighten a patient's motivation when such is perceived to be of significant benefit for risk reduction. Maclean and Pound (2000) identified patient motivation as a way of explaining the differences in outcomes of patients with comparable disease processes. Wilson (2004) found education coupled with frequent provider contact leads to continued improvement in gylcemic control.

Group Medical Visits

In the mid 1970s pediatrician, Martin Stein designed group medical visits as an alternative format for well care visits. Finding these visits time consuming, inefficient and repetitive, Dr. Stein liked the idea of providing anticipatory guidance and education in the group setting. For greater than twenty years, Dr. Stein successfully led well child group medical visits (Anderson, 2006).

An early study to compare well child care in group visits with traditional visits found group visits to be highly acceptable (Osborn & Wooley, 1981). The study found group visits provided more time per patient visit, provided increased explanation to parents, had more well-child visits completed, greater satisfaction reported and had less advice sought between visits (Osborn & Wooley). As the concept of group medical visits

evolved, multiple variations developed. Some originated at the hands of managed care and HMOs. Other models came from a desire to improve care in specific areas such as with the elderly, chronic disease, or acute care situations.

Models of care. One popular model is the cooperative health care clinic (CHCC) which was started by John Scott as a research project with the elderly in 1991 and has become prototypical for other programs nationally. The CHCC was designed to focus on high utilizing patients who have frequent contact with the system (Noffsinger & Scott, 2000). Scott reportedly found this particular population with multiple medical problems had the same lifestyle issues and educational needs and found that by meeting with them as a group he was able to answer all their questions and meet individual needs, something that could not have been done if they had been seen individually (Cunningham & Blaser, 2004). The CHCC typically consists of five components: socialization, education, break, question & answer, and one-to-one provider-patient time (Noffsinger & Scott). The individual time at the group medical visit is brief; patients with more extensive issues are seen in additional individual visits.

A newer version of this format, the high risk cohort model (HRCM) focuses on a specific chronic disease process such as diabetes or coronary heart disease. It is designed for patients of all ages (Masley, Sokoloff, & Hawes, 2000). Both of these types of group medical visits offer more consistent continuity of care. Patients are invited to join based on predetermined criteria. Generally these visits are scheduled for two to two-and-one-half hours. Patients are assessed by a nurse, vital signs obtained and any specific point of care testing is performed. Like the CHCC, patients in HCRM who need brief individual or private evaluation may receive it while others are being checked in. For more in-depth

issues a separate appointment must be made. The first few minutes are spent in welcome and warm up. Then there is a short educational program, followed by group discussion, questions and answers. Visits are on a monthly, bimonthly or quarterly basis (Jaber, Braksmajer, & Trilling, 2006b).

Another model, the drop-in group medical appointment (DIGMA) was developed in 1996 to address access to care issues (Noffsinger & Scott, 2000). This model allows for any of the provider's patients to attend. A variety of problems and issues can be addressed. This type of group is more holistic in nature addressing psychological, behavioral health and physical medical issues (Noffsinger & Scott, 2000). Even though the groups are scheduled, they are dynamic and each visit may have a totally different mix of patients. Patients seen generally have complaints of an acute nature or follow up. Typically this group lasts about 90 minutes and equally involves both a health care provider and psychologist. Similar to the other group medical visits, DIGMAs are not meant to completely replace individual appointments, but to supplement them. Table 2.4 depicts the major characteristics of these models.

Search for the Evidence

An electronic search of multiple databases that included Pub Med, Medline, CINAHL, EBSCO host, Ovid and Cochrane Database was enlisted. Search terms included group medical visits, group visits, group appointments, shared visits; motivation, lifestyle management, self efficacy, behavior change; diabetes. Initially the hits recovered descriptive articles on how to get started on setting up group medical visits, the advantages and what was needed. Multiple research studies were found and in

Table 2.4

Characteristics of Three Models of Group Medical Visits

Characteristic	Model of Group Medical Care		
	CHCC	DIGMA	HRCM
Patient Population	Set Population	Mixed Group	Set Population
Focus	Multiple problems, high utilizing, chronic conditions	Multiple complaint generally worried well	Disease specific such as DM, HTN, Well Baby, Prenatal
Meeting	Monthly	Weekly	Varies
Led By	Provider	Provider & Behaviorist	Provider
Length	120 minutes	90 minutes	2–2 ½ hours
Membership	Invitation only	Open group for any of provider's patients	Invitation only

CHCC = Cooperative health care clinic
DIGMA = Drop-in group medical appointment
HRMC = High risk cohort model

total 48 studies were reviewed. Of this, 23 were specifically related to adult diabetes and group medical visits, the additional studies involved group medical visits but with different patient populations such as pediatrics, mother-baby or chronic care. There were 41 descriptive articles on general information for group medical visits. A search for a systematic review for group visits found a protocol for a review that remained incomplete for a number of years (Epling, et al., 2004) and was withdrawn August 2010.

Efficacy of Group Medical Visits for Persons with Type 2 Diabetes

Group medical visits have been recognized as an innovative way of providing care that is patient centered, timely and efficient in our changing health care environment (Jaber, Brakemajer, & Trilling, 2006b). In situations when patients do not achieve the desired goals of treatment, the ADA (2009) suggests intensification of the medical regimen. The ADA recognizes there is not one best form of education or approach and

that both group education and more frequent contact with the patient are effective (Funnell et al. 2009).

Patients who have attended group medical visits have higher levels of satisfaction with their care as demonstrated by satisfaction surveys (Beck et al., 1997; Bronson & Maxwell, 2004; Campbell & Gosselin, 2007). This is not an unexpected finding as group medical visits increase face to face time for patients and their healthcare providers (Beck et al., 1997). In addition, meeting times are generally once a month instead of every three to four months. At the beginning of group visits there are a few minutes for social interaction which is frequently nonexistent in individual appointments and providers are unhurried. Patients also benefit from improved interactions, time for more questions and clarification of unclear information (Clancy, Yeager, Brown, Magruder, & Huang, 2003). Patients receive care while in a relaxed atmosphere and receive support from other patients and staff. They are more satisfied with their provider and have increased access (Thompson, 2000). These factors may account for the increased level of trust in providers.

Advantages of group medical visits include an improved quality of life for patients. In one comparison of patients who participated in group medical visits, they were found to have fewer visits to emergency departments, subspecialists and decreased hospitalizations (Scott et al., 2004). In a set group, patients developed an installation of hope from group dynamics, they learned skill building and as their knowledge level increased, patients felt more comfortable in making decisions about their own care (Carlson, 2003). Participating in group medical visits empowers patients to make informed healthcare decisions (Group Health, 2001). Group support and modeling by

peers may also promote self-efficacy (Jaber et al., 2006a). Participants have the opportunity to share experiences and success with others, who understand what they are going through. Group participants overall perceived better coordinated care and community orientation (Clancy, Yeager, Huang, & Magruder, 2007).

Patients attending group medical visits exhibited higher adherence to the ADA standards of care. In a study with diabetic patients, 76% of group medical visit participants were compliant on nine of ten ADA items compared with 23% of the control group (Clancy, Cope, Magruder, Huang & Wolfman, 2003). Group participants were more likely to receive influenza and pneumonia vaccinations when compared with those in traditional care and multiple studies demonstrate group medical visits are an effective alternative to traditional individual appointments (Beck et al, 1997; Clancy, Cope, Magruder, Huang, & Wolfman, 2003).

An improvement in A1C in participants attending group medical visits was demonstrated by Trento et al., (2001, 2002, & 2004). In all control groups there was an increase or worsening of A1C. Clancy, Yeager, Brown, Magruder, et al, (2003) however found minimal differences in A1C measurements between the groups. This may be related to the length of the study as Clancy, et al, evaluated the effects of group visits for a shorter period of time, six months; while Trento et al., evaluated the effectiveness over two, four and five years respectively. Demographically, participants were very similar.

In a five year continuation study, Trento et al., (2004) did a follow up to measure diabetes knowledge, ability to problem solve, and perceptions of quality of life. Patients in the intervention group perceived a higher quality of life and maintained improved hemoglobin A1C, decreased BMI and increased HDL. While patients attending group

medical visits have an increase in knowledge and ability to problem solve it does not necessarily change behaviors. In a group diabetes medical visit, individual participants increased the frequency of self monitoring of blood glucose yet the proportion of patients monitoring did not increase (Sadur et al., 1999).

For health care providers, group medical visits have proven to be very rewarding. It has freed up appointment slots improving access for other patients. There is increasing evidence that group medical visits are an effective way of managing patients with chronic conditions (ADA, 2009). As there is increased pressure on health care providers to be more productive, this method may help relieve some of the stress and pressure (Barud, Marcy, Armor, Chonlahan, & Beach, 2006). Group medical visits have increased productivity as much as 31% a month in some instances (Bronson & Maxwell, 2004). There is decreased boredom and burn out.

While the advantages out weigh the challenges for group medical visits, several issues need to be addressed. While patients and insurance plans need to be billed for services, most including Medicare do not have a specific group visit code. Group visits may be billed as individual office visits appropriate to the level of care provided, not for time spent (Bronson & Maxwell 2004). Confidentiality must be addressed with participants and agreements should be signed. Another issue that may lead to group failure is high drop out rates or low group census. The more often the group visit the better the attendance rate (Jaber et al., 2006a).

Chapter Three: Methods

This chapter will include a description of the methods including the design, setting, sample and procedures for the study. This will be followed by a discussion of the feasibility, data analysis plan and protection of human subjects.

Study Design

Using a high risk cohort model, this project allowed up to eight adult patients with uncontrolled type 2 diabetes to participate in group medical visits for six months to determine if attending group medical visits in place of traditional individual visits improves outcomes and reduces cost. The goal was to facilitate self management by conducting monthly group medical visits. Patients were enrolled as they responded to advertisement of the program and would potentially benefit from more intensive management and support than they were currently receiving in individual visits.

Setting

The setting for the study was a family practice office in a large city in the Southeastern United States. The office was staffed with two board certified family medicine physicians, however one left during the time of this project. There were approximately 4000 patients in this practice, approximately 5% of whom have type 2 diabetes. Patient payer mix is primarily through private insurance with approximately 10% self pay. This office setting was selected to conduct the project at the invitation of the physician medical director / owner of the practice. While attending a local program on group medical visits, the physician expressed an interest in conducting group medical

visits but was not at a point to begin. She offered her office and any assistance so this project could be accomplished.

The intended population for this project was adult patients with uncontrolled type 2 diabetes. The designated meeting area was a private conference room with a large table and surrounding chairs. The room had a separate entrance and restroom from the rest of the medical office practice,

Sample

Eight adult patients with uncontrolled type 2 diabetes diagnosed for at least six months were recruited for this project. Uncontrolled diabetes was defined as having an A1C $\geq 7.5\%$. Patients who were terminally ill, immobile, had mental or memory problems, were severely hearing impaired, or who were non English speaking were excluded. Patients were not excluded based on pharmacotherapy for diabetes (oral diabetes medication(s) and/or basal insulin) or for comorbid conditions.

Procedures

To advertise the practice change, letters and posted signs were made available in the waiting room and exam rooms. A list of current patients with the appropriate diagnosis code was generated to help identify potential candidates. Letters were sent out to all potential participants inviting them to attend approximately one month before the first scheduled group visit (see Appendix A). The identification of potential participants and recruitment was conducted by the physician providers in the office who invited the patients to attend. The day prior to the visit, patients were called by the office staff to confirm and remind them of the appointment. One medical assistant was specifically working on this project for consistency.

Once a patient agreed to participate by signing a consent form, the chart was reviewed by the physician and baseline laboratory testing requested. If there were current lab results less than 30 days old, they were used in lieu of obtaining a new set as insurance may not pay. Patients were provided with a packet of information that explained the concept and the process of group medical visits (see Appendix B).

Baseline demographic data was obtained from the chart on all patients that included date of birth, sex, race, martial status, education completed, type of insurance, and occupation. Assessment data was collected at the initial visit and at each subsequent visit and included weight, BMI, waist circumference, blood pressure, heart rate, respiratory rate, and blood glucose. Laboratory and assessment data was entered into a computerized data base by the office staff (see Appendix C for data entry form).

If the invitation was accepted, the patient switched from individual appointments to group medical visits for diabetes care only. Other issues, acute problems and annual exams needed to be scheduled as individual appointments.

Group Medical Visit Intervention

Group medical visits were scheduled on a monthly basis on the same day and at the same time for a six month period. Patients were scheduled to come in 15 minutes prior to the designated start time. The first 30 minutes were scheduled for check in which consisted of bringing patients back to the check in station; obtaining a full set of vital signs, weight, and finger stick blood glucose. One medical assistant was designated to assist with the check in. The nurse practitioner completed a brief mental status, cardiovascular, respiratory, skin and neurovascular exam in a private exam room. As each patient was completed, they returned to the meeting area to wait where magazines

and other educational materials were provided. Once everyone was checked in, a brief warm up or socialization took place. For the first few visits, the focus was on having participants get to know one another. The patient education segment was determined by the group. A list of recommended patient education topics were provided to participants. Topics included the basics such as physical activity, foot care, lipid management, food preparation, or ADA guidelines. After a brief break, discussion questions that referred back to the education topic were discussed. As a group, participants were able to decide on next month's topic before leaving (see Appendix D for the agenda and list of education topics). At the end of each visit, there was a short amount of time available for private consultation or evaluation if needed.

At each visit, after data were collected a report card with current medications, yearly screening activities, any new laboratory results, and vitals signs from the current visit were provided to the patient. Patients were encouraged to review the report and post it on an obvious spot such as the refrigerator as a visual cue (see Appendix E).

Evaluation Plan

Hemoglobin A1C levels were measured at baseline, at 3 and at 6 months. Anthropometric measurements of weight, body mass index (BMI), and waist circumference were evaluated at baseline and at monthly visits. A survey of diabetes self-management was administered at baseline and at 6 months.

Hemoglobin A1C. A1C levels were evaluated using the laboratory designated by the patient's individual insurance. As A1C has become the gold standard for assessing and monitoring glycemic control, all laboratories determining this value should use

method certified by the National Glycohemoglobin Standardization Program (Goldstein et al. 2004.

Weight. Weight was measured by using a digital scale with participants removing all excess clothing.

BMI. Body mass index was calculated using published charts after obtaining weight (NIH, 2008).

Waist measurement. Waist circumference was measured by placing a tape measure around the bare abdomen just above each participant's hip bone. The tape was snug but not compressing the skin and will be parallel to the floor. Participants were instructed to relax, exhale, and waist measurement was obtained (NIH, 2008).

Diabetes self-management. Diabetes related behaviors and self efficacy were measured using survey scales from the Stanford Patient Education Research Center (2008). This center is well recognized for developing, adapting, and testing self-administered scales over the past 20 years for chronic disease research. Funding for the development of the scales was provided by the National Institute of Nursing Research. The scales are free to use for research without permission. Scales selected for this project were eating breakfast, glucose testing, exercise, self efficacy for diabetes, communication with providers (see Appendix F).

Scoring was based on the number circled. If two consecutive numbers are circled, the lower number is selected. If the numbers are not consecutive, they are not scored. If more than two items are missing, the section is not scored. The self-efficacy and communication scales may be summed for a total score. A higher total score indicates higher self-efficacy or better communication with providers. These tests have been

validated by previous subjects with diabetes (see Table 3.1 for characteristics of validity

and reliability).

Table 3.1

Characteristics of Validity and Reliability for Stanford Scales

Scale	Number of Items	Range	Internal Consistency	Test-Retest Reliability
Breakfast				
Ate Breakfast	1	0 – 7	N/A	N/A
Ate Protein	6	0 – 1		
Glucose				
Have Machine	1	0 – 1	N/A	N/A
Days Tested	1	1 – 7		
Exercise				
Minutes / Week				
Stretching	1	0 – 180	N/A	0.56
Aerobic	5	0 – 540	N/A	0.72
Self Efficacy	8	1 - 10	0.828	N/A
Communication	3	0 - 5	0.73	0.89

From "Self-Management Scales" by the Stanford Patient Education Research Center,
2008. http://patienteducation.standford.edu/research/

At the last group medical visit, only three participants were in attendance. In an

effort to collect missing post survey data, an amended IRB application was submitted to

obtain approval to contact the absent participants for data completion. Once approval

was obtained, the remaining four participants were contacted and post survey data

collection was conducted over the phone.

Cost/Reimbursement. There are no billing codes for group visits and it is

unknown if insurance, Medicare or Medicaid will reimburse for the frequency of these

visits. Documentation and billing for services occurred as usual based on the level of

complexity and care for each individual and not the time spent in group medical visit.

Documentation required for billing purposes was met as it included vital signs, past

medical history, physical exam, and prescribed interventions. If insurers do not pay, the

office forgave fees during the course of this project. However this is a medical visit and was treated as such. Patients were informed in advance they were expected to make their copay as usual at each visit.

A cost analysis was completed for group visits for the practice at the completion of the project. As routine visits are scheduled at 15 minute intervals a comparison of provider time for group medical visits versus individual visits will determine if income has been generated to the practice. Results will be dependent on consistent attendance of participants.

Data Analysis

Data collection was conducted with the assistance of one office medical assistant designated for the project. All raw data was checked for errors. Analysis of data was computed on SPSS version 16.0 software and a P value of <0.5 was selected to indicate statistical significance. For evaluation of internal consistency on the self-efficacy and communication scales, Cronbach's coefficient alpha was used to test reliability. A paired sample t-test, pretest – posttest format was used to evaluate the difference between individual visits and group medical visits in a comparison of A1C, weight, BMI, and waist circumference. A comparison of pre and post self management behaviors (eating breakfast, glucose testing, exercise, self efficacy and communication) was evaluated using the Wilcoxon rank sum nonparametric test. Due to the small sample size, more complex analyses were not able to be performed.

A descriptive analysis compared group medical visits and individual visits in terms of cost and revenue generated. Costs to the practice included an evaluation of personnel time spent in preparation as well as the actual visit. Anticipated preparation

time included call reminders and data collection.   Revenue was evaluated based on the

coding charges and the amount reimbursed.

Protection of Human Subjects

IRB application was submitted to the University of North Florida IRB and

approved to conduct this project. Consent and a pledge to support were also obtained

from the physician's office where group medical visits were conducted. Patients were

provided information and consent forms that explained attendance is voluntary, as is

sharing of information (see Appendix G). The patient had the option to opt out and return

to individual visits at any time.

Each person was required to sign a confidentiality agreement before and at each

visit as a reminder. The confidentially statement (see Appendix H) recognizes all medical

and personal information is confidential and that while they may discuss what was

learned they should never discuss any information about individual group participants.

Chapter Four: Data Analysis

This chapter describes the project participants and results. Hemoglobin A1C as well as pre and post self management behaviors (eating breakfast, glucose testing, exercise, self efficacy and communication) were longitudinally evaluated. Descriptive statistical analysis was conducted using SPSS version 16 statistical software and a P value of $\leq .05$ was used to determine significance.

To identify potential participants for group medical visits a list was generated of all patients with type 2 diabetes mellitus and their respective A1C. The list was reviewed and 83 patients were found to have an abnormal A1C. Invitational letters were sent to prospective patients with an A1C$\geq$7.5 approximately four weeks prior to the first group medical visit. Replies were received via email and by phone calls within a week of the letters going out. Packets were mailed out to all who expressed an interest and met the criteria. Two days prior to the group medical visit, phone calls were made to remind prospective participants of the upcoming visit. There were additional inquiries from other patients after seeing the flyers posted in the office, however none met the criteria.

Implementation

This project began with nine patients who attended the first group medical visit. After obtaining the initial data and assessment, the visit began with introductions and an ice breaker to help participants relax. A discussion of the purpose and intent of the visits helped clarify any misperceptions. At this visit ground rules and expectations were established.   A message board was provided for parking lot items and patients were given permission to write their own questions on the board prior to or after each visit. At

the close of each visit, patients were given a homework assignment and at the beginning

of the next visit it was briefly discussed to reinforce information previously

given/learned. In anticipation of the second visit, patients were asked to return with a

two day meal diary.

"Eating and Diabetes: The Food Pyramid" was the topic at the second visit.

Educational information presented started out with general healthy eating. Next a

comparison of the food pyramid was made with the diabetes food pyramid. Each section

was discussed in terms of foods in that group and how much should be eaten. Methods to

satisfy a sweet tooth and alcoholic drinks were also discussed. Patients were taught a

method to estimate a cup (fist), ½ cup (½ fists), and an ounce (cupped hand) and so on.

Carbohydrate counting was also discussed however it is noted none of the participants

use this method. At the close of the visit, participants were provided with work sheets to

review their own meal plans and see if they were meeting the guidelines and where

improvement could be made. A new member joined the group.

"Diabetes and Exercise" was the topic of the third group medical visit. The benefits

of exercise, the best exercise for individuals with diabetes and general exercise guidelines

were discussed at length. Various pieces of exercise equipment such as resistance bands

and hand weights were demonstrated. Pedometers were provided to those who did not

have one. A couple of participants already had one however they were not used in a

while. Education was provided on low blood glucose in relationship to exercise and

when to monitor. Exercise frequency and cautions were also addressed as well as the

issue of weather and heat related issues. Before leaving, "Barriers to Being Active Quiz"

(CDC, 2005) was given to each participant.

At the fourth group medical visit, each participant was provided with a copy of their latest lab results from their chart. Focus was on routine labs such as metabolic panel, urine creatinine, hemoglobin A1C and lipids. Each test was discussed in terms of what it was measuring and implications if it was out of range. For some, this was the first time they had access to their entire lab results at one visit. Homework for this visit was to review labs and return with any unanswered questions.

Standards of Medical Care in Diabetes were discussed at the fifth visit and the value in meeting the guidelines. Emphasis was placed on general recommendation for patients with type 2 diabetes which included A1C, other lab testing (lipids, renal, liver, thyroid), self managed glucose testing, exercise, weight management, smoking, dilated eye exam, podiatry exam, dental exam, immunizations, diabetes self management skills and medical nutritional therapy. For homework patients were encouraged to make appointments to complete recommendations if not up to date.

At the sixth and last visit a review of topics from the previous five visits was conducted. Jeopardy type boards were fixed with the categories and points were assigned. While this last visit was small, all participated and selected categories and reviewed questions. Participants openly discussed things they learned over the course of six months of group medical visits.

During the first visit, participants were generally reserved but during the second and subsequent visits they were much more engaged with each other and the topic. All participants expressed interest in learning about their disease and candidly discussed their personal experiences and how things affected them. Many questions were asked and although some things were not directly related to diabetes all were pertinent. Other

discussions included hypoglycemia, arthritis, depression, co-morbid conditions, leg cramps and family issues. When some of the topics were discussed, many would nod in agreement indicating they had experienced the same thing. These common bonds helped the group become comfortable with one another and open up.

At the last visit, only a few participants were in attendance. An amended application was resubmitted to the IRB to obtain approval to contact the absent participants. Each was contacted by either myself or the office medical assist in collecting the missing survey data.

Demographics

Group medical visits were conducted monthly for a period of six months starting in April 2010 and ending in September 2010 from 1:30 to 3:30. Initially, nine patients expressed interest in the concept of group medical visits and accepted the invitation to attend. A tenth patient joined the group at the second visit. Of that group a smaller core group (n=7) attended visits regularly thereafter. Each patient signed the informed consent form prior to participation in the group medical visits. All respondents met the criteria of uncontrolled type 2 diabetes mellitus (A1C$\geq$ 7.5%) with an established diagnosis for at least six months. All were on oral diabetes medication and two had additional basal insulin in their medication regimen. All had other comorbid diagnoses such as hypertension, hyperlipidemia and coronary artery disease.

Of the ten enrolled participants, two attended all six group medical visits. One attended five, two attended three, two attended two and three attended one. Monthly attendance is presented in table 4.1. However, for purposes of this project, data analysis was completed on participants who attended two or more group medical visits.

Table 4.1

Monthly Attendance

Month	April	May	June	July	August	September
Participants	9	5	5	5	6	3

Participants were between the ages of 51 and 75 with a mean age of 63.6 years.

The group consisted of three males (42%) and four females (57%). All participants were

Caucasian. Four participants were married; three were widowed, divorced or single.

Two (28%) participants completed college with one having a bachelor's degree and the

other a master's degree. The additional 72% completed 'some' college. One participant

was currently employed and the remaining listed retired or semi-retired as occupation.

All had a payer source with 57% private insurance and 43% through Medicare. There

were no significant differences in demographics for those that attended the initial visit but

did not complete the project. Demographics for the group were similar to the office

practice in general. Baseline demographics are presented in table 4.2.

Table 4.2

Baseline Demographics

Participant	Age	Sex	Race	Status	Education	Insurance	Occupation
1	66	M	C	Single	Some College	Medicare	Semi Retired
4	65	M	C	Married	Some College	BCBS	Retired
5	75	F	C	Divorced	Some College	Medicare	Retired
6	70	F	C	Widowed	Some College	Medicare	Retired
7	57	M	C	Married	Master's	Humana	Retired
9	61	F	C	Married	Some College	BCBS	Retired
10	51	F	C	Married	Bachelor's	BCBS	Floral Manager

During the project interval, no participants had any emergency department visits or

hospital admissions. One participant had an additional appointment for a urinary tract

infection and another for bronchitis. None of the participants requested individual

diabetes appointment during the project.

Data collection

Assessment data collected at each visit included weight, BMI, blood pressure, heart

rate and respiratory rate. Random blood glucose was obtained at each visit except one as

the office ran out of test strips. Waist circumference was obtained at the initial and the

last visit instead of at each visit at the request of participants. Baseline measurements

obtained at the initial and completion visits are presented in table 4.3. Each participant

was provided assessment information obtained at each visit. Changes were calculated by

subtracting baseline values from the project completion values.

Table 4.3

Mean Baseline to Completion Measurements

Measurement	Initial	Completion	Change
Weight	196.6	197.6	+1
BMI	30.7	30.9	+0.2
Waist Circumference	42.6	42.5	-0.1
Systolic	135	121	-14
Diastolic	76	62	-14
Random Blood Glucose	183	154	-29
Heart Rate	72	71	-1
Respirations	18	18	No Change

Hemoglobin A1C

Baseline hemoglobin A1C values were obtained from the patient's medical record

to insure they met the criteria for project inclusion (A1C$\geq$7.5). Participants were

provided lab slips by the provider to obtain A1C levels at 3 and 6 months. All

participants were compliant in having their labs drawn as requested at 3 months and 6

months with the exception of one participant who left the practice due to a change in

insurance. All participants demonstrated improvement from baseline to three months and

from baseline to six months excluding the one participant that left the practice whose

results are unknown.

Table 4.4

Hgb A1C

Participant	Baseline	3 months	6 months
01	7.6	7.0	7.0
04	7.6	6.3	6.9
05	10.9	10.2	7.7
06	7.5	7.5	7.0
07	7.6	7.6	7.1
09	7.6	6.7	6.9
10	16.5	9.6	Left Practice

Five out of seven participants (71%) had a lower A1C at 3 months and the other two

participants showed no change.   Table 4.4 presentsA1C values at baseline, 3 and 6

months.
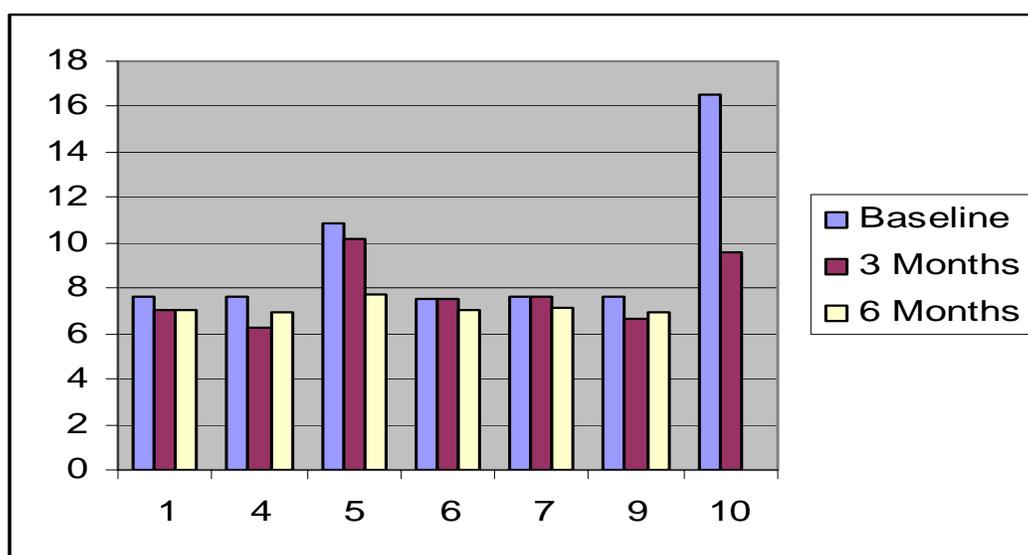

Figure 4.1. Individal paired comparison of A1C

At six months, all participants had a lower A1C than baseline and 4 out of 6 (57%) met

the ADA goal of ≤7%. Wilcoxon signed rank test shows statistical significance (P =

0.031). Figure 4.1 depicts individual paired comparison of A1C over the six months of

group medical visits. The group mean was 9.3 at baseline and decreased to 7.8 and 7.1 at

three months and six months respectively.

Diabetes self-management

Diabetes related behaviors of eating breakfast, glucose testing, exercise,

communication with provider and self efficacy were measured and scored at baseline and

at the completion of the project to determine if there was an increase in self management

behaviors. Overall results from paired t-test for self efficacy, communication with

provider, exercise and eating breakfast indicate there are no significant differences from

baseline to end of study. See Table 4.5 for summary.

Table 4.5

Paired Samples Test for Self Management

		Paired Differences				
		95% Confidence Interval of the Difference				Sig. (2-tailed)
		Lower	Upper	T	df	
Pair 1	self BL - self EOS	-3.96	1.10	-1.38	6	0.22
Pair 2	comm BL - comm EOS	-0.22	0.41	-1.68	6	0.14
Pair 3	EX BL - EX EOS	-0.87	0.31	-1.18	6	0.28
Pair 4	Eat BL - Eat EOS	-0.22	0.08	-1.19	6	0.28

self BL = Self Efficacy at base line   self EOS = Self Efficacy at end of study
comm. BL = Communication at base line   comm. EOS = Communication at end of study
EX BL = Exercise at base line   EX EOS = Exercise at end of study
Eat BL = Ate Breakfast at base line   Eat EOS = Ate Breakfast at end of study

Eating Breakfast. While statistical significance related to behavior changes was

not demonstrated, on an individual basis there were some positive changes. In response

to the question related to eating breakfast, initially three of seven participants did not eat

breakfast each day the previous week. At completion all responded they had eaten

breakfast each of the previous seven days.   In addition, the number eating protein for breakfast increased.

Exercise. Exercise behaviors focused on type of exercise such as stretching, strength training or aerobics and amount of total time spent on these activities in the past week. Baseline results reveal three of seven participants did not engage in any exercise activity. At the conclusion of the project all seven reported some exercise even though those already exercising did not build on what they were doing. The time spent in exercise was minimal. Refer to Table 4.6 for summary of exercise type and time.

Table 4.6

Exercise Type / Times a Week

Participant	Baseline	End of Study
01	Stretching <30 minutes	Walking 30-60 minutes
04	Stretching <30 minutes; Walking >3 hours	Stretching 30-60 minutes; Walking 1-3 hours
05	None	Stretching <30 minutes
06	None	Stretching <30 minutes; Walking<30 minutes
07	None	Stretching 30-60 minute; Walking 1-3 hours
09	Bicycling 1-3 hours; Walking >3 hours	Walking 30-60 minutes
10	Stretching <30 minutes; Swimming <30 minutes	Stretching 30-60 minutes; Walking 30-60 minutes

Patient satisfaction. Survey questions for communication with provider asked if participants prepared a list of questions, questioned things not known or understood and if personal problems were discussed. Scoring was based on a 5-point Likert scale ranging from 'never to always'. Participants either stayed the same or improved except for one participant who reported less communication at the end of the project. See table

4.7 for summary. It is unknown why one participant felt they had less communication with their provider. During the group medical visits all participated and asked many questions. Some would write on the parking lot board and others would bring their questions written at home. All topics were discussed openly and respectfully.

Table 4.7

Communication with Provider (on Likert Scale 1-5)

Participant	Baseline	End of Study	Change
01	3.4	4.7	+1.3
04	3.4	4	+0.6
05	1.3	2.7	+1.4
06	1.7	5	+3.3
07	3.4	2	-1.4
09	4	4	0
10	3	4	+1

Self efficacy. As a means of measuring confidence levels, the self efficacy scale focuses on diet, exercise, blood glucose and general care in terms of knowing how to manage and when to seek additional support. Scoring is based on a 10-point Likert scale ranging from 'not at all confident to totally confident'. At the start, scores reflected participants' feelings of being 'somewhat confident'. At completion, five out of 7 (71%) participants' scores suggest an incremental increase in confidence levels.

Table 4.8

Self Efficacy (on Likert Scale 1-10)

Participant	Baseline	End of Study	Change
01	7.9	5.5	-2.4
04	8.8	10	+1.2
05	3.6	10	+6.4
06	5.1	6.9	+1.8
07	5	6	+1
09	6.8	9.4	+2.6
10	7.3	6.6	-0.7

For the participants with a decrease in their confidence to manage, one was slightly less and the other just over 20% less. For this participant it is unclear why they felt less confident because in attending group medical visits their knowledge level would increase and in turn their ability to manage and make decisions would increase.   See Table 4.8 for summary.

Glucose testing. At the start of the project, two of the seven participants did not own blood glucose meters and only one participant reported testing their blood glucose level on a daily basis. At the conclusion, the two participants still did not have blood glucose meters. Glucometers were offered free of charge several times and both declined saying they "would not use them". Of the seven participants, three reported checking their blood glucose daily, one twice in the past seven days and one only once.   See table 4.9 for summary. Two participants had a significant increase in blood glucose self monitoring.

Table 4.9

Has a Meter/Number of Days Checked Blood Glucose Past Week

Participant	Baseline	End of Study
01	Yes / 2	Yes / 2
04	No / 0	No / 0
05	Yes / 7	Yes / 7
06	Yes / 1	Yes / 1
07	Yes / 0	Yes / 7
09	No / 0	No / 0
10	Yes / 2	Yes / 7

Cost/Reimbursement

At the completion of the project, an analysis of cost/reimbursement was conducted to determine if this was a financial benefit for the office practice. In evaluating cost, it is

noted some things are needed for both group medical visits as well as traditional visits such as calling to remind patients of visits, check in procedures and obtaining random blood glucose on diabetic patients. What is different is the assistance of the medical assistant during the group medical visit and also the initial steps to prepare for the visits by the nurse practitioner.

Since this was the first time this type of visits were conducted, prep time was considerably longer than if they were ongoing. Prep time for each month was approximately six to eight hours. Costs were evaluated in terms of time spent preparing for the group medical visit, personnel needed and supplies used.

Table 4.10

Cost / Reimbursement

Initial Cost	GMV	Traditional
Posters (2)	$18	
Office Supplies – paper, envelopes	$35	
Stamps, mailings	$75	
Bottled water, snacks	$30	
NP prep time (50 hours)	$2250	
MA prep time (3 hours)	$45	
Test Strips (free)	0	
Total	$2453	
Routine Cost		
NP time – 2.5 hours X 6months	$675	$675
MA time – 2.5 hours X 6 months	$225	$225
Total	$900	$900
Reimbursement		
Average billing code	99214	99214
Number of visits from 1:30 – 3:30, April - September	33 X $138	36 X $138
Total	$4,554	$4968

Reimbursement was established by revenues generated by billing codes for patients attending group medical visits. Billing codes were essentially the same as patients attending group medical visit met the criteria for a moderate visit code. This was

compared with revenues generated by the number of patients seen individually during the same time frame. Results indicate group medical visits initially will require some upfront cost but it is believed that as they are ongoing, they will be equitable and possibly even make a small profit when compared to traditionally scheduled patients. See Table 4.10 for comparison or cost and reimbursement.

Chapter 5: Discussion

This chapter provides a discussion of the implementation of group medical visits, relevant findings, and lessons learned in the process. Limitations, implications for practice and recommendations for future practice are also discussed.

Discussion

With an estimated 1.9 million adults diagnosed with diabetes in 2010 the incidence is at an all time high (CDC, 2011). Less than fifty percent of patients fail to meet ADA recommended goals (AACE, 2009). With the risk of significant consequences from poorly controlled disease management, it is vital for healthcare providers to find ways to motivate patients to make behavioral changes to effectively self manage their diabetes. In the current economical climate, health care providers are under increasing pressure to be more productive.

The purpose of this project was to develop, implement and evaluate an evidence-based group medical visit program for six months to determine if this intervention will have a positive effect on outcomes related to behavior changes and clinical status. Additionally, cost of providing group medical visits in private primary care practice was evaluated. In previous studies used to evaluate group medical visits, participants came from indigent backgrounds. This project was conducted in an office setting where the majority of patients maintain insurance.

Results of this project demonstrated improvement in A1C levels for all participants. Significantly 57% were able to meet the ADA goal of 7, at three months and 83% at six months. While all did not meet goal, all reduced their risk of

cardiovascular events. Thirty four percent of participants had significantly more risk as their A1Cs were greater than ten.

Disappointingly self management behaviors while improved did not demonstrate significant improvement. As this sample population was older it is unknown if results would have been more significant for a younger patient group who would generally be physically more able to exercise or feel they have increased satisfaction as the patient-provider relationship is more accessible and open to communication with their healthcare provider. Results of this project found while not perfect, group medical visits offer an opportunity to bridge the gap that is missing in individually scheduled visits.

Limitations

There were limitations to this project that have been identified. Differences between pre and post surveys reveal some incremental positive changes for some patients while others did not improve. In a systematic review, Riley and Marshall (2010) identified current group visit methods as unsuccessful in demonstrating consistent statistical improvement. Changes in this patient population may have been more significant if the sample size was larger and the project conducted over a longer time frame. One possible reason survey changes were not significant is self report biases. However an unexpected change was a decrease in blood pressure. While blood pressure was measured at each visit, it was only discussed in global terms.

As hypertension is a significant comorbid condition for diabetics, recent group medical visits have focused on this metabolic marker. Both Edelman et al. (2010) and Turchin, Goldberg, Shubina, Einbinder, and Conlin (2010) demonstrated the positive effect group medical visits had on hypertensive patients. While guidelines identify the

need for consistent follow up, there is a lack of information on optimal time between visits. However in a recent study funded by the Agency for Healthcare Research and Quality, Turchin et al. found that for patients with both hypertension and diabetes, shorter encounter intervals were associated with an accelerated rate of decrease in blood pressure when compared with longer encounter intervals. For patients seen at one month or less it took 1.5 months to normalize while those seen at greater than one month took 12.2 months to normalize.

Attendance. One limitation of this evidence based project was attendance was not consistent. The sample size was small and any missed visit was very obvious. The attendance at the first group medical visit started off strong with nine attending. As the visits progressed, attendance at most was five. For the last visit only three attended. Originally five had confirmed attendance but at the last minute one participant had to work and another was going out of town and left a day earlier than expected. At the first visit, all expressed interest in attending. The group medical visit day and time was negotiable yet by consensus it remained the third Thursday, 1:30 – 3:30. Two participants, who were currently employed, felt it would not be a problem in getting off work. At the close of the first visit, two participants said they would not be able to attend the following visit due to scheduling conflicts (vacation).

There were three participants that attended only one visit. After missing the second and third visit, when called to remind them of up coming visits, the absent patients were asked if they were going to return and one had a work schedule change and was not able to get off, another started a volunteer project and was needed on Thursdays. The third patient moved across town and had a transportation issue. In general,

attendance at group medical visits has been identified variably. Barud et al., (2006)

found attendance rates to be between 40 to 60% for each visit and approximately 50%

returned for a follow up visit. In contrast, prepared from previous experience with group

medical visits, Edelman et al. (2010) was able to gain higher attendance rates by using an

attendance contract, having a consistent care team and by providing a transportation

stipend.

      Participants. This homogeneous group of patients represented the practice

demographics. Even though this group consisted of mixed sex there was a lack of

diversity. All participants were Caucasian, represented a population that is relatively well

educated and of middle class which is different than found in literature (Clancy, Cope,

Magruder, Huang, Salter, et al., 2003; Trento et al., 2004). The generalization of the

results may be limited when compared to other more heterogeneous populations.

Considering the majority of past studies have occurred in teaching hospital settings or

indigent clinics, it is possible this group did not feel they needed to attend as they have

many resources including the ability to read, access to on-line information and are able to

pay for needed services.

      Medication. During the course of this project, two patients had medication

adjustments as their glucose and A1C levels were significantly elevated. By virtue of this

change in therapy, the group medical visit was not pure in the sense that it was the only

new intervention making it more difficult to tell if the improvements were from the

increase in medication or a change in self management behaviors.   In comparison some

groups adjusted medications as part of the group medical visit (Taveira et al., 2010).

Limited resources. For this project in a single office, the opportunity to have a multidisciplinary team was limited. In many studies, group medical visits have been conducted by large centers and university hospital settings where the availability of multidisciplinary teams are more likely to occur. Barud et al., (2006) found it beneficial to have clinical pharmacists to assist with education. In other institutions, medical residents and diabetes educators are a part of the care team (Yu & Beresford, 2010).

Implications for Future Practice

The implementation of this evidence based project was on a much smaller scale than has been identified in the literature. Even with its shorter time frame and smaller attendance rate, the results while mixed are indicative of moving in the right direction. While all improved or maintained diabetes control it was disappointing there was no weight loss. There are many studies that have demonstrated the positive benefits of group medical visits including increased provider access, increased provider and patient satisfaction, increased compliance with ADA recommendations and decreased emergency department visits (Tsang, Lee, Reddy, & Maskarinec, 2010; Clancy et al., 2007; Clancy, Cope, Magruder, Huang, & Wolfman, 2003). Findings from this project with this sample size and type provide information that can be used to implement other group medical visits.

In retrospect I found I learned a lot implementing group medical visits. My initial goal was to see if group medical visits were a method to motivate patients to make positive changes to improve their health status. However I think I learned just as much as participants. I spent many hours in preparation of each visit, researching and preparing content. I was concerned I would run out of material and have time left. Interestingly

this never happened as participants were engaged in discussion and had pertinent

questions. I found providing this type of visit suited my personality. I like to teach and

talk to patients so to have the time to do this and not feel rushed was a win – win for all.

I had the opportunity to provide information and participants had the benefit of attending

monthly and each visit was the equivalent of three to four individually scheduled visits.

Another thing learned from this project was the group composition can be defined

by the time of day and when it occurs. For example this group with the exception of one

was all retired. Coming in and completing the visit during the early afternoon before

rush hour traffic started was important to them. For others working during the day, an

evening timeframe would have been more of interest and for those with children, maybe

a Saturday morning would have been their choice.

In planning for future group medical visits I would like to consider offering them

on a rotating basis. For example schedule the visit during the daytime mid week and

then repeat the same content the following week in the evening or Saturday morning.

Participants could come to which ever time frame suited them. I recognize beforehand

the groups may not be as cohesive however as attendance was a problem, this would offer

the opportunity to still attend.

Recommendations

Diabetes is not a stand alone disease of one person and all people with the disease

do not live alone. For patients to successfully self manage, a tremendous amount of

support is needed particularly from household members and family. Inviting family and

or significant others to the group medical visits may be beneficial so all hear the same

message. This is particularly true if the patient is not the one purchasing the groceries

and preparing the meals. Patterson and Garwick (1994) identified that major stressful events, such as chronic illness, affect the family and not just the individual. Therefore including family or significant others in group medical visits may increase self management behaviors. Peer and social support are associated with better health. Chlebowy, Hood, and Lajoie (2010), in their study of facilitators and barriers for self-management of type 2 diabetes, identified both family and peer support as vital to success.

Another tool to provide reinforcement and support is the use of automated telephone self-management support (ATSM) systems. In a recent study comparing the use of usual care, group medical visits and ATSM, Schillinger, Handley, Wang, and Hammer (2009) found both ATSM and group medical visits were superior to usual care. However when compared directly to group medical visits, the ATSM had improved self management behaviors. A disappointing factor was the lack of a difference in A1C results. As this study was conducted with a vulnerable patient population, it is suggested it be repeated with a different patient population to see if it will have the same success.

The internet has become 'the place' for people seeking healthcare information and support services (LaCoursiere, 2001). An added tool would be the addition of a computer mediated communication for group medical visit participants. The purpose would be to provide education, continued support, encouragement and motivation between group medical visits (Funnell & Anderson, 2003). White and Dorman (2001) identified online groups as a useful adjunct to supplement group meetings. An electronic message could be sent on a regular basis along with a forum where participants would have the opportunity to ask questions instead of having to wait for the formal group medical visit.

For me personally, offering group medical visits definitely was a positive improvement over individually scheduled visits. I prefer not to be rushed and have the time to talk with patients to make sure they understand what goals we are trying to accomplish and how we should proceed. With group medical visits it is much easier to get to know your patients. It offers the opportunity to talk in an unhurried manner and I feel that as a nurse practitioner I should know my patients and what is influencing them or will motivate them. In view of today's reimbursement issues in private practice, it is necessary that as healthcare providers we use our time wisely and I firmly believe group medical visits offers the time to effectively treat patients.

Conclusion

When I started this project I was not sure what to expect. I knew what I thought should happen but never having attended a group medical visit I was a bit uncertain and even nervous. At the first visit when participants arrived and even though I had talked with a few on the phone, all were rather quiet and not even talking to each other. This increased my nervousness. Then once I started, I forgot about being nervous and I remembered why I was there (not just graduation) and things seemed to click and come together. At subsequent visits participants were more talkative and I felt like they wanted to be there as they would come early and after would linger socializing with one another while the room was straightened up. At the conclusion of the visits, one participant when asked if he would again participate in group medical visits, said to call him no matter what day or topic and he would be there. He felt he learned a lot and while he was not able to do everything, it was making a difference for him.

Not a week goes by without something in the news about the effects of type 2 diabetes. This chronic illness requires diligence to self-manage and reduce the enormous risk of complications. While group medical visits offer participants many benefits that promote self-management behaviors in a supportive atmosphere there is still need to further evaluate this health care delivery method especially in private practice. Group medical visits may offer an opportunity to motivate patients to make necessary behavior changes (Antonucci, 2008). However while promising, Riley and Marshall (2010) noted "there is not a recognized best structure for a group visit" (p. 937) and "more research is needed to develop comprehensive models that consistently improve glycemic control and reduce complications" (p. 943). At this time compared with individual visits, seeing patients in group medical visits is a more efficient manner to deliver care that helps promotes self-management behaviors that reduce the risk of complication.

Appendix A: Sample Letter to Potential Participants

Dear_____

      You are invited to participate in a new way of providing medical care for six months for patients with type 2 diabetes. At this time we are offering group visits instead of individual office visits. This program is designed specifically with you in mind.

      Usually when you come into the office, you are ill or have a specific issue we need to address. In these short individual visits there is little time to discuss at length how to manage your diabetes. We recognize diabetes is primarily a self managed process and we want to give you the information and tools to be successful. These group visits will replace individual visits unless there are other issues that need to be addressed between you and your doctor.

      The program we are talking about is called Group Medical Visits. It is when patients with same diagnosis meet together on a regular basis (once a month) with their medical provider. Many studies have shown that by participating in group visits, you can increase your success in making lifestyle changes. Attached is a sample agenda so you can see the flow of the visit. The purpose is to improve your health. In the group we will discuss a variety of ways to maintain or improve your heath and make sure you are up to date with all of the yearly American Diabetes Association recommendations. Occasionally we may even have a guest speaker. This is your opportunity to learn how to care for yourself and prevent problems.

      This is a nursing doctoral project looking to recruit patients with type 2 diabetic with an A1C $\geq$7.5%. Patients who are terminally ill, immobile, have mental or memory problems, are severely hearing impaired, or who are non English speaking will be excluded. Patients may be taking oral diabetes medication(s) and/or basal insulin. Patients with other medical problems may attend.

      The first Group Medical Visit will be held **April 22, 2010** from **1:30 – 3:30**. If you are interested, please call the office and speak with the medical assistant assigned to this project to make the appointment. If you have any additional questions or concerns, please contact Theresa Pye, principal investigator at   or email at   We look forward to hearing from you.

Sincerely

Anne Waldron MD
Theresa Pye ARNP
Doctoral Student
University of North Florida

Appendix B: Group Medical Visit Information Packet

FAQS ABOUT GROUP MEDICAL VISITS

What are **G**roup **M**edical **V**isits?

Group Medical Visits are a combination of three types of visits: individual, education, and support. Patients attending traditional visits are scheduled for a limited time to address generally one issue while participants attending **G**roup **M**edical **V**isits are scheduled for approximately 2½ hours. During this time they will go through the same check in process and have a brief private evaluation to monitor progress and receive individual information. An education topic will be presented or there may be a guest speaker such as a dietician or certified diabetes nurse educator. There will be plenty of time for questions and answers as well as time for some socialization with the group.

What are the benefits of attending **G**roup **M**edical **V**isits?

For patients attending **G**roup **M**edical **V**isits some of the benefits include they are given ample time and opportunity with a medical provider and are surrounded by peers who are coping with the same disease and many of the same issues. Studies have found patients who attend group medical visits have:

- Increased patient satisfaction

- Improved control of disease, improved health behaviors, improved labs, weight loss

- Improved quality of life, decrease in emergency and subspecialist visits

- Improvement in meeting ADA standards such as eye & podiatry exams, immunizations

How often will they meet?

Group **M**edical **V**isits will meet monthly on the same day and same time. Monthly

attendance is encouraged.

What are some of the reasons to consider switching from traditional visits to **G**roup

Medical **V**isits?

- Access to Provider Increased

- Power of Group Support

- Patient Satisfaction Increased

- Self-Management Promoted

- Preventive Issues Addressed

Is there a fee to attend **G**roup **M**edical **V**isits?

Group visits will be billed as individual office visits appropriate to the level of care

provided, not for time spent. Your fee will include the usual copay required for

individual office visits. If there is a problem meeting this, please speak with the medical

assistant.

GROUP VISIT GROUND RULES

- Attend meetings and be on time so meetings can start and end on time.

- Respect each others' privacy. It is ok to discuss what you have learned in these sessions but don't mention anyone's name outside this group.

- Respect each other's opinions. Be accepting and supportive rather than judgmental.

- Ask questions if you do not understand.

- Listen carefully to others.

- Be an active participant. Also allow everyone to have a chance to speak and / or ask questions.

- No side conversations. Everyone can't talk at the same time. Please turn off cell phones.

- _____

_____

_____

_____

Welcome we are glad you are here today!

AGENDA FOR THE FIRST SESSION OF GROUP MEDICAL VISIT

Welcome / Introductions

Present Overview / Philosophy of Program

      Traditional Visits versus Group Visits

Establish Ground Rules for Group Visits

      Privacy and Confidentiality Statements

      Reinforce HIPPA

Elicit Patients Primary Concerns

      Establish Topic Calendar

      Patient Responsibilities

      Discuss Patient Report Card

      Next Visit

Appendix C: Assessment Data

Baseline Demographic Data

Participant Number:	
Date:	
Date of birth:	
Sex:	
Race:	
Martial status:	
Highest level of education:	
Type of Insurance:	
Occupation:	

Monthly Data

Variable	1st Month	2nd Month	3rd Month	4th Month	5th Month	6th Month
Date						
Weight						
BMI						
Waist						
B/P						
H/R						
R/R						
BG						
HgbA1C						

Appendix D: Group Medical Visit Agenda

Group Medical Visit Agenda

Check In	30 minutes
Vital Signs / Blood Glucose	
Brief Individual Evaluation	
Brief Warm Up / Socialization	15 minutes
Introductions / Welcome	
Patient Education Segment	30 minutes
Topic of the Month	
Break	15 minutes
Discussion / Q & A	30 minutes
Planning / Wrap Up / Closing	15 minutes
Provider Discretionary Time	15 minutes

Potential Topics

Type 2 Diabetes Disease Process and Treatment Options

Diabetes Numbers At-a-Glance / What do the Numbers Mean?

Diet / Healthy Eating for People with Diabetes

Physical Activity / Get Moving

Foot Care / Preventing Diabetes Foot Problems

Managing Complications

ADA Recommendations

Appendix E: Patient Report Card

Patient Report Card for John Smith

Age: 66   Sex: Male   Current Smoker   Medical Record #: 12345

	Goal	Jun 2008	Mar 2008	Feb 2008	Nov 2007	Nov 2006	Jan 2006
Weight		181	190	144	188	199	155
BP	Less than 130/80 Best 120/80	132/24	140/80	129/99	130/80	150/88	120/80
Tests							
HbA1c (Sugar for 3 months)	Less than 7 Best if 6	7.7	7.7	7.3	8.1	7.8	8.8
LDL (Lousy or bad cholesterol)	Less than 100 Best if 70	44	188	144	99	144	100
HDL (Happy or good cholesterol)	Greater than 40	44	33	44	45	35	44
Triglycerides (another bad fatty substance)	Less than 150	199	222	199	199	200	122
Medication							
Aspirin or Anti-coagulant (to prevent heart attacks)	Take daily	Yes	Yes	Yes	Yes	Yes	Yes

Important Yearly Activities	Goal	Status	Next Test Due	Most Recent Test
Eye Check (to prevent blindness)	1 time a year	Completed	6/18/2009	6/18/2008
Foot Check (to check for numbness and sores)	1 time a year	Completed	3/3/2009	3/3/2008
Urine Micro Albumin (to check for kidney failure)	1 time a year	OVERDUE	11/29/2007	11/29/2006
Flu Shot (to prevent flu)	1 time a year	Completed	11/6/2008	11/7/2007

Special Vaccine	Goal	Status
Pneumovax (to prevent a special pneumonia: given once in a lifetime - twice if first was given before age 65)	2nd	1st Shot Completed

Appendix F: Diabetes Self Management Survey

| **Eating Breakfast** |
| 1. How many **times last week** did you eat breakfast when you got up?
 _____ times last week |
| 2. **This morning**, did you eat any of the following foods for breakfast? (Please check all that apply)   milk (½ cup)   cheese   yogurt   eggs   meat, poultry, or fish   beans |
| If you ate anything else, please write here:
 _____ |
| **Glucose Testing** |
| 1. Do you have a machine to measure your blood sugar (glucose) level?   Yes   No |
| 2. On how many days in the last week did you test your blood sugar level? (If you were sick in the last week, think of the most recent 7 days when you were NOT sick) _____ days |

Exercise Behaviors

During the past week, even if it was not a typical week for you, how much total time (for the entire week) did you spend on each of the following? (Please circle one number for each question.)

	None	Less than 30 min/wk	30-60 min/wk	1-3 hrs/wk	More than 3 hrs/wk
Stretching or strengthening exercises (range of motion, using weights, etc.)	0	1	2	3	4
Swimming or aquatic exercise	0	1	2	3	4
Bicycling (including stationary exercise bikes)	0	1	2	3	4
Other aerobic exercise equipment (stairmaster, rowing, skiing machine, etc.)	0	1	2	3	4
Other aerobic exercise Specify:	0	1	2	3	4

Communication with Provider						
When you **visit your medical provider**, how often do you do the following (please circle **one** number for each question):						
	Never	Almost Never	Some-times	Fairly Often	Very Often	Always
Prepare a list of questions for your provider	0	1	2	3	4	5
Ask questions about the things you want to know and things you don't understand about your treatment	0	1	2	3	4	5
Discuss any personal problems that may be related to your illness	0	1	2	3	4	5

Self-Efficacy for Diabetes

We would like to know how confident you are in doing certain activities. For each of the following questions, please choose the number that corresponds to your confidence that you can do the tasks regularly at the present time.

	Not At All Confident								Totally Confident	
	1	2	3	4	5	6	7	8	9	10
How confident do you feel that you can eat your meals every 4 to 5 hours every day, including breakfast every day?	1	2	3	4	5	6	7	8	9	10
How confident do you feel that you can follow your diet when you have to prepare or share food with other people who do not have diabetes?	1	2	3	4	5	6	7	8	9	10
How confident do you feel that you can choose the appropriate foods to eat when you are hungry (for example, snacks)?	1	2	3	4	5	6	7	8	9	10
How confident do you feel that you can exercise 15 to 30 minutes, 4 to 5 times a week?	1	2	3	4	5	6	7	8	9	10
How confident do you feel that you can do something to prevent your blood sugar level from dropping when you exercise?	1	2	3	4	5	6	7	8	9	10
How confident do you feel that you know what to do when your blood sugar level goes higher or lower than it should be?	1	2	3	4	5	6	7	8	9	10
How confident do you feel that you can judge when the changes in your illness mean you should visit the doctor?	1	2	3	4	5	6	7	8	9	10
How confident do you feel that you can control your diabetes so that it does not interfere with the things you want to do?	1	2	3	4	5	6	7	8	9	10

Appendix G: Informed Consent

UNIVERSITY OF NORTH FLORIDA

Human Research Consent Form

Title: Impact of Group Medical Visits for Adult Patients with Type 2 Diabetes Mellitus

Investigators: Theresa Pye MSN, ARNP-BC

Affiliations: University of North Florida School of Nursing

Contact Information:

Approved By Institutional Review Board:

This is an important form. Please read carefully. It tells you what you need to know about this research study. If you agree to take part in this study, you need to sign this form. Your signature means that you have been told about the study and what the risks are. Your signature on this form also means that you want to take part in this study.

Your participation in this research is entirely voluntary. Refusal to participate in this research will involve no penalty or loss of benefits to which you otherwise are entitled.

You may discontinue participation in this research study at any time without penalty or loss of benefits you are otherwise entitled to.

What is the purpose of this study? **As part of my doctoral studies in nursing at the University of North Florida I am interested in assisting people with diabetes in the management of their disease. The purpose of this project is to see if group medical visits for adults with type 2 diabetes improve their ability to manage their diabetes.**

How many participants will take part in this study?
Eight patients at this medical office will participate in this project

What will happen in this study?

If you agree to participate in this project, you will be receiving your diabetes medical care during a group session rather than in an individual visit with your provider. Other medical issues, acute problems and annual exams will not be addressed during the group medical visits, but will need to be scheduled as individual appointments.

During the six month project period, your regular diabetes care will continue. Each visit will consist of check in, a patient education segment, questions and answers, and planning for next visit.

When you first begin the group medical visits, your hemoglobin A1C blood level will be checked, you will be weighed, have your waist circumference measured and be asked to complete a questionnaire about your diabetes self-management activities.

Once a month after that, at each group medical visit, you will be weighed and have your waist circumference measured.

Three months into the project. Your hemoglobin A1C blood level will be drawn again [at your usual lab.]

At the end of the project, your hemoglobin A1C blood level will be drawn again [at your lab] and you will be asked to complete the questionnaire about your diabetes self-management activities.

Is there any reason I would not be qualified to participate in the study?
This project is looking to recruit patients with type 2 diabetic with an A1C $\geq$7.5%. Patients who are terminally ill, immobile, have mental or memory problems, are severely hearing impaired, or who are non English speaking will be eligible. Patients may be taking oral diabetes medication(s) and/or basal insulin. Patients with other medical problems may attend.

How long will I be in the study?
The group medical visits will occur once a month for six months. Each group medical visit will last approximately 2 ½ hours

Are there reasons I might leave the study early?
Taking part in this study is your decision. You may decide to stop at any time. You should tell the director of the study that you wish to stop. In addition, the director of this study may stop you from taking part if it is in your best interest.

What are the risks of the study?
There are minimal risks or discomforts related to participating in this project. You will receive routine diabetes care. Sometimes people in groups feel a little embarrassed at first and fear a loss of privacy, but this embarrassment usually goes away quickly. If you are in group care and remain uncomfortable in the group

setting, you will be offered the opportunity to withdraw from the group and receive individual diabetes care.

Are there benefits to taking part in this study?
Patients attending group medical visits have been found to have an increased knowledge and ability to problem solve regarding diabetes. There is increased frequency of self monitoring, and increased adherence of American Diabetes Association's Standards of Care.

What other choices do I have if I do not take part in this study?
If you choose not to participate in the group medical visits, you will continue with individual medical appointments for your diabetes care.

Are there any monetary or other compensation or inducements for my taking part in this subject?
None

Are there any financial costs to me to take part in this study?
Since the only difference in the care provided through the group medical visits is the group itself, there are no additional costs to you for receiving your diabetes care this way. Your insurance will be billed as usual for this care. In the event that your insurance does not pay for something associated with the project, the medical practice will forgo those fees. In either case, you will be responsible for the usual co-pay.

What are my rights if I take part in this study?
You do not have to take part in this study; but if you do, you may stop at any time. You will be told of important new findings or any changes in the project or procedures that may affect you. You do not give up any of your rights by taking part in this project .

What about confidentiality?
Data from this project may be published or used in publications. However, your name and other identifying information will not be sent outside of UNF without your written permission.

Explain your method further
Each person will be required to sign a confidentiality agreement before and at each visit as a reminder. The confidentially statement recognizes all medical and personal information is confidential and that while they may discuss what was learned they should never discuss any information about individual group participants.

Will there be audiotaping or videotaping? If so, will I get to view them before they are used? Who will review tapes besides the researchers? Who will have access to the tapes?

When will they be destroyed? *(Note – If tapes are to be used outside of the research project, a separate release form should be obtained.)*
There will be no audiotaping or videotaping during the project.

Who can answer my questions?
You may talk to Theresa Pye - Principal Investigator at any time about questions and concerns you may have about this study. You may contact Theresa Pye at   You may also contact Dr. Doreen Radjenovic, my Faculty Advisor at the University of North Florida

You may get further information about UNF policies, the conduct of this project , and your rights as a project participant from the Chair of the Institutional Review Board, Dr. Katherine Kasten, at

I have had an opportunity to have my questions answered. I have been given a copy of this form. I agree to take part in this study. I am over 18 years of age.

I am at least 18 years old. _____ (initials)

I have had the study that I am agreeing to participate in explained to me to my satisfaction.
_____ (initials)

I have had the opportunity to ask any questions that I may have had regarding this study.
_____ (initials)

I agree to participate in <u>Impact of Group Medical Visits for Adult Patients with Type 2 Diabetes Mellitus </u>being conducted by <u>Theresa Pye   </u>and the University of North Florida.

_____   _____
Date   Printed Name of Participant

                                            _____
                                            Signed Name of Participant

_____   _____
Date   Printed Name of Individual Obtaining Consent

_____   _____
Date   Signed Name of Individual Obtaining Consent

CONSENT TO ATTEND GROUP MEDICAL VISITS

I, hereby, voluntarily consent to participate in a Diabetes Group Medical Visit in which I and other patients may share personal health information, if they wish on a purely personal basis during a Group Medical Visit. The information will be used to help educate the group about various health topics and which may improve my care. I have been provided information on the process and understand this is a medical visit. The group visit may replace some of my routine visits but I will still have some individual visits.

The group meeting will consist of discussions of current medical conditions, pertinent educational information, and open discussion with other patients on diabetes and other subjects of interest to the group. I realize have the option of being seen individually and may return to individual visits at any time.

Name _____   Date_____

Signature_____

Witness_____

Appendix H: Confidentiality Statement

GROUP MEDICAL VISIT HIPPA NOTICE

All patients have the right of privacy and confidentiality regarding their medical record. I

agree to meet with Group Medical Visits and understand I must respect the privacy of

members and therefore while I may discuss what I have learned I must not discuss any

other patient's medical information or personal business that I may be privileged to hear.

At times, members may voluntarily share information that will be used to help educate

the group on various health topics and which may improve my care.

It is possible that information discussed may be inadvertently disclosed outside of the

Group Medical Visit by another member. I have been notified of this risk of potential

disclosure and I wish to participate in a group medical visit. I realize I have the option of

being seen individually and may return to individual visits at any time.

Name_____   Date_____

Signature_____

Witness_____

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Vitae

Theresa Pye   has lived in Jacksonville / St Augustine since childhood. Her original nursing degree was from Florida Junior College in 1978. Recognizing the need for further education, she started work soon after on her Bachelor of Science in Nursing at the University of North Florida. Years later feeling the urge to return to school, she once again went to UNF to obtain a Master's of Science in Nursing. Now a lifelong UNF student, she started in the Doctorate of Nursing Practice program in the inaugural class.

Theresa is currently employed as a Family Nurse Practitioner in a busy family medicine office. She also works as an Advanced Practice Nurse at Wolfson Children's Hospital for the Children's Emergency Center. Committed to her love of education and students, she functions as a clinical nursing instructor for Florida State University and occasionally University of North Florida. Previous work experience includes hospital-based nursing in the emergency department and as an educator.

Theresa maintains certification as a Family Nurse Practitioner and as a Pediatric Emergency Nurse.   She is active in various nursing organizations.