

5-2006

# Diabetes Prevention Education for Mexican American Women With Gestational Diabetes: Pilot Testing a Videotape

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*University of the Incarnate Word*

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TITLE OF THESIS

DIABETES PREVENTION EDUCATION FOR MEXICAN AMERICAN  
WOMEN WITH GESTATIONAL DIABETES: PILOT TESTING A  
VIDEOTAPE

by

CAROL ANNE EASTON, B.S., A.D.N., R.N., B.S.N.

THESIS

Presented to the Graduate Faculty of

University of the Incarnate Word

in Partial Fulfillment

of the Requirements

for the Degree of

MASTER OF SCIENCE OF NURSING

UNIVERSITY OF THE INCARNATE WORD

May, 2006

DIABETES PREVENTION EDUCATION FOR MEXICAN AMERICAN  
WOMEN WITH GESTATIONAL DIABETES: PILOT TESTING A  
VIDEOTAPE

A Thesis

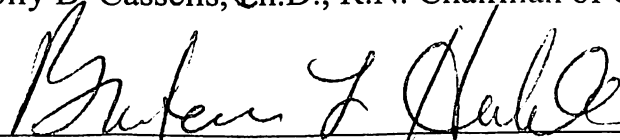
By

CAROL ANNE EASTON

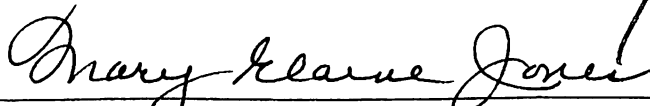
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## Acknowledgements

Situations are presented to us that we and only we can choose to use. We can ignore them, “temper our enthusiasm and dull our desire for expression” or we can pursue them, kindle our enthusiasm and sharpen our desire for expression. “Nevertheless,” we may allow unavoidable and distasteful conditions to effect our decisions, but “it remains that the bigness within us speak in the quiet moments of reflection and remind us of the significance of each day, give us strength for the future, and remind us how dreams and ambitions can serve to change circumstance and environment. If we will but see clearly, we will find direction and receive purpose to our lives.” Raymond W. May (1907-2003).

I am grateful to my children and grandchildren for their support and understanding. I wonder how difficult it must be to observe a Mother/Grandmother who refuses to retire from the career she loves in women’s health and who continues to find the life of a professional student challenging. To these special people, Erin and John Spitz, Katie, Jake, Will and Ellie; John and Diana Easton, Jack and Rachel; Murray and Michele Easton and Natalie, thank you.

The San Antonio Area Foundation selected this project for funding. It was an honor for which I will always be eternally grateful because without their support this community health project would never have been done.

To the wonderful group of Latina women who were kind enough to lend their expertise, energy, friendship and sometimes acting ability to this project because they believed in it: Martha Medrano, Evangelina Villagomez, Sonia Martinez, Ana Pacheco, Lisa Johnson, Wilma Ramirez, Mercedes Sifuentes, Brenda Cantu, Mary Reyes, Esperanza Barron, Gisel Ramirez, Mary Perez, *muchas gracias!*

To the farsighted group of Anglo women who thought this project needed to be done and supported it to the end: Barbara Walz, Deborah Conway, Jena Piper, and Judith Grant, your efforts were greatly appreciated!

To my thesis committee at the University of the Incarnate Word School of Nursing: Barbara Herlihy, Mary Elaine Jones, and Sara Kolb, my deepest heartfelt gratitude for your time and encouragement. To Holly Cassells, my thesis chairman, I could not have asked anyone else to guide, edit, and help me in this endeavor. I struggle for the proper words to recognize your expertise and seemingly tireless efforts on my behalf.



To the Hispanic Center for Medical Excellence staff and especially Albert Estrada, who are calm and pleasant on the phone, even when I'm acting like the world is surely falling apart.

To all the nurses and staff at the Diabetes in Pregnancy Clinic at the University Health Center-Downtown, I will always be in your debt. Thank you for translating countless times.

A special thank you to the staff at Texas Diabetes Institute, they were so helpful with the video shoots. Marilyn Newman continued to support my frustrations and helped countless times by locating Nina Villagomez.

To the OB/GYN staff and faculty, I owe a debt of gratitude to Scott Lucidi Robert Brzyski, and Gary Fuller for patiently answering my many, many questions. For the computer genius of Karen Brewer, April McCleave, Noemi Pastoral, Joyce Bogue, and Lynda Barnett, I am in awe of anyone that is able to correct my computer mistakes.

I can't thank Alan Holden enough. How are you able to be so patient when a statistic question is ridiculous?

How could I have done this Master's thesis project without Shirley Noll and Esperanza Barron at UIW School of Nursing? Also, Hank McDonnell at UIW, he recommended Sonia Martinez and James Green to produce and photograph the video. Because of their talents, my Master's thesis project was a success.

But finally, I dedicate this Master's of Science in Nursing Thesis to my mother, Carol Mary May, who with completion of her nursing training in 1937 at Mount Zion Hospital School of Nursing in San Francisco became a role model of "informed caring for the well-being of others" (Swanson, 1993).

*Gracias a todas las cuarenta y seis mujeres!*

Diabetes Education for Mexican American women with Gestational  
Diabetes: Pilot Testing a Videotape

**ABSTRACT**

The purpose of this study was to examine the effect of a culturally sensitive educational videotape on the knowledge of prevention of Type 2 diabetes after pregnancy, in pregnant gestational diabetic (GDM) women over 18 years old, who attended the Diabetes in Pregnancy Program at a university health center in a large southwestern city. Mexican American GDM women have a high risk for Type 2 diabetes, 80% in 5 years if their diabetes status is reclassified pre-diabetes or impaired glucose tolerance during their early post partum exam (Kjos, 1995). But the return-to-clinic rate for the women who attend this clinic is 17.6% for the post partum exam (Conway, 1999).

Research Design, Sample, and Methods—Forty-six Mexican or Mexican American GDM women were recruited into this quasi-experimental study. Subjects signed a consent, filled out a 13 question demographic questionnaire, completed a 27 question knowledge pre-test, watched a 23-minute educational videotape in Spanish with English subtitles, and re-took the knowledge questionnaire in one clinic visit. The informed consent and questionnaires were in both Spanish and English. The educational videotape, demographic and knowledge questionnaires were investigator created and validated during the study process.

The educational message of the videotape was the importance of making lifestyle changes for prevention of Type 2 DM. It took a life stage approach with the child reminding his or her mother to take care of herself.

Results---The knowledge instrument had a Kuder-Richardson reliability coefficient 20 score of 0.7896. The comparisons of the pre and post intervention knowledge scores were done on a 21 item test with the mean paired difference of the post test percent score and the pre test percent score of 11.08% (SD 13.58) and a 2-tailed significance of  $p \leq 0.0001$ . The study hypothesis, use of an educational video about Type 2 Diabetes risk factors was positively associated with increased knowledge levels in Mexican American women with GDM, was supported with the data.

In Memory  
Gloria Evangelina Anzaldúa  
1942-2004

Anzaldúa's Borderland Theory is very important to this project. "The actual physical borderland that I'm dealing with in this book (thesis), is the Texas-U.S. Southwest/Mexican border. The psychological borderlands, the sexual borderlands and the spiritual borderlands are not particular to the Southwest. In fact, the Borderlands are physically present wherever two cultures edge each other, where people of different races occupy the same territory, where under, lower, middle and upper classes touch, where space between two individuals shrinks with intimacy,' such as in healthcare. (Anzaldúa, 1987, *Preface*).

Gloria Evangelina Anzaldúa passed away during the week of May 16, 2004 due to complications from diabetes. I am one of many who appreciated her internationally recognized writings. I am saddened by her passing as are all of her many followers. She was born in the Rio Grande Valley of South Texas, which makes her place of origin especially significant to this project. She was 61 years old, and close to completing her dissertation (Keating and Connor, 2005). In the extensive web altar created in her memory two comments are worth repeating: 'diabetes is the so-called "disease of civilization;" and "How can someone die of diabetes in the most highly developed country in the Western world?" (de la Pena, 2005, and Berlowitz, 2005).

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## **CHAPTER I**

### **Introduction**

Advances in obstetric and gynecologic health care for high-risk women have been growing at a rapid rate, especially in reproductive endocrinology, infertility and perinatology. Women with serious health problems can become pregnant, can maintain the pregnancy, and can have a healthy baby in today's world. In the past, this may not have been possible, especially without the new infertility and perinatology techniques. Morbidity and mortality risks in years past were monitored instead of intensely managed, and women were hospitalized for crisis management or simply for educational instruction. Today, high-risk care is actively managed by a multidisciplinary team on an outpatient basis in specialized clinics. In these clinics high risk women, and particularly those with gestational diabetes are followed from preconception through antepartum, to the beginning of postpartum. They are provided strategies to actually modify pregnancy and lifelong health risks. The problem is that high-risk women often do not comply with the medical regimen and adhere to the expectations of physicians and nurse providers in these clinics, especially in the months and even years following pregnancy.

Is complying with medical regimens and adhering to expectations the correct way for health providers to think? Compliance means yielding to a

request or demand. Adherence is the act of firmly supporting a plan. More recent education has taken a self-care and self-management focus in which the person is the primary controller of his or her care. These terms, compliance, adherence and self-management, are important patient education concepts in diabetes healthcare. Compliance and adherence are usually associated with a “Doctor’s Orders’ approach” whereas self-care implies an egalitarian approach. Nursing focuses on partnering with the patient in providing care, therefore self-care is an easily understood educational concept for nursing.

Education has been shown to be important for women diagnosed with gestational diabetes (GDM) in order to prevent complications for mother and baby, and to reduce health care costs during pregnancy, at delivery, and thereafter (Keohane and Lacey, 1991; York et al., 1997; Jones and Stone, 1998; American Diabetes Association, 2003). It may be possible to prevent or delay the onset of Type 2 diabetes in women with GDM, if self-care educational programs directed at behavioral change are continued in the long-term follow-up after the high risk GDM pregnancy is completed (American Diabetes Association and National Institute of Diabetes, Digestive, and Kidney Disease, 2003). Behavioral or lifestyle change is critical for the individual identified at high risk for Type 2 diabetes, and self-care or self-management is an educational approach that should be followed (Mensing et al., 2003).

### **Diabetes Problem in Mexican American Women**

“Diabetes mellitus (DM) is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both” (The Expert Committee on the Diagnosis and Classification of Diabetes Mellitus, *Diabetes Care*, 2001, p S5). It is responsible for multi-system complications such as cardiovascular disease, nephropathy, neuropathy, retinopathy, and peripheral vascular disease. Diabetes is the seventh leading cause of death in the United States. It is estimated that only two-thirds of the 16 million people in the U. S. with diabetes are diagnosed, and even at that, the disease is extraordinarily costly, estimated at \$100 billion annually (Funnell & Anderson, 2002).

Gestational diabetes (GDM) is a health deviation of carbohydrate intolerance that develops or is first recognized during pregnancy (Griffith & Conway, 2004). The American Diabetes Association (ADA) estimates that as many as 14% of all pregnancies are complicated by GDM, which is approximately 200,000 cases annually (2001). The rate of Type 2 diabetes that subsequently develops among high-risk Hispanic women who have had GDM has been assessed as 80% in five years if they are classified as impaired glucose tolerant at their 4 to 6 week postpartum exam following the GDM pregnancy (Kjos et al., 1995).

The American Diabetes Association lists race/ethnicity as one of the risk factors for Type 2 diabetes. Specifically, African-Americans, Hispanic-

Americans (Latinos), Native Americans, Asian-Americans, and Pacific Islanders have higher rates of diabetes mellitus (DM) than non-Hispanic whites (2003). The prevalence of GDM is proportional to the prevalence of Type 2 DM in the high risk Mexican American group that is under consideration for this project, because the pathophysiology is similar, namely insulin resistance and inadequate insulin production (Griffith & Conway, 2004).

The U.S. Census Bureau has shown that Hispanics or Latinos (of any race) are the largest and fastest growing minority group in the U.S., numbering 35,305,818 in 2000, compared to 22,354,059 in 1990 (ODNIH, 1997). African Americans became the second largest minority race in 2000 at 33,947,837 although it was the largest minority race in 1990, at 29,216,293. Of the total 2000 U.S. census population of Hispanics, slightly more than 17 million are women. This is a little less than half of the total population. The major Hispanic subgroup in the 2000 census is Mexican American (58%) (Office of the Director National Institutes of Health, undated).

According to the Office of the Director of the National Institutes of Health, Latinos are more likely to have diabetes than the general U.S. population (ODNIH, 1997). The prevalence of diabetes among Mexican Americans is two to five times that of other racial or ethnic groups (Zhang, Markides, and Lee, 1991). Mexican Americans have significantly greater serious side effects of diabetes. They are six times more likely to have end-

stage renal disease, and three times more likely to have retinopathy than other races according to the San Antonio Heart Study (Zhang et al., 1991).

Data indicate Type 2 diabetes is more prevalent in women than men, especially after 65 years of age (Pinn, 2003). If the prevalence of prediabetes is assessed in 45-74 year olds, Mexican American women have a higher prevalence of impaired glucose tolerance (IGT) as indicated by 2-hour glucose concentrations of 140-199mg/dl. In the U.S., the prevalence of IGT in Mexican American women is  $23.4\% \pm 3.5$  versus  $18.1\% \pm 3.1$  of Mexican American men (Benjamin et al., 2003). If a criteria of impaired fasting glucose (IFG) concentration of 110-125mg/dl is used, Mexican American men have a higher prevalence than Mexican American women ( $16.5\% \pm 2.6$  versus  $7.6\% \pm 1.6$ ) (Benjamin et al., 2003). The 2 hour glucose tolerance test is considered the more accurate diagnostic test at this time (ADA, 2003).

Health care providers, according to Pinn, must direct strategies toward women, counsel them throughout their life span, and hopefully prevent risk factors such as obesity and gestational diabetes (2003). The prevention of diabetes in Hispanic women is of particular concern starting at a young age. Two diseases in young women, worsened by obesity, are associated with a high risk of diabetes. They are polycystic ovary syndrome and gestational diabetes. Young women with either of these diseases should become prime targets for close clinical management and efforts to prevent the development



of Type 2 diabetes. This research project will focus on diabetes prevention in Mexican American women with gestational diabetes.

### **Insulin Resistance**

Obesity is a major factor in GDM and Type 2 diabetes because it increases the resistance of the body to the action of insulin (insulin resistance), while the amount of insulin produced is inadequate to meet demands (ODNIH, 1997). Insulin resistance has a direct impact on glucose metabolism, because as insulin resistance rises, blood glucose rises. The mechanism of insulin resistance is not entirely understood, however one's risk for diabetes depends on the level of insulin resistance and blood glucose. Insulin produced by a normal pancreas that is meeting the demands of a person's cells, will not manifest in a high blood glucose level.

The precise mechanisms of gestational diabetes similarly are not entirely understood, but pregnancy seems to increase insulin resistance. The diagnosis of gestational diabetes may be misnamed because the diabetes may not be pregnancy induced, instead pregnancy may unmask or lead to the discovery of Type 2 diabetes. According to *Williams Obstetrics*, a diagnosis of gestational diabetes should prompt continuing surveillance and convince women of the need for post partum follow-up (Cunningham et al., 2001).

In pregnancy, the growing placenta produces hormones that are antagonistic to insulin. These are: human placental lactogen (HPL), progesterone, growth hormone, and corticotropin-releasing hormone (CRH)

(Griffith & Conway, 2004). The impact of these four hormones has the greatest effect on the availability of glucose for the developing fetus, by sparing glucose. Of these four, HPL is very significant with its growth hormone-like actions (Cunningham et al., 1995). HPL's production is proportional to the uterus size, with the larger the pregnant uterus the higher the HPL. HPL promotes lipolysis which increases circulating levels of free fatty acids providing a source for maternal metabolism and fetal nutrition (Cunningham et al., 2001). Increasing free fatty acids may have an effect of increasing insulin resistance but it also ensures a continuous supply of available glucose for transport to the fetus. Insulin has difficulty crossing the placenta, but glucose crosses this barrier with ease. So HPL has an anti-insulin action in the mother which raises her insulin levels. This increase in insulin effectively favors protein synthesis by providing a source of mobilized amino acids for transport to the fetus (Cunningham et al., 2001).

Pregnancy is a hyper-estrogen, hyper-progesterone state which increases with pregnancy. Both estrogen and progesterone have important actions on steroid synthesis (Cunningham et al., 2001). These two hormones are produced in large quantities by the placenta and from other organs. They indirectly and directly interfere with the relationship of insulin and glucose.

Although much is known about the action of estrogen and progesterone on insulin resistance, much is not. The high level of progesterone that arises from LDL cholesterol precursors in the placenta inhibits the activity of an

enzyme necessary for the esterification of cholesterol to a non-active form.

High levels of both of these hormones protect the necessary level of essential free fatty acids needed for the rapidly developing mass of cells in the mother and fetus (Cunningham et al., 2001).

Fat metabolism is also important for fetal development. Fat deposits in the mother, usually deposited centrally instead of peripherally, are available to the fetus later in pregnancy for pre-delivery weight gain. As these fat sites are depositing they also protect the mother and fetus from starvation throughout the pregnancy by ensuring a continuous supply of available glucose in times when meals are irregular or exercise depletes ready glucose. It is normal for centralized fat deposits to be deposited during pregnancy, but after the pregnancy they have a significant implication for Type 2 diabetes (Cunningham et al., 2001).

There is prolonged hyperglycemia and hyperinsulinemia in pregnant women after an oral glucose meal which probably maintains a lengthier sustained postprandial supply of glucose to the fetus. But the change from the postprandial state of elevated glucose levels to a fasting state of lowered plasma glucose and amino acids can be rapid. When fasting is prolonged in the pregnant woman, ketonemia rapidly appears and this is dangerous to the fetus because of fetal brain damage (Worthington-Roberts, 1995). It is also dangerous because protein catabolism has occurred as an energy source for the fetus instead of carbohydrates or fats. The amino acids used for

metabolism will not be available for synthesis of maternal proteins putting the mother into a negative nitrogen balance which is serious for both mother and fetus (Cunningham et al., 2001).

Although much of the mechanisms of pregnancy are understood, what remains unknown is the specific pathophysiology of gestational diabetes and its link to Type 2 diabetes, years later. It is important to remember, evidence indicates over 50% of women with gestational diabetes will be diabetic within 20 years and their offspring will have an increased risk for the long-range complications of obesity and diabetes (Cunningham et al., 2001).

### **Diagnostics**

Screening for diabetes can be done by one of three blood tests: 1) a fasting plasma glucose (FPG) level of 126mg/dl; 2) a 2-hour 75gm oral glucose tolerance test (OGTT) of 200mg/dl or higher; or 3) during pregnancy a 100gm 3 hour OGTT (abnormal glucose levels of: more than 95mg/dl fasting, more than 180mg/dl at 1-hour, more than 155mg/dl at 2-hour, and more than 140mg/dl at 3-hour). The diagnosis of gestational diabetes is made if 2 or more of the 3 hour values are elevated (American Diabetes Association, 2003).

Frequently a 2-step approach is followed for diagnosing GDM. The first step is a screening glucose challenge test (GCT) where 50gm of glucose is ingested and blood is drawn at one hour. If this is abnormal the next step is the 3-hour 100gm OGTT. Mexican American pregnant women require lower

blood glucose screening levels, 130mg/dl, in order to detect all GDM cases. This reduces the false negative rate thereby protecting more mothers and infants from delivery complications. Abnormal tests may indicate a prediabetic state, usually called borderline or impaired glucose tolerant (IGT), or diabetes.

The glucose intolerance of gestational diabetes may or may not resolve with the birth of the baby. Women who become diabetic with the stress of pregnancy usually return to normal glucose tolerance after delivery. But some do not, and they convert to diabetes during the pregnancy. Many who remain at risk for diabetes and in an impaired glucose tolerant state after pregnancy, slowly worsen with time. As noted, some women with GDM are diabetic before they became pregnant, but asymptomatic, and become symptomatic with pregnancy. The postpartum follow-up exam with an OGTT is essential to diagnose or monitor the development of Type 2 diabetes before symptoms of the disease manifest themselves.

If symptoms of the disease bring a patient in for diagnosis, the irreversible chronic complications of diabetes probably have begun. It is important to stop or delay disease progression so these chronic irreversible complications can be prevented. Postpartum monitoring for Type 2 diabetes is essential for risk reduction in the GDM woman, especially if her post natal test exceeds 140mg/dl (Kjos et al., 1995). In this case she should be monitored annually.

## **Barriers to Healthcare**

Increasing the rate of post partum follow-up is a challenge for nurses and doctors in specialized obstetric clinics. In 1999, Conway and Langer reported that only 17.6% of women returned for the postpartum exam in a San Antonio population made up of approximately 85% Mexican and Mexican-American women, who were socioeconomically disadvantaged and non-English speaking. Other studies have shown that compliance in Mexican Americans may be lower than other ethnic groups, perhaps due to cultural and economic factors. Employment for Hispanic women usually means a job of low status and frequently poverty-level wages often denying them access to health insurance and/or care (ODNIH, 1997).

The number of gestational diabetic women that deliver in San Antonio in the major public hospital system forms a considerable base to estimate GDM prevalence. Deborah Conway, M. D., the Director of the Diabetes in Pregnancy Program (DPP) in San Antonio, Texas, maintains a delivery database for the University Hospital where most of the clinic patients deliver. The statistics for 2002 indicate that 13% (374) of a total of 2843 deliveries at this hospital were women with GDM. This rate is similar to a rate of 14% reported by Jovanovic and Pettitt (2001). This large number of GDM patients require special follow up efforts if progression to Type 2 diabetes is to be prevented. But this Mexican American GDM population from the University Hospital needs encouragement to return to clinic for monitoring their risk for

Type 2 diabetes. It is estimated that only 17.6% of GDM women return for post partum diabetes follow-up (Conway and Langer, 1999).

Numerous cultural barriers have been described that may affect compliance and reduce the likelihood that a woman would return for postpartum follow-up. These include: 1) belief in fatalism, which is commonly reported in those of Hispanic background (nothing can be done about fate); 2) frustration with diet and exercise difficulties; 3) skepticism about the healthy lifestyle changes necessary for prevention; 4) belief in non-traditional remedies; 5) conflicts with the traditional role of the woman in the family; 6) the need for health care providers and services to be culturally sensitive; 7) non-English speaking; and, 8) acculturation stage or the level of adaptation by an individual to a different culture or group (Quatromoni et al., 1994, Anderson et al., 1998, and Jones et al., 2002). It is important to address cultural barriers when intervening with Mexican American women who have GDM because these cultural issues can have a significant impact on their compliance with and adherence to medical recommendations, and specifically their return for follow-up care in the post partum period.

### **Purpose of the Research**

Few studies have examined culturally competent interventions designed to encourage behavior change and improve compliance with medical recommendations in socioeconomically disadvantaged Mexican and Mexican-Americans. Fewer studies have focused on ways to improve the GDM

woman's diabetes knowledge with the intent of decreasing her lifetime risk for Type 2 diabetes. It is not known if giving information about Type 2 diabetes to the gestational diabetic woman during pregnancy will then improve the consistency with which she returns to clinic for regular glucose testing and for diabetic monitoring in the months and years following the pregnancy. Providing information about the nature of GDM and the need for such follow-up is a first step in this process and is the focus of the current research project.

The development of this project takes into consideration the ultimate goal of nursing as the informed professional caring for the well-being of others. Informed caring includes: educating the patient by increasing their knowledge about their health deviation, assisting with changing their attitudes, and helping them to modify behaviors so they are prepared to manage their own care (Swanson, 1993; Brown, 1999). Diabetes prevention is an opportunity to apply the nursing informed caring principles because increasing the knowledge of the women with GDM is seen as prerequisite to consistent follow-up behavior.

One of the expectations of nursing is to project a caring message in a simple, meaningful, dynamically explanatory fashion that is culturally appropriate in the preferred language. This message must encourage a positive prevention approach to self-management of the diabetes risk by indicating how the risk can be controlled with healthy lifestyle changes for



GDM women and ultimately their family. Although the message is directed at the mother it will hopefully impact other family members who themselves may bear an increased diabetes risk and need to make healthy lifestyle changes to prevent or delay the disease, especially the child of this GDM pregnancy.

An effective educational intervention that is organizationally useful, must be appealing with repetition over time to the GDM population, require minimal supervision of overburdened health care providers, and be universally attractive to varying segments of the patient population. A basic video therefore was developed and employed to meet these demands. Specifically a video was produced to address the increased risk for Type 2 diabetes in women who have or previously had GDM. This video carried nursing's message of caring, and focused on the patient taking responsibility for self-care to prevent or delay diabetes by making healthy lifestyle changes.

**Statement of the Purpose:** The purpose of this study was to examine the effect of a culturally sensitive educational intervention on the knowledge of prevention of Type 2 diabetes after pregnancy, in pregnant GDM Hispanic women over 18 years old, who attend the Diabetes in Pregnancy Program (DPP) at a university health center specialty clinic in a large southwestern city.

## **Chapter II**

### **Literature Review**

Diabetes, particularly Type 2 diabetes, is a serious, growing, and expensive chronic health problem in the U.S. In order to reduce its prevalence, predictors or risk factors must be identified and addressed. One predictor of diabetes is gestational diabetes (GDM). The woman with GDM has a higher risk for developing Type 2 diabetes sometime in her lifetime. Preventing the conversion of GDM to DM is an important consideration for physicians and nurses working in obstetrical care. How to communicate prevention to those at risk is an important question. Educating those who have the greatest risk is a possibility. What should the educational approach be? The answer to this question will be developed in the literature review. Barriers to a successful intervention will also be examined.

This chapter will discuss the literature that describes gestational diabetes and its risk factors. It will review education techniques and interventions that are the most compatible with nursing and acceptable to the socio-economically disadvantaged Mexican American aggregate for which this project was designed.

### **Implications for Risk**

Diabetes Risk. Gestational diabetes in Mexican-American women is a serious, common, and costly health problem, because of its association with an increased rate of maternal and neonatal morbidity (Hollingsworth, Vaucher, & Yamamoto, 1991). Data from the Diabetes in Pregnancy Clinic (DPC) study conducted in San Diego, California, found 66% of pregnant Mexican American women were non-insulin dependent Type 2 diabetics. Seven per cent were insulin dependent, but the majority of the insulin dependent were Type 1 insulin deficient diabetics. Of the women in the DPC, 55% had a glucose intolerance diagnosed during pregnancy, and of these over half were Mexican Americans (Hollingsworth et al., 1991).

The DPC defines true GDM as a failure of the pregnant woman to maintain normal glucose tolerance during the metabolic stresses of pregnancy. Because of these metabolic stresses, pregnancy becomes an important test for diabetes, especially in the Mexican American woman. Hollingsworth et al. (1991) note that Mexican Americans are the fastest growing minority group, one that has a high fertility rate, so emphasizing cost effective preventative medicine approaches to combat the rapidly rising rate of diabetes in this ethnic group, is important.

Kjos et al.(1995), found women who had impaired glucose tolerance (IGT) within the early postpartum period, had an 80% five year unadjusted risk for developing non-insulin dependent Type 2 diabetes. The women in

this study were restricted to Latinos because previous studies had reported the highest incidence of Type 2 diabetes in this ethnic group.

Kios et al., concluded the risk for non-insulin dependent diabetes is higher if the diagnosis of GDM is made, than it is in the population of women in which GDM is not detected. The authors suggested GDM women should receive intensive counseling, education, interventions during pregnancy and during the long-term regular follow-ups after the pregnancy, so the risk can be monitored (1995).

Diabetes Predictors. There are several predictors in the GDM pregnancy that can indicate an increased risk for Type 2 diabetes. The retrospective descriptive study of Schaefer-Graf et al. (2002), identified predictive parameters for postpartum diabetes, in the antenatal GDM women that placed them at high risk for a chronic glucose intolerance which could end in Type 2 diabetes. According to the authors the predictive parameters were: 1) the highest fasting glucose value over 121 mg/dl; 2) if insulin was needed for control of glucose during pregnancy; 3) if GDM was diagnosed early (before 19 weeks); 4) a prior history of GDM; and 5) a glucose value of greater than 202 mg/dl with the glucose challenge test (GCT).

The study followed 1,636 GDM women one to four months after delivery in specialized clinics in southern California between January 1987 and July 1995. Of 4,041 pregnancies that were complicated by GDM and were delivered during the study period, only 1,861 (46%) of the mothers returned

for diabetes testing within 1 to 4 months after delivery. Of these, 225 women were excluded from analysis because of incomplete antepartum data. Type 2 diabetes was diagnosed in 230 (14.1%), and impaired glucose tolerance or impaired fasting glucose was diagnosed in 440 (21.8%).

The reason for developing these parameters was so clinicians could counsel and educate patients about their individual risk while they were still pregnant, undergoing close medical follow-up, and were seemingly highly motivated, in order that postpartum compliance to follow-up monitoring would be improved. This risk pattern was also a critical issue for future family planning because further conception should occur in an environment of controlled glucose metabolism for normal fetal development (Schaefer-Graf et al., 2002).

### **Diabetes Education**

Education Using Compliance during Pregnancy. There is controversy about educating the woman with GDM. It revolves around whether to educate from a compliance/adherence model or self-management model. This section will focus on compliance. The relationship between education of the patient and compliance with medical recommendations is a major theme in the research on the management of GDM. To reduce morbidity and mortality in the pregnant mother and her fetus/child, research was done studying the relationship between education, motivation, and compliance during pregnancy (Ruggiero et al., 1990). In general, the literature suggests that women with

GDM adhere to provider recommendations during pregnancy, but that adherence declines after delivery.

The study done by Ruggiero et al. (1990) concluded that among 98 women with GDM, compliance during pregnancy was high. This was due to the suddenness of the diagnosis; the intense new management tasks; the relative short time frame of the problem (a few months); their social support; and their motivation for the health of their unborn child. The influence of stress on compliance was determined as minor. Compliance in this study focused on medical diet recommendations, insulin regimens, and the influence of stress and social support.

Concern for the unborn child is an important motivational factor for GDM women. It was shown by Hod et al.(1996), that how cooperative a GDM woman was in controlling her hyperglycemia had a direct effect on her unborn child, specifically macrosomia (large for gestational age), and neonatal hypoglycemia. Tight glucose control was especially important for obese GDM women because they were considered at greatest risk for poor pregnancy outcomes for the neonate.

Hod et al. (1996) compared 470 patients with GDM to 250 patients in a control group without diabetes in a prospective, population based study in Israel. They examined the effect of patient compliance with medical recommendations, on fasting plasma glucose, oral glucose tolerance test, maternal body constitution, and diet versus insulin treatment outcomes in

GDM women. Two factors were imperative for reducing perinatal complications: strict control of maternal hyperglycemia, and high patient compliance.

Compliance with medical recommendations about tight glycemic control of the diabetic mother during pregnancy is associated with fewer complications to the unborn child and the neonate after delivery. Weintrob et al. (1996), reviewed the short-and long-range complications that occur in offspring of diabetic mothers from preconception, gestation, delivery, infancy, childhood, and young adulthood. They described the short-term complications of uncontrolled glycemia as congenital malformations, macrosomia, birth trauma, and respiratory distress syndrome at delivery. The long-term complications for the child were defined as obesity, glucose intolerance and diabetes after delivery. They indicated these can be prevented with tight glycemic control prior to conception and during pregnancy.

The study recommended the education of general health care providers, the pregestational diabetic woman, and the GDM woman. These at risk women and their providers should be counseled about pregnancy risks and the importance of follow-up monitoring, and GDM screening programs should be implemented early in pregnancy. Timely referral to specialized clinics where the multidisciplinary staff is prepared to tightly manage glycemia should also be done early in pregnancy.

Langer and Langer (2000), also identified compliance as an important aspect of GDM care, but did so from the woman's perspective. They posited that the patient must be recognized as the expert in how her life is going to be lived, but not an expert in what is best for her disease.

Their secondary analysis of data collected in two prospective studies was the comparison between diabetes types, glucose characteristics during pregnancy, and mood in three groups. The three groups were: 1) 206 newly diagnosed GDM English-speaking women; 2) 100 English-speaking women with pre-gestational diabetes mellitus (PGDM) and; 3) 227 English-speaking non-diabetic pregnant controls. All study participants were drawn from the population of the university diabetes in pregnancy clinic serving inner-city residents of San Antonio, Texas. No definition of the ethnicity of this study population was given by the authors, other than they were English-speaking.

The study participants with diabetes, either GDM or PGDM, were treated with an intensified approach which included: 1) memory reflectance meters; 2) glucose testing 7 times a day; and, 3) weekly clinic visits where diabetes nurse educators and nurse practitioners continually reinforced the education program. Mood states were measured with a 72-item questionnaire, the Profile of Mood States-Bipolar form (POMS-BI) developed by McNair and Shilony (1992). It measured 6 bipolar subjective mood states: composed-anxious, elated-depressed, agreeable-hostile, energetic-tired, clear headed-confused, and, confident-unsure. The study concluded that successful



glycemic control may enhance patient empowerment to control and cope with GDM. This success lowered emotional levels of anxiety, hostility, fatigue, and lack of confidence to the level of non-diabetic pregnant women.

These two authors showed the psychological and physical care of a GDM patient cannot be separated. The authors stressed that the diabetic nurse educator and the patient must develop a partnership in which the patient has the right to make major decisions. The follow-up plan must be mutual and suitable to the patient. If the provider listens and acknowledges the patient without criticizing when information is exchanged, interaction and negotiation will be facilitated. The outcome of this plan will be improved compliance.

Noncompliance is thought of as a temporary lapse in this environment. The patient is empowered to prioritize her self-care and make better informed choices using the professional to guide her. This should be the goal of the educational program (Langer and Langer, 2000).

Defining Successful Education. A major problem in diabetes education is communicating the importance of follow-up monitoring while the patient is asymptomatic. But this must be done to reduce the significant morbidity and mortality that occurs later in the course of the disease after the individual becomes symptomatic. Type 2 diabetes has an insidious onset, usually beginning 4 to 7 years before it is detected by clinical diagnosis. The frustrating issue is how to educate and motivate asymptomatic individuals to maintain a treatment and monitoring plan for years so as to limit the

development of complications. Prevention or delay of this chronic disease is important, but warning signs are infrequent, and easy to ignore or deny over the years of developing diabetes. Consequently monitoring can easily go by the wayside (Mooy et al., 2000).

Numerous studies have examined issues related to effective diabetes education programs. Sprague et al.(1999) used a 40-item questionnaire with a 5-point Likert-type response scale, to assess 143 diabetes educators' descriptive perspectives of barriers to education utilization by patients. They concluded a major barrier was communicating to the diabetics and their healthcare providers the value of education, so that both are motivated to participate in a lifelong process.

Sixty-eight percent of the diabetic educators, of which 61% were nurses, reported they conducted educational follow-up after the initial diabetic education. Sixty-two per cent of these patients were reached in follow-up. But the return to clinic rate was only 44%, and the attrition rate from the initial diabetes education session was 21%.

Since diabetes evolves throughout the life span, the education process must be progressively dynamic. The diabetic educators surveyed by Sprague et al., used several approaches including individual counseling, goal setting, group instruction, and techniques based on empowerment. All the approaches were dynamically interesting, challenging, and directed at self-management skills that affected the diabetics' behaviors.

The self-management skills ranged from systematic self-care skills to survival skills to behavioral skills. Systematic self-care skills are needed for taking medication and monitoring glucose. They give immediate feedback and take little time to perform. Survival skills are needed for metabolic control and their development occurs slowly over longer periods of time. But they are eventually noticeable. Finally, behavioral skills are needed to change well-established lifestyle and cultural patterns. These are resistant to change and positive accomplishments are difficult to notice. But this is where the diabetic educator is important, because she or he is trained to promote and help the diabetic develop self-management behavioral skills requiring changing lifestyles and cultural patterns (Sprague, 1999).

In their commentary about GDM research, Buchanan and Kjos (1999) reinforced the need for continuous education about hyperglycemia throughout the lives of at risk women because the risks are great before as well as after delivery. During pregnancy if hyperglycemia increases so does the risk of morbidity associated with the GDM pregnancy. And, after pregnancy, if hyperglycemia increases, the risk for Type 2 diabetes will continue to rise. The knowledge and skills women learn during pregnancy should be transferred and augmented after the pregnancy.

The need for communicating prevention to at risk women places the diabetic educator in an important position for diabetes prevention. But diabetic educators must practice within the theoretical guidelines of the

program they find themselves in. These programs can have a compliance/adherence focus, a self-management focus, or a combination of both.

Education Using Surveillance and Compliance. Educational programs vary in how they communicate prevention to those at risk. Beischer et al. (1997) used a well defined intensive surveillance program that encouraged post partum women who had had GDM to continue the lifestyle changes made during pregnancy. Subjects had these behaviors assessed at least every two years after the GDM pregnancy. Their 14-year surveillance program was a cohort study of 1743 women who had recently had GDM. Of those, 1141 women (65.5%) had normal glucose levels, 388 women (22.3%) had impaired glucose tolerance, and 214 women (12.3%) had diabetes. At the end of 14 years, 45% of non-diabetics were lost to follow-up.

In this study the GDM women were counseled during pregnancy, interviewed after delivery, given a postnatal oral glucose tolerance test (OGTT) appointment, and written explanations of it's importance. They were provided a contact person, placed in an up-to-date comprehensive computer database, sent reminders, given Saturday appointments, and interpreters if needed. They were recalled every year for at least two years and rescheduled if they missed their appointments.

Enrollment and compliance with the follow-up study program were predicted by several factors. These were: whether insulin was a requirement

during pregnancy; how severe the GDM was to control; if they came to the first planned postnatal OGTT appointment; and if they were older than 30. Specifically, the most predictive of the compliance factors was if they came to the first postnatal OGTT appointment.

The major difficulties enrolling women with prior GDM into the follow-up study led to recommendations. The need for education about the importance of ante partum follow-up care is at the time of diagnosis. Case managers should be assigned to visit the GDM women at delivery and give them an appointment. Then it is essential to maintain a computer database with up-dated contact and health information. Finally, meticulous program administrators were important. This program placed responsibility for compliance in the program personnel's hands, not the hands of the individual who was at risk. It was however, weak in educating self-management skills.

Education Using Self-Management. The last 15 years have seen a rise in the adoption of Diabetes Self-Management Education (DSME). This is a patient-centered empowerment approach instead of the traditional compliance-based medical model approach (Brown, 1999). The traditional compliance-based medical model becomes counter-productive because it blames the patient's behavior as the problem. Education tends to be didactic in the compliance model and outcomes become punitive in nature. If patients do not do what they are told to do, compliance models take the view that patients must live with the morbidity problems of the disease. The compliance model contrasts

with the DSME approach because DSME is a more collaborative approach between patient and provider.

Compliance with medical regimens is critically important during acute medical problems. This has contributed to the design of our health care system, which revolves around diagnosing and treating acute health problems not asymptomatic chronic diseases, according to Funnell and Anderson (2002). This probably explains why acute care modalities are constantly improved in diabetes and reasonably available, but chronic care is slow to be developed and researched.

Chronic diseases with a long asymptomatic period are a particular concern of the health care system. This is because treating the serious complications that develop when the disease is symptomatic take top priority over the asymptomatic period. Prevention, early detection, and daily management in the asymptomatic period do not receive as much attention from health care providers or patients with the disease.

Funnell and Anderson (2002) maintain lifestyle changes should be made by the at-risk individual, such as weight loss and regular exercise during the asymptomatic period. But the health care provider simply telling a diabetic at an infrequent clinic visit what to do, will not motivate them to lose weight and to exercise regularly. This is because the constant daily requirements of the diabetic are determined by the individual with the disease, not the health care provider. Effective diabetes self-care depends upon effective self-

management, which depends upon effective patient education (Funnell and Anderson, 2002).

Patients need to understand the disease, its management, treatment options, costs, benefits of therapeutic approaches, behavior change, goals, and problem solving strategies. Then they need to understand their own goals, values, and feelings related to diabetes. How they make decisions, and how they assume responsibility are important for self-care.

It is also very important to educate the community within which the diabetic lives because the diabetic needs support. In an educated community, the problem of undiagnosed diabetics may be reduced also. If the DSME program is focused on the diabetic and their community, compliance and adherence issues will be eliminated or decreased (Funnell and Anderson, 2002).

Evidence suggested diabetics could achieve more successful health-related outcomes with DSME compared to other modalities, so a task force was appointed to review the National Standards of DSME (Mensing et al., 2003). DSME was defined as “an interactive, collaborative, ongoing process involving the person with diabetes and the educator” (Mensing, p S152). It includes assessment of educational needs; identification of self-management goals; educational and behavioral interventions directed at achievement of the individual’s self-management goals; and the evaluation of goal attainment.

According to the task force, successful diabetes self-management occurs with behavior and lifestyle changes. DSME instructors are encouraged to use creative delivery methods to promote behavioral lifestyle outcomes. These creative educational interventions or courses must stay within the defined coordinated guidelines of the DSME curriculum while flexibly adjusting to the health needs presented by the patient. The task force also concluded that more outcomes research is needed in the area of educational and behavioral interventions to identify the effectiveness of the DSME curriculum.

Measurement of the Effect of DSME Programs. Eakin et al. (2002) completed the first systematic review of DSME research of interventions delivered to under-served disadvantaged groups or communities (2002). Studies were reviewed if they were a randomized, controlled trial or quasi-experimental study having a comparison group. Thirty articles were found, and 10 were selected that fit the inclusion criteria. They were evaluated using the RE-AIM framework (Reach, Efficacy, Adoption, Implementation, Maintenance). This measurement framework, developed by Glasgow, Vogt and Boles (1999), was used to measure the impact of health promoting interventions for public health. They concluded both the quality of DSME programs and the short-term results were positive, especially with behavioral outcomes.

One criticism was that the “Adoption” dimension of the RE-AIM model, which is the “percentage and representativeness of settings that are willing to



adopt a given program,” was not reported in any of the reviewed studies (Eakin et al., 2002, p 28). The authors felt this was an important finding that needed to be addressed.

Of interest to this project, the Eakin et al. review identified and evaluated one study focused on the high diabetes risk of socioeconomically disadvantaged Mexican Americans. It used an educational video as one of its successful interventions. But this research study did not evaluate interventions for GDM, it was limited to Type 2 diabetes. Eakin et al. asserts that DSME can be effective for Mexican Americans with Type 2 diabetes (2002).

Reinforcement for DSME Programs. Controversy about the most effective approach to GDM education exists. Some leaders in diabetes education have been critical of both compliance-based approaches and its more recent variant, adherence-based approaches. Both have been criticized for not being sufficiently patient centered or culturally sensitive.

Glasgow and Anderson (1999) feel the cluster of daily behavioral tasks that a diabetic individual follows are his or her choice to completely and should therefore be called self-care or self-management. Compliance and/or adherence theory implies a static standard against which the diabetic's behavioral choices are made, and all medically required tasks are essential. In reality the daily tasks are actually dynamic or frequently changing. Each day diabetics make decisions about what they are going to eat, if they are going to

exercise, how they are going to manage stress, or when to monitor their hyperglycemia. The health care providers are not present to influence daily decisions, and even if they were there, their recommendations may not be followed, no matter how important they are.

The risks for the morbidity associated with diabetes are the consequences of the diabetic's choices. Many of these morbidities are long term and will not occur for years. As a consequence, the health care provider cannot always share in the responsibility of self-management choices over a lifetime.

According to Glasgow and Anderson, the health care provider can: 1) provide patients the expertise needed for self-management; 2) help diabetics with the acquisition of knowledge needed to make informed self-management decisions; 3) teach self-care techniques; 4) provide emotional and social support; 5) offer suggestions for behavior change and coping strategies; and, 6) give diabetics opportunities to reflect on their choices and the goals they have made. Patient self-management tasks are foundational for educators developing effective DSME programs (1999).

Diabetes is a disease amenable to self-management because self-action plays such a large role in the disease's stability and risk reduction. Caregivers in DSME are seen as responsible to their patients but not for them. The ideal is a dynamic, respectful, collaborative relationship. Glasgow and Anderson advocate for a more participative and collaborative approach. More outcomes research is needed as Mensing et al. (2003) mentioned, but the

research completed is beginning to demonstrate the effectiveness of the DSME approach. Glasgow and Anderson concluded, compliance and adherence both have become old fashioned, outdated, and have no place as concepts of care for diabetes (1999).

### **Nursing's Involvement in Diabetes Management and Research**

Progress of Nurse-Care Management for DSME Programs. The assessment of patient outcomes determines the effectiveness of DSME programs. An early example is the Structured Teaching Plan developed in 1991 by Keohane and Lacey for nurses to prepare hospitalized GDM women for self-care. It was designed to overcome barriers to learning the necessary skills for self-care for GDM women, and to support busy nurses with teaching guidelines. Teaching methods, aids, objectives, and strategies were included in the development of flip charts used as teaching guides.

The effective teaching guides were to: “provide orientation, assess patient knowledge, state objectives, present content clearly, promote active learner involvement, provide a variety of stimuli, highlight the main points of the material, respect the patient, use visual aids, use examples, summarize the information, evaluate learning, provide feedback, and encourage the practice of self-management skills” (1991, Table 1, p 190). An evaluation tool was tested in 34 newly diagnosed GDM patients. The women had been prepared by the Structured Teaching Plan and then were tested with a 20-item post-test.

The subjects in this study had a mean age of 63.5 years. They were white, male (99%), with at least a high school education (65%). They had had diabetes for approximately 11 years, 45% used insulin, and most had 3 or more co-morbidities.

The intervention nurses encouraged compliance with regimens, monitored health status specifically identifying problems, and facilitated access to primary care. With this intervention, glycemic control was modestly improved but not the health-related quality of life.

Several reasons were suggested as the cause of the limited success of the project. One was the use of different non-clinic nurses for the intervention which suggests familiarity with health care providers is important. Also, the significant number of co-morbidities may have affected the lack of improvement in the quality of life. Another reason was a stronger focus on compliance with regimens, not on self-care. Finally, patients may have expected an immediate benefit in quality of life with a small modest improvement in glycemic control, and this was not seen, which may have led to discouragement. It was suggested by the authors that lack of familiarity with nurses, many co-morbidities, focus on compliance instead of self-care, and no observable improvements to the diabetics in how they felt, may have determined the project's lack of success (Weinberger et al., 1995).

Positive Outcomes of Nurse Care Management of DSME Programs. A study that reinforced the nursing management for patients with GDM was the

Garcia-Patterson et al. study (2003). It retrospectively compared “the rate of insulin treatment and perinatal outcome in women with GDM under endocrinologist-based versus nurse-based metabolic management” (p 998). Comparisons of the two management groups showed no difference with the use of insulin and perinatal outcome. This supports the potential utility of nurses in diabetes management programs. According to Garcia-Patterson et al. (2003), early studies on the care of GDM women do not describe the diabetes nurse as having an active role, although it has been shown that diet instruction is best done by dietitians. But as training of advanced practice nurses (APNs) increased, specialized skills developed, autonomous diagnosis and treatment decisions increased, and the APN outcomes became no different from physicians in studies, as diabetes nurses were allowed to actively manage patients with diabetes or GDM.

Another study reinforcing nurse-care management was the Taylor et al. (2003) randomized trial designed to determine if nurse-care management of an intervention dealing with mood, self-care activities and self-management skills, would improve medical, psychosocial and lifestyle outcomes for complicated diabetics, compared to their usual care. This trial followed 169 Santa Clara, CA, Kaiser Permanente Medical Center patients with long standing diabetes complicated with at least one major co-morbid condition. Eighty-four received the specially designed intervention and 85 received usual care from their primary care physician, for one year. A eligibility requirement

was to be able to speak English. Of the 85 participants in the usual care group, 21 were Hispanic; and of the 84 in the intervention group, 14 were Hispanic. There were slightly more men in both groups; 55 in the usual care and 50 in the intervention group.

The first visit for the intervention patients was with a nurse-care manager who was an RN. At this visit the patient's medical, lifestyle, and psychosocial status was reviewed. The RN took vital signs and did a foot exam. An initial self-management plan was developed.

Then, once a week group sessions for the intervention patients began. This lasted 4 weeks. The group sessions were 1 to 2 hours long with 4 to 10 participants. A workbook was followed that was specifically designed for the didactic part of the sessions. But the sessions focused on group discussions, participation, and problem solving.

Following this, but before the fourth group session, telephone calls began. They were from a program nurse-care manager. After the first call was made, they were done at 5, 8, 12, 16, 20, 28, 36, and 44 weeks. They were structured to last 15 minutes. The phone call format followed was first to review the patient's goals, then medication use, symptoms, glucose monitoring results, blood pressure monitoring, and finally self-care activities.

The nurse-care managers were selected because they had experience managing hypertension and lipids. They were trained for several days on the Kaiser Permanente protocols for diabetes and cholesterol, attended diabetes

group classes to learn about hypertension and depression, and followed diabetes care managers and physicians treating patients with diabetes before they began.

The outcome of the study showed a significant improvement in three medical outcomes in the intervention group. All patients randomized in the study were selected on the basis of poor diabetes control, so the outcome of significant improvement in medical outcomes for the nurse-care managers was impressive. But neither group significantly improved in the self-care or psychosocial variables (Taylor et al., 2003).

Establishing the Importance of Using CNSs. York et al. (1997) reinforced the importance of clinical nurse specialists (CNS) in their study of high-risk pregnancies, including gestational diabetes and high blood pressure. They focused on early discharge and nurse specialist transitional follow-up care of high-risk childbearing women. This project began with the diagnosis of high-risk pregnancy and ended at 8 weeks postpartum. The specialized knowledge, skills and services of the CNS's were successful in managing the transitional time in these women's lives and prevented the complications associated with high risk pregnancy.

York's study was a randomized trial of an intervention group who was followed by the CNSs, versus a control group who was given usual care. The study described the care provided by master's-trained prenatal CNSs as "safe,

feasible, cost-effective, and well-received by women” (York et al., 1997, p 255).

The nursing authors of this trial developed protocols for the intervention group that the CNSs followed. These protocols included patient education and knowledge of blood glucose result, discharge planning, counseling, follow-up visits, measurement of emotional status, and assessment of the patient’s home environment and support system.

The study began during the one-week hospitalization following the gestational diabetes diagnosis. During this week, the GDM women were educated about their care and management of GDM. When they were discharged from the hospital, they began outpatient education and self-management of GDM. From the hospitalization through the 8 week post partum follow-up period, they were under the care of the CNSs, using the study protocols.

The significant outcomes were: fewer hospitalizations in the intervention group; low birth weight infants were 3 times more prevalent in the control group; the hospital charges were 44% less for the intervention group; and a net savings of \$13,327.00 was realized for each mother-infant dyad discharged early. These positive outcomes contribute to the body of knowledge about the value of quality nursing care in women’s health. The framework this study offers nursing is to begin with patient education;



measure knowledge gained; follow the scientific evidence; address the patient support system; and measure outcomes.

Nurse Created DSME Programs A successful DSME program was developed, piloted, and conducted by a nurse. Brown, Duchin, and Villagomez (1992) published the positive efficacy and patient acceptance results of a pilot study of a research-based diabetes educational videotape. This preceded the development of a formal DSME program.

The project was done for socio-economically, disadvantaged, and predominately Spanish-speaking Hispanic diabetic adults in Starr County, a rural Texas-Mexico border community. This community had a high rate of diabetes, with approximately 50% of adults over the age of 35 years directly or indirectly affected by the disease. Prior research indicated that diabetes education was non-existent, funding resources were minimal, and essential treatment took priority over formal instruction because professional nurses were in short supply (Brown et al., 1992).

The need for educational interventions had been demonstrated when Brown (1999) reviewed 20 years of diabetes interventions that were done to promote diabetes self-management. Her review showed structured education improved patient knowledge and compliance with treatment regimens, which in turn increased metabolic control. These were the goals of the Starr County project.

Although commercially prepared educational pamphlets for Spanish-speaking populations were available, Brown et al.(1992) found diabetes patients rarely read or used them. So a different vehicle was needed to bring the educational message. They determined it should be simple to read because of the estimated sixth grade level of education of this population, culturally relevant, dynamic enough to capture attention with multiple repetitious uses, and require minimal attention from the busy health care providers. A videotape seemed to meet all these requirements.

A major focus of the Brown videotape was the self-management approach to diabetes, based on the premise that diabetes could be individually controlled with small alterations in lifestyle. These lifestyle changes could make the diabetic and his or her family healthier as demonstrated by success stories included in the videotape. Self-management was seen not as an impossible task, and the choice to take control of the disease was up to the individual.

It was a randomized study of 15 diabetics in the experimental group who watched the video before taking the test, compared to a control group of 15 who took the test before they watched the video. The research outcome of this project was measured with a 20-item knowledge test and a post-video interview. Acceptability of the video was assessed by interview. The effectiveness of the video intervention was positive and the interview results indicated the video was enthusiastically accepted. These positive results led

to a multifaceted diabetes self-management educational program that was recognized by Eakin et al. in her review of successful DSME programs (2003).

### **Using Technology in Diabetes Programs**

The Technology of the Telephone. Piette et al.(1999) used automated telephone disease management (ATDM) successfully in ethnically diverse, low-income patient with diabetes. The intervention was specifically designed to address changes in health status between out-patient visits for the diabetic patients. Periodic telephone calls were expected to increase the efficiency of the increasingly burdened health care providers at the outpatient clinics and decrease the health care costs for this low-income population.

Two hundred fifty two adults with diabetes (30 spoke only Spanish) were enrolled from two clinics. One was in the Department of Veterans Affairs health care system (n=132) and the other clinic was from a county health care system (n=120). These participants received ATDM calls every 2 weeks for 12 months. During these automated human-voice phone calls information about self-monitored blood glucose and symptoms of poor control were entered with a touch-tone telephone keypad in response to specific questioning. At the end of the phone call, instructions were given to contact study nurses who were available to clear-up problems and answer questions not covered in the phone calls. Half of all enrolled patients completed at least 77% of phone assessments and one fourth completed 91% of assessments.

Enrollees in the study became more proactive as they responded to the ATDM calls. The ATDM calls produced more reliable information than at clinic visits because of their frequent, predictable regularity and because the encounters were not infrequent face-to face hurried visits with the health care provider. Also, the ATDM program was a reliable monitor of outcomes following changes in medical care. Complex fluctuations in the diabetic's health status following treatment changes were difficult for patients to understand and clearly communicate to the health care providers because of the long time span between appointments. But the frequent ATDM calls picked up these health status changes. This information could be used to alter the schedule of medical care (Piette et al., 1999).

The outcomes of the ATDM project suggest that socioeconomically and medically vulnerable groups are not resistant to technological interventions, and this approach is potentially useful with diabetic patients. Whether a similar intervention could be used successfully with low-income women who are at risk for diabetes is unknown. The woman with GDM may prefer a warm, personal relationship with their health care provider instead of a distant, impersonal high tech one.

Personal vs Non-Personal Relationship. Byrd et al. (1996) studied the reasons why low-income Hispanic women in Houston begin prenatal care in the later stages of pregnancy. Several barriers to attending clinic for prenatal care were identified. These were: lack of enough time for the doctor-patient interaction,

long waiting times, embarrassment at the physical examination, and lack of Spanish language translation. The lack of time was especially discouraging for the Hispanic patients because their expectations were for a warm, personal relationship with their health care provider. They expected to be cared about as well as cared for, and this was not always communicated to the patients in this health care situation because of time constraints.

Demands being placed on overburdened nurses by the health care system, are an increasing problem. Technology to some extent can lessen these demands, but it is difficult to speculate if it will be at the cost of dehumanizing the warm, personal relationship expected of nurses.

According to Sandelowski (1995), technology does draw nurses away and distort their caring mission, especially when nurses allow it to impede certain functions of nursing. Perhaps what is critical is how nurses handle the technology; how they communicate while using it; how they act while using it; and what they're caring values are to begin with. Nurses are a presence and they can convey a caring message to patients whether they have a technological go-between or not (Sandelowski, 1995).

Technology is complex, and intimidation is a risk to the patient if self-care is the goal of a highly technological intervention. However, if used appropriately, technology can encourage self-care. It can be used to know specifics about individual patients or a group of patients with the same

problem, and it can be used to inform that patient or that group of patients about their problem.

There is an inevitable vulnerability and uncertainty caused by health problems that must be faced, addressed, and accepted by patients. Gaining knowledge about the health problem encourages the process of acceptance and decreases a patient's vulnerability and uncertainty. Knowledge can produce changes in life values if the educational message is clear and is accepted. The goal of professional nursing practice and the caring role of the nurse is to help the patient adopt self-care that ultimately prolongs life, and if that self-care entails technology, to use it in a humanistic fashion (McConnell, 1998).

The Technology of the Video. As stated, it is important to critically appraise the effectiveness of technology. In particular, the patient response to technological intervention is important for nursing to critique. Does it alter the life experiences and practices of the patients to whom it is applied? Few studies have researched educational technology interventions applied to specific segments of GDM or even diabetic populations.

Mexican Americans are a large and growing population in the Southwestern United States. They have a high rate of DM as well as GDM. This group frequently is considered non-compliant by health care providers because they fail to adhere to complex medical regimens and frequently fail to keep follow-up appointments. This view is reinforced in providers when medical interventions fail to effect the behavior change expected.

Formal educational materials for most GDM patients are available in most specialty clinics, and education is presented verbally by nurse educators and nutritionists. But printed educational pamphlets are found discarded and verbal education is not enough to bring Mexican American women with GDM back for follow-up care. Some other method is needed. This encourages researchers to pursue intervention modalities that might be more effective in these groups and to address their barriers to care.

One intervention considered successful with Mexican American diabetics was tested in the DSME study of Brown et al (1995). The first phase of Brown's program was a previously described educational video produced in 1992. The video was well received as a means of conveying information. In the second phase, Brown et al. (1995) provided rural Mexican-Americans in Starr County with an intervention that combined patient diabetes education with group support. This combined intervention was to be used by a Mexican-American clinical nurse specialist, a dietitian, and a community health worker. Brown piloted a series of seven Spanish language educational videos developed for the community-based, culturally sensitive group-support DSME intervention (Brown et al., 1995).

The 15 to 20 minute videos consisted of previously tested colorful, graphic, interesting and culturally-relevant diabetes information that stimulated group discussions in the Mexican-American study participants. Each group was comprised of 5 diabetics and 5 support persons. The

interactive intervention was an eight-week course of educational group-support sessions dealing with self-management issues about nutrition, glucose monitoring, and regular exercise. Because it focused on self-management, it was a DSME program. Results of the program showed statistically significant improvements in diabetes knowledge, fasting blood sugar, and hemoglobin A1c levels (an indicator of glucose control in the past 90 days) in the small pilot group (Brown et al., 1995).

The Starr County Diabetes Education Study developed from the two pilot video programs mentioned previously (Brown et al., 1999). It was a 4-year randomized trial of two groups, the first of which received a culturally appropriate community-based educational intervention (8 week video-stimulated group support sessions) for diabetes care. This was compared to the control group which received usual care treatment for one year, then received the 8 week video-stimulated group support sessions. Two hundred and fifty-two persons participated; 161 were females and 91 were males.

The key outcomes were a positive improvement in the fasting blood glucose, glycosylated hemoglobin, and weight in the intervention group. The first two outcomes showed continued improvement at 6 months and 12 months. Weight was not measured at 12 months but showed improvement at 6 months. This study indicated that if culturally sensitive issues and health beliefs are incorporated in DSME programs for socio-economically



disadvantaged Mexican Americans with Type 2 diabetes, there is an improved success rate.

### **Cultural Issues and Barriers to Diabetes Self-Management**

Cultural issues and health beliefs create barriers to self-management education for ethnic minorities. Thus study investigators must be culturally sensitive to the relevant culture if effective interventions are to be developed. Defining Health Belief Barriers. Quatromoni et al. (1994) used focus groups to gather critical cultural information in their descriptive study of the nutrition practices and health beliefs of 30 low-income northeastern urban Latinos of Caribbean origin that had diabetes. The themes derived from the study participants were: 1) feeling socially isolated; 2) having little or no understanding of long-term consequences; 3) being fatalistic regarding the long term course of the disease; 4) feeling frustrated with barriers to diet and exercise; 5) being skeptical regarding the importance of health prevention behaviors; 6) frequently using non-traditional remedies; and, 7) needing for health care providers and services to be culturally sensitive. Any educational intervention for Latinos, more specifically Mexican Americans, must address these issues in order to be culturally sensitive.

The Texas Starr County study, mentioned previously, examined the metabolic control, knowledge, and health beliefs of Mexican Americans with Type 2 diabetes (Brown et al., 2000). One of the major conclusions of the study was the need to empower the diabetic Mexican-American woman to

take control of her diabetes. Prior to this study, focus groups in Starr County indicated a strong community belief that residents could not control diabetes, that fate determined who would get diabetes. This belief in fatalism supports a perception on the part of many Mexican Americans that probably everyone in Starr County will eventually get diabetes.

Female study participants demonstrated an even lower belief in their ability to control health and a greater need for social support than the men. The Starr County project found that if the diabetes nurse educator convinces the Mexican-American diabetic woman she has some control over her diabetes, that it does not need to be left to fate, then the diabetic woman may be empowered to follow medical recommendations.

The Starr County study also found the educator's relationship to the diabetic woman and her subsequent self-management successes with treatment were frequently tenuous. Adhering to a treatment plan was doomed to failure if the women's role in the family and the personality of the family was not considered in the empowerment strategy. The diabetic woman may choose to silence her needs to avoid family conflict (Brown et al., 2000).

The Impact of Poverty on the Health Struggle. In trying to understand the beliefs of Mexican Americans, Schwab et al. (1994) found that acculturation and fatalism were more pertinent to low income Mexican Americans than vulnerability and other barriers to care which are concepts of the Health Belief Model (HBM) instrument (Becker & Janz, 1985). The HBM was originally

developed for non-Hispanic whites who have a higher natural belief in their own control. Schwab's study suggests the value of validating instruments as well as assumptions in specific cultural groups, for even after extensive attempts to operationalize the HBM for their population of 199 low income Mexican American diabetics, and after multiple statistical analysis, Schwab found the HBM inadequate in explaining Mexican American beliefs. For this reason, they concluded the HBM was not effective for addressing the health beliefs and attitudes in their descriptive study of low-income Mexican Americans in San Antonio, Texas (Schwab et al., 1994).

The basis for the HBM is the premise that health is valued and this value influences people's health-seeking behavior. But this assumption may not be true in Schwab's population where results showed 79% were below the poverty level, 53% had no health insurance, and the highest level of education was 6 years. Health may have been valued but was a low priority because of the poverty struggle. Schwab et al. suggest that poverty may lead to a sense of powerlessness and hopelessness, which carries over to diabetes self-management. They concluded adherence to treatment and the adequacy of the intervention strategies are major concerns for healthcare providers for this ethnic group that frequently struggles for basic survival (Schwab, et al., 1994).

Poverty is a common problem experienced by Mexican Americans and especially those served by public clinics set up by academic teaching centers in large Southwestern cities. Poverty creates barriers to access care in these

clinics, and several problems have surfaced which plague the health care providers. These problems have an impact on expensive follow-up treatment plans. Poverty contributes to a lack of transportation and fragments client dependability with appointments. Instability in housing causes frequent address changes and the cancellation of phone services. So reaching this population can be frustrating to providers especially if they do not understand the complexity of living with limited financial resources.

The Importance of the Hispanic Family. The Hispanic family is crucial for the support of the diabetic member and his or her educational development (Brown et al., 2000). Anderson et al. (1998), used four focus groups to identify diabetes care and education issues for Latinos with diabetes in the Detroit area. Of prime importance in this study of primarily elderly women, was the difficulty many Latinas have with their diabetes self-care because of other family responsibilities.

The Latina is the emotional support around which the family is organized and depends. She is the food provider and cook. The Anderson et al. study indicates the Latina will often compromise her healthy diet in order to accommodate her family's food interests if the family is unwilling to adapt to the diabetic dietary changes and continues to expect traditional foods. Secondly, a lack of understanding by the family decreases family support. Effective diabetes education for the Latina requires the acceptance of the educational program by her family (Anderson et al., 1998).

Weller et al. (1999) studied how Latinos describe diabetes in a survey of 161 Latino adults from four diverse communities: Hartford, CN., Edinburg, TX., Guadalajara, Mexico, and rural Guatemala. The focus of the study was on beliefs at the community level and was conducted through interviews and questionnaires. An important conclusion was the importance of family support as a key to assuring adherence to diabetes management. Numerous studies suggest that for the Mexican American woman to successfully adhere to a treatment plan, she must have the support of the family because she functions in this milieu. Therefore, the health care providers must enlist the support of the family or the program will be ineffective (Anderson et al., 1998; Brown et al., 2000; Fisher et al., 1998; and Weller et al., 1999).

Acculturation Barrier. Acculturation, according to Seldana, (2001), is a factor of cultural variability or individual differences within a cultural group. It reflects the extent to which a person is familiar and proficient within mainstream U. S. culture. Acculturation is composed of many variables such as poverty, language, housing, educational background, illness beliefs, previous experiences, immigration, and support within the community, to name a few. Level of acculturation is a measure in the Jones, Bercier, Hayes, Wentreck, and Bond study (2002), whose results indicated the importance of acculturation for compliance with follow-up care. In their convenience sample of 100 high-risk pregnant Hispanic women, the authors reported the majority of the participants were not acculturated. Their return to the high-

risk pregnancy specialty clinic was 75% for a postpartum visit after delivery of their child as compared to 14% who returned for family planning visit at one year after the birth of their child.

This descriptive correlational study took place in an urban southwest city that had a significant population of Hispanics. Eighty-six percent of the sample was first generation Mexican Americans who were the beginning members of a single family in the United States. Sixty-five percent of those came from Mexico and 69% remained very Mexican-oriented, and none were Anglicized. Although the small sample size limited conclusions, and only about 20 GDM patients were enrolled in the study of 100 participants, the authors concluded that follow-up monitoring of patients is critical since only 20% of participants returned for one year follow-up. These results point to a serious need for raising the GDM women's concern for diabetes self monitoring. The study results imply that culturally sensitive educational strategies should be employed with this vulnerable Hispanic population (Jones et al, 2002).

Cultural Sensitivity/Cultural Competency/Cultural Variability. Cultural competency "is defined as the ability of providers and organizations to effectively deliver health care services that meet the social, cultural, and linguistic needs of patients" (Georgetown University, 2004, p 1). It is the acceptance and respect for cultural difference, and the ongoing development of cultural knowledge on the part of the health care providers that defines a

culturally sensitive intervention (Saldana, 2001). It requires continuous learning that progressively enhances sensitivity and builds on previous knowledge and experience. As information and knowledge about cultural differences increase, cultural competency will be evidenced in clinical standards, skills, interventions and approaches to healthcare and outcomes. As practices become more culturally sensitive, barriers to effective utilization of healthcare services decrease (Saldana, 2001).

Knowledge about the client's culture, literacy, poverty, language and support resources are important considerations for interventions. How to apply research and knowledge, evaluate new interventions, and communicate accurate information to specific cultural groups are key. Cultural sensitivity requires a willingness to work with clients of different ethnic backgrounds; an ability to accept those differences; the desire to project warm caring qualities while responding flexibly to their demands; and the ability to encourage change and possible solutions to the health problem (Saldana, 2001).

Language has important significance for culturally sensitive assessment tools such as testing instruments, according to Saldana (2001). It is extremely important to reach or assess individuals of different ethnic backgrounds in their primary language. Explanations about testing must be carefully done in the primary language. Comprehension means adequately discussing the purpose, the application, and the intended benefit testing to the client.

Translators are frequently employed in health care settings to facilitate client understanding of the medical condition, the care needed, and forms and instruments required for clients. A major concern in using translators is the level of understanding by the clients in the ethnic group being addressed. Do these clients understand what they hear and read in health brochures, questionnaires, and assessment tests? Do they understand what they hear and see during interventions? Interpreters have to encourage clients to ask questions about each facet of their encounter with the health care system (Saldana, 2001).

### **Mexican American Belief Systems**

When Latina women are a significant part of a clinic or study population, an awareness of the relevant cultural values must be made (Ginorio et al, 1995). These cultural values are considered normative but they vary across different Latino groups, social class, acculturation, and generation. Most Latinas have these values to some degree and they expect them in their interpersonal interactions. Normative cultural values include *familismo*, *marianismo*, *fatalismo*, *positivismo*, *respeto*, *personalismo*, and *simpatia*.

*Familismo* is a Mexican American cultural concept that the family is an individual's primary social support and influence (Aguilar, 2004). Recognizing the important role played by the family is a critical part of cultural competence. It is crucial to understand the power of a family's beliefs about illness and how to cope with it.



Children are highly valued in the Mexican American family, and tend to.... “validate a marriage” and womanhood (Aguilar, 2004). Importantly, children can be a source health care providers can use to reach less acculturated parents. They can help to communicate health promotion ideas and reinforce treatment plans (Aguilar, 2004).

Pregnancy is an important event in the Mexican American family (Aguilar, 2004). It is seen as a natural process and does not require medical intervention or prenatal diagnostic testing. If an intervention such as prenatal testing is permitted; traditional cultural beliefs may conflict with subsequent decisions and may color an understanding of the identified risks. Prevention and risk for a chronic disease is difficult for Mexican Americans to grasp because they believe they are healthy unless obviously debilitated by sickness or severe pain (Aguilar, 2004).

Another prevalent Mexican American belief is *fatalismo*. *Fatalismo* is the belief that God controls everything and determines destiny. This limits behavioral options because problems such as illness are viewed as God’s will. *Fatalismo* encourages the acceptance of disease. *Positivismo*, on the other hand, is the belief that if you help yourself, God will help you, which encourages self-participation and gives some freedom from *fatalismo* (Aguilar, 2004). Interventions for Mexican American populations must encourage positivism and counter *fatalismo* with an explanation.

The cultural concept of *marianismo* is debated as a concept or stereotype. But it is included here as part of the Mexican American belief system because an important part of this concept/stereotype is the expectation that Latina women prioritize their children's needs before their own (Ginorio et al., 1995). The strength of her belief in this value, helps explain why a Mexican American woman does not return to DPP Clinic at 6-weeks post partum to be tested for her diabetes risk. Her infant may demand her time and it's easier for her to follow the normative cultural belief that her healthcare is less important than being a good mother.

*Respeto* is a two-way cultural concept that is defined by expectations of proper formal behavior (Delgado, 2002). Proper behavior includes a paternalistic relationship with the health care provider, and on the other hand the health care personnel are expected to use a client's proper name as part of their identity, elicit the client's concerns, and involve them in medical decisions. If a Mexican American respects their health care provider, he or she will yield to their opinion, otherwise, if they disagree they may say nothing and just not show-up for their next appointment (Aguilar, 2004).

*Personalismo* is the cultural concept of expecting a warm, personal, caring relationship with an intimate, in this case the health care provider. The warm, personal relationship is defined by... "empathy, kindness, and sincere personal concern" (Aguilar, 2004). This kind of relationship with the health care provider promotes trust which leads to honest self-disclosure instead of

the alternative, saying nothing, and just not showing up for health care follow-up appointments (Saldana, 2001).

The *simpatia* concept means kindness in Puerto Rican Spanish (Flores, 2000). Mexican Americans call it *simpatico*. In *simpatia*, the expectation is for the health care provider to be polite and courteous, pleasant, use social amenities, and most importantly have a positive attitude. Lack of *simpatia* can result in dissatisfaction with care, inaccurate history, non-adherence to therapy, and poor follow-up attendance.

Understanding another ethnic group or developing cultural sensitivity, can be done with the help of a mentor or qualified person. It can take years, depending on the reasons for needing the cultural sensitivity, the interest of the person being mentored, or how extensive the cultural sensitivity required for the culture of interest. A longer time frame may be necessary to completely understand the history, folkways, mores, traditions, rituals, dialects, values, family systems, artistic expressions for adequate cultural sensitivity. *Familismo*, *fatalismo*, *positivismo*, *respecto* and *personalismo* are the necessary cultural concepts necessary for a beginning cultural sensitivity.

### **The Local Implication for a Culturally Sensitive DSME Program**

Conway and Langer found in a 1997 study that only 17.6 % of a San Antonio sample (n=179) of socioeconomically disadvantaged GDM women returned to a specialty clinic for the post partum diabetes testing (1999). The rate of glucose abnormalities in this small group was 28% indicating a

continued problem with diabetes post delivery. Eighty-three percent of the high-risk women in this clinic were Mexican or Mexican American but no acculturation information was obtained. Although this clinic had a multidisciplinary team of educators, a part time RN case manager, research nurses and specialty trained physicians, it did not use a DSME intervention oriented toward modifying behavior by increasing women's knowledge of DM risk after the GDM pregnancy. These women were simply told of the risk. It appears a traditional medical based compliance model was followed and not a DSME program. A DSME model with a strong cultural sensitivity component addressing the Mexican American belief systems may have resulted in improved post pregnancy follow-up rates.

### **Literature Review Summary**

Diabetes is a serious, growing, and expensive chronic health problem in the United States (Funnell & Anderson, 2001). Identification of those at risk and development of prevention programs are ways the problem can be addressed. The woman with GDM has a particularly high risk of developing Type 2 diabetes (Kjos et al., 1995). So targeting these women with prevention programs is very necessary.

Gestational diabetes is the abnormal intolerance to carbohydrates that occurs during pregnancy. A woman with GDM is at high risk for complications during her pregnancy and at delivery, and has a condition that requires complex health care. The GDM women's risk for Type 2 diabetes

throughout her life indicates she should be monitored annually or every 3 years depending on her risk analysis at her post partum exam.

There are several issues health care providers encounter in providing effective care to women with GDM. They involve increasing knowledge, changing attitudes, and modifying behavior of the GDM patient to maximize the health of both the baby and mother during pregnancy, immediately post partum, and for the rest of their lives (Pinn, 2003).

GDM women need to comply with medical recommendations in order to maintain plasma glucose levels within the normal range, and thus complete healthy pregnancies, and prevent both delivery difficulties and newborn complications. Educating GDM patients about medical recommendations is critically important for their health and that of their babies'. It is also important to prevent the serious complications of diabetes from progressing in women already diagnosed with Type 2 diabetes.

Recent research on diabetes self-management or self-care, found that daily management of diabetes in the hands of the individual with the disease, is an effective approach to educating patients with diabetes. Diabetes prevention begins with self-management education for GDM women about their risk for Type 2 diabetes, and extends to these women after their pregnancies, at the time of the postnatal OGTT exam. However, socioeconomically disadvantaged women, especially Hispanic women, frequently do not return for their postnatal exam (Conway & Langer, 1999). Cultural barriers have

been identified that explain why minority groups do not follow medical recommendations and monitor their disease.

Self-management education programs suggest nursing's important role in diabetes management. This literature review explored different nursing education techniques that encourage GDM women to come back to clinic for their post partum appointment to measure the status of their diabetes risk. While educational prevention research is limited for the GDM woman, numerous studies have tested interventions in adults with Type 2 diabetes. The work of Brown et al., (1992) with a socioeconomically disadvantaged minority group with a high rate of diabetes in Texas, was used as a model for this research project. Her research started with a pilot project to measure the effectiveness of an educational, culturally sensitive video with a knowledge test. Results showed that such an intervention was both effective and was enthusiastically accepted as a diabetes learning tool. Thus the development of an informational video was a central component of the current research project.

Little is known about the most effective educational approach for the socioeconomic disadvantaged Hispanic woman with GDM to reduce her lifelong risk for diabetes. Cultural issues and cultural sensitivity are known barriers to successful interventions. Therefore any video production and presentation must incorporate principles of cultural sensitivity, and strive to reduce identified barriers.

In summary, San Antonio has a large population of socio-economically disadvantaged Mexican American GDM women who receive care in the public health care system, and for whom improving post partum diabetes follow up care is critical. This research project evaluated a culturally sensitive educational video intervention used during pregnancy to increase women's knowledge about their diabetes risk after the GDM pregnancy.

## Chapter III

### Conceptual Framework

The middle-range theory of caring developed by Kristen Swanson (1993) serves as a conceptual framework for the study. Swanson's theory has as its ultimate goal for nursing, the informed caring for the well-being of others. This theory was used for this project because it was developed and tested in 3 studies addressing perinatal situations: Study 1, in pregnant women who recently miscarried; Study 2, in the care providers in a newborn intensive care unit; and Study 3, in young socially at-risk mothers who had been the recipients of a long-term public health nursing intervention. Caring is an integral part of nursing and within this paradigm Swanson's theory correlates with the current project because the caring nurse focuses on guiding (video intervention) a person (woman with GDM) who determines the activities for changing health patterns (diabetes self-management) (Woods, 1995). The outcomes of a caring nursing practice are determined by the nurse who develops a plan (testing the effectiveness of an educational video intervention) for changing health patterns (monitoring of risk) of individuals (women with GDM) as they relate to the quality of life (prevention of diabetes) of the person for whom the caring nursing plan was created (Woods, 1995).

Swanson defines caring as ".....a nurturing way of relating to a valued other toward whom one feels a personal sense of commitment and



responsibility” (Swanson, 1991, p 165). The key concepts with their definitions in parentheses are: “nurturing (growth and health producing); way of relating (occurs in relationships); to a valued other (the one cared-for matters); toward whom one feels a personal (individual and intimate); sense of commitment (bond, pledge, or passion); and responsibility (accountability and duty)” (Swanson, 1993, p 354). Swanson’s nursing theory describes caring as: beginning with a fundamental belief in people that is maintained throughout the caring process; is stimulated because the other’s reality is known; is presented to the cared for by nursing being with them; and generates the therapeutic actions of doing for, and enabling the cared for. In this study of women with GDM, the educational video is the therapeutic action of doing for, and enables the cared-for to gain knowledge about prevention in a user-friendly and culturally appropriate way.

#### **Phenomena of Concern.**

Swanson stresses the importance of caring being informed in order to produce the intended nursing outcome of well-being in others. She relates this approach to the four main phenomena of concern for nursing: persons, health, environment and nursing.

Person. The person in this research project is the woman who has GDM. Caring must take into account genetic heritage because it determines the unique human characteristics and the ability to exercise free will. Cultural

issues and health beliefs must be considered for the GDM Hispanic woman who is at risk for Type 2 diabetes, if she is to use her free will in self-care.

Free will is the individual's ability to choose what to do when confronted with possibilities of maintaining a healthy lifestyle. The Hispanic woman is encouraged to pursue this healthy lifestyle during the pregnancy, continue this after pregnancy, and monitor her risk for Type 2 diabetes after the GDM pregnancy. But this is her choice, although it is difficult for health care providers to accept the choice of inaction.

The issue of choice is difficult to generalize to a large group because all facets of the client population must be considered, including cultural beliefs and cultural variability. Individuals may not make the same choice when faced with the same possibilities even within the same clinic/aggregate because cultural beliefs are so subjective. The individual's uniqueness within that clinic/aggregate cannot be overlooked. This makes free will a very complex issue, especially when cultural sensitivity and cultural variability are issues.

The healthcare program must be assessed and some responsibility for the problem should be placed with it. In other words, all facets of the program should be reviewed from the perspective of the socioeconomically disadvantaged Mexican American woman with GDM. For example, nurses might ask whether the services of the health care delivery system are readily available to all who are eligible to attend the Diabetes in Pregnancy Program? Is the clinic convenient to all? Are self-management choices obvious to all?

Are the goals of persons with the problem being considered? When long-term monitoring is considered important by only the health care providers, something is lacking in the interventions needed to reach the client population. These issues must be addressed if caring is truly informed and especially if self-management of a health deviation is a goal.

Environment. The second concept is the environment. In the proposed study using Swanson's framework, there are two environments under consideration: the exposed external environment of the community, family, and clinic; and the unknown internal environment of the individual's metabolism of their cells, tissues, organs. Both environments should be understood by the nurse and individual, because both function using them as guides for healthcare. The exposed external environment of support, community, family and clinic are as important as the unknown medical, internal environment of cellular, tissue metabolism. Both environments must be assessed by the nurse in order to know how to guide and plan treatment.

Health and well-being. The third concept addressed by Swanson is health and well-being which are linked. Nursing assists clients to attain, maintain or regain the state of well-being they choose. The nurse care giver strives for wholeness in her clients, where the psychological, sociological, physiological, spiritual, and environmental parts of the client are joined or integrated. As one heals, he or she is integrated into a new wholeness. If the person needs healing, remains disintegrated, is less than whole, then the state of well-being

is inadequate. In attending to the health needs of GDM women, the goal is wholeness, integration, and self-care for the individual. All interventions are geared toward maximizing the current GDM pregnancy and the future health risk for Type 2 diabetes.

Nurses and informed caring. The final concept is nurses and informed caring. Nursing depends on integration of science, self, concern for humanity, and caring. The profession commits to the well-being of the person or persons, human dignity for all, and caring of all. One of the barriers this project must overcome is society's value on curing disease and thereby circumventing death. Prevention enhances an optimal quality of life and preserves personal dignity. An important consideration in an education prevention program is how to direct the prevention efforts to benefit those who are the focus of the program. Nursing is the conduit through which this educational program is administered. This study evaluates an approach to diabetes that starts with educating the GDM women about her need for prevention to enhance her quality of life and preserve her personal dignity.

### **Theory**

“Maintaining belief” is the fundamental beginning to Swanson's theory. All people have the right to survive events or transitions and face a meaningful future. The required expectation of good nursing care is the belief the patient will improve, adapt, or accept their health deviation, and it is a fundamental assumption of this research endeavor. The “cared for” motivates

the “care giver” to find the means to improve the “cared for’s” understanding of their health deviation, in this research study, gestational diabetes, and preventing or prolonging the future chronic disease, Type 2 diabetes. The right of the “cared for” to have a chance to prevent chronic diabetes creates the motivational force that maintains the belief of nursing in the GDM women’s plight.

“Knowing” is the second process of Swanson’s structure of caring. It is an informed understanding of an event or a clinical condition as it has meaning in the life of another. Understanding the range of responses GDM women feel about their gestational diabetes and their future risk for type 2 diabetes is important nursing information. “Knowing” the health needs of society and this specific group, Mexican American GDM women, and addressing identified problems is the agenda of nursing.

“Being with” the cared for is the third process of Swanson’s structure of caring. “Being with” requires the nurse to be emotionally present to the cared for and to convey this presence as a message. The message can be spoken or demonstrated, with or without physical presence. Caring requires engrossment in the cared for and a desire for their well-being. These are both signs of the presence of the care giver. In this educational intervention, it is critical that the video present a message that the care giver is present and cares about the viewer. This is both stated in the video, represented by content, and conveyed by the voice of the narrative. The physical presence of the caregiver

with the message of caring, reinforces this during the consenting process with the subject when the project is explained and questions are answered.

“Doing for” is the fourth process of Swanson’s theory. Simply defined, it is doing for the cared for what they would do for themselves if it were possible. In the general psychosocial sense, caring involves doing for by setting up opportunities, programs or systems that provide a safe situation where self-care can be developed. The management of diabetes is in the hands of the person who has the disease, and the care giver offers the correct information for prevention or early diagnosis and proper management. The decision to follow this information is the cared for’s decision. “Doing for” encompasses the nursing actions that promote the client’s well-being.

“Enabling” is the final, fifth process of Swanson’s structure of caring. It means facilitating the cared for’s transition through the specific unfamiliar life event. The care giver uses his or her expert knowledge to guide the cared for. “Enabling” in the video intervention includes: informing, explaining, assisting in focusing on the important issue, and guiding the cared for to think the issue through. “Enabling” may require altering the cared for’s internal environment which is viewed as knowledge level in this study. The video enables the cared for to make the transition of increasing knowledge about her lifetime risk for Type 2 diabetes. The increased knowledge is assumed to promote the outcome of well-being which is the ultimate goal of nursing. Nursing endeavors to support clients throughout the process of adaptation,

healing, cure, or remission until well-being is achieved. The last two structures, “doing for” and “enabling,” demand therapeutic actions on the part of the nurse.

### **Caring Philosophy and Applications**

Improving knowledge is a central goal of this research project and is the outcome that was measured. In this project, knowledge drives the caring cycle. The caring person strives to increase the knowledge of the cared for, and the cared for demonstrates their knowledge increase by scoring higher on the post-test. This constitutes a caring cycle: knowledge given, knowledge processed, knowledge gained, and knowledge demanded (Noddings, 1984).

Swanson’s conceptual framework can be applied to principles of responsibility for self-management of diabetes as described by Glasgow and Anderson (1999). As they suggest, patients can: 1) be provided with the expertise needed for self-management (knowing); 2) be helped with the acquisition of knowledge needed to make informed self-management decisions (doing for); 3) be taught self-care techniques (enabling); 4) be provided with emotional and social support (being with); 5) be offered suggestions for behavior change and coping strategies (enabling); 6) be given opportunities to reflect on their choices and the goals they have made (maintaining belief). This was the caring message of the video and the message reinforced by nursing as the program was administered to GDM women of Mexican American descent in a San Antonio population.

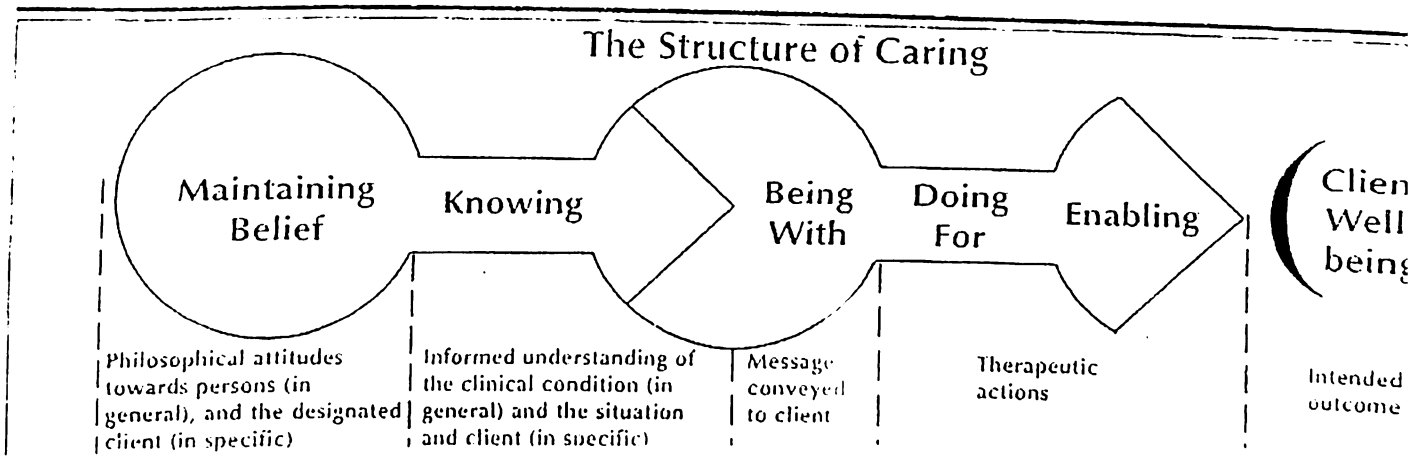


Figure 1: The structure of caring as linked to the nurses' philosophical attitude, informed understandings, message conveyed, therapeutic actions and intended outcome (Swanson, 1993, p 355).



## **Chapter IV**

### **Variables and Research**

In this study a culturally sensitive intervention was designed to encourage behavior change based on self-management theories, by increasing the knowledge of the lifetime diabetes risk in women with GDM. The study required cultural sensitivity because the sample population consisted of 85% socioeconomically disadvantaged Mexican or Mexican American women. To determine if the knowledge of diabetes risk increased, a pre and post intervention test was created by the investigator and given to the participants in the study. Because certain demographic and contextual variables impact behavior change and knowledge, an instrument was developed by the investigator to assess demographic variables. Cultural sensitivity is an important issue for studies of this ethnic group, so cultural values and beliefs were addressed in the educational video and in the knowledge pre and post-test. This chapter will formally introduce and define the variables, intervention, operational definitions, research question, and hypothesis for this study.

Independent variable:

An intervention consisting of a culturally sensitive educational video that addresses the lifetime risk for Type 2 diabetes and the self-management tasks needed to manage this risk, developed for pregnant Hispanic women with GDM, age 18 years and older, who attend the Diabetes in Pregnancy Program (DPP) at the University Health Center-Downtown clinic.

Dependent variable:

Knowledge about lifetime risk for Type 2 diabetes, and about approaches to self management of that risk, such as; lifestyle changes in diet, exercise, and regular health monitoring as measured by a 27 item instrument.

Implied variables:

Mexican American cultural issues can have an impact on health beliefs and may bias the accuracy of the knowledge instrument results. These issues include: language, familismo, marianismo, fatalismo, positivismo, respeto, personalismo, simpatia. They were assessed by specific questions in the demographic and knowledge questionnaires, and included as content in the educational video.

#### Demographic variables:

Several demographic and contextual variables are known to affect one's health behavior and knowledge. Information was obtained as part of a demographic questionnaire about the following:

1. Age,
2. Educational level,
3. Support system (who lives in your household),
4. Ease of speaking, reading and understanding English or Spanish,
5. Watch TV in English and Spanish,
6. Citizen status,
7. Acculturation as indicated by generation in the U. S.,
8. Personal belief gestational diabetes is a disease.

#### Operational Definitions:

The culturally sensitive educational video is defined as a 23 minute video in Spanish or English that addresses the necessary lifestyle changes a GDM woman must make for the short-term goal of completing a healthy pregnancy, and the long-term goal of decreasing her lifetime risk for type 2 diabetes.

Knowledge of the lifetime risk for type 2 diabetes is defined as the understanding or awareness of the lifetime risk for Type 2 diabetes in the Mexican American woman who has GDM, as measured by a knowledge instrument administered before and after watching a culturally sensitive video.

Gestational diabetes mellitus (GDM) is defined as the condition of having a carbohydrate intolerance with onset or first recognition by testing during pregnancy. The diagnosis is independent of insulin use or persistence of the condition after the pregnancy and does not apply to pregnant women with previously diagnosed diabetes (Jovanovic, 2001).

Mexicans and/or Mexican Americans are from Mexico or from the southwest U.S. (Texas, New Mexico) which was part of Mexico historically. Subjects selected and identified with the Mexican or Mexican American ethnic group on a list provided for them.

### **Research Question**

Does viewing a video designed to convey information to a sample of pregnant Mexican American women with GDM who attend a Diabetes in Pregnancy Program (DPP) clinic, increase knowledge about the risk for Type 2 diabetes after the GDM pregnancy?

### **Hypothesis**

Use of an educational video about Type 2 diabetes risk factors is positively associated with increased knowledge levels in Mexican American women with GDM.

## **Chapter V**

### **Methodology**

This chapter describes the research design and the methods that were used to collect and analyze data.

#### **The Research Design**

This study used a pretest-posttest one-group, quasi-experimental design (Polit & Hungler, 1999). The purpose was to evaluate an educational video intervention. The impact of the independent variable, an educational video, on the dependent variable, knowledge, was assessed with a post test instrument used to determine if the video intervention increased the GDM women's knowledge of their risk for Type 2 diabetes. Post test scores were compared to knowledge levels measured before seeing the video. There was no random assignment to groups, and subjects acted as their own controls.

Certain advantages and disadvantages pertain to this design. Since no randomization to groups occurred and multiple intervening variables may have operated, the design was considered weak in its ability to demonstrate the causal relationship between the video and knowledge. Cultural issues, health beliefs, behaviors, emotions, attitudes, and social support can add complexity to research problems and can influence the cause and effect in quasi-experimental research, making it difficult to simplify the research into a

reliable finding. But the advantage of quasi-experimental research is simplification. The pre test–post test design controlled for some extraneous variables because each study participant was their own control. Demographic and cultural factors were assessed in order to describe differences in knowledge levels.

In this study, increased diabetes-related knowledge was conceived as an important prerequisite to positive health behavior. Therefore determining the effectiveness of a video in increasing knowledge was an essential first step for a health program that ultimately aims to enhance behaviors of GDM women to make lifestyle changes.

### **The Sample and Sampling**

The sample for this study came from the population of those served by the Diabetes in Pregnancy Program (DPP) clinic of the University Health Systems-Downtown, which has between 275 and 350 women seen in clinic each year. Eighty-five percent of the population was socio-economically disadvantaged Mexican-American and Mexican gestational diabetic women, ages 18 to 40 years old, who planned to deliver at the University Hospital in San Antonio, Texas, and who attended this clinic for their prenatal care. The study participants received the normal gestational diabetes educational information from the staff of the DPP. They were in their third trimester or at about 28 weeks gestation, when they were asked to enter the study.

The standard of care for the GDM women is for the DPP staff to verbally inform these women that they are at risk for DM after a GDM pregnancy. They are told of their risk for DM again by the hospital staff after delivery at the University Hospital. After delivery and at hospital discharge, they are given a laboratory request for a 2 hour OGTT to be done at their follow-up post partum appointment. But this is where the problem of follow-up care begins. Historically there has been limited communication between the health system, such as the chart repository, or clinical lab. and the Director of the DPP, verifying that the OGTTs were done or what the results were. The results of the post partum OGTT were placed in the UHS charts, but communication with the patients was unreliable. There were no personnel available to track the testing and results, nor to inform the patients of their results.

Follow-up by other systems that refer to the DPP for pregnancy care, such as the Metropolitan Health District, ended with the women's delivery. Funding for Medicaid patients ended 2 months after the birth month. Therefore, health care systems do not facilitate GDM women's return for follow-up care. For these reasons, high risk pregnant women in the county health care system were targeted as subjects who could benefit from education focused on promoting timely care.

Subjects were recruited at the University Health System's DPP clinic and asked to participate in the study voluntarily. It was anticipated that the sample

should consist of 44 subjects but 46 subjects were enrolled. Assuming a moderate a priori effect size of 0.61 (0.50=moderate, 0.80=strong) based on the work of Brown et al. (1992), a KR score=0.05, a power of 0.8, and a two-tailed test, a sample size of 44 was required. The 46 subjects became the convenience sample. The project was approved by the University of Texas Health Science Center at San Antonio Institutional Review Board and the University of the Incarnate Word Institutional Review Board. Access to subjects and their charts was approved by the director of the clinic and the Research and Development Committee of the University Health Systems.

Subjects for the study were mostly non-English speaking Mexican American or Mexican women, who attended the DPP clinic. Only a few spoke English and those were usually bilingual. Those who spoke Spanish received a consent form in Spanish, and those who spoke primarily English received an English language form. The questions for the questionnaires were in both languages on one form. The intervention video was shown in Spanish with English subtitles. The Spanish language used was the Tex-Mex dialect commonly spoken in the San Antonio area.

The convenience sample of 46 Mexican and Mexican-American women with GDM was selected from the DPP population in the Spring of 2005. Two high risk prenatal care clinics are held each week. Women with known GDM who were not diabetic before pregnancy were approached by the study research nurse, asked to participate in the study, and view the video. A total



of 46 volunteers were recruited using the following criteria: (1) over 18 years of age, (2) diagnosed with gestational diabetes, (3) read and spoke English and/or Spanish, (4) able to view the video and take the 27 item pre test and post test, and (5) participants in the diabetes in pregnancy clinic. A bilingual clinic nurse was trained to administer the consent form and explain the procedure. She helped with the informed consent and explained the study process for the non-English speaking participants during the nonstress testing part of the weekly appointment. According to Cunningham et al. (2005) the nonstress test is the most widely used method of monitoring the fetal condition and assessing fetal well-being. Fetal heart rate acceleration is electronically measured in response to fetal movement for a specific time period.

As women entered the clinic for their appointment they were asked by the research nurse or a translator if they wanted to participate in the study. The project and consent form were explained, and questions answered in English or in Spanish, depending on preference. If patients agreed to participate, the informed consent was given to them in English or Spanish (Appendix A). Copies of their signed, witnessed consent were given to the subjects. Next, they were given a demographic questionnaire (Appendix B), and a pre-test to complete (Appendix C). Then subjects watched the video, and finally completed the post-test (Appendix C).

### **The Setting**

The study took place in a specialty GDM clinic of the public hospital system of San Antonio, Texas, a large metropolitan city in south Texas. It is centrally located in the area it serves and accessible by public transportation. The Diabetes in Pregnancy Program (DPP) in the GDM Clinic is the referral center for county indigent women from the metropolitan health district, other urban public clinics, and the Family Planning Project of the University System. All feeder clinics for the DPP provide limited antepartum and postpartum follow-up care to those GDM women at risk for Type 2 diabetes. The DPP is a medical resident-run clinic that meets two times per week under the supervision of specialty maternal fetal-medicine trained physician faculty from the Obstetrics and Gynecology Department of the University of Texas Health Science Center at San Antonio Medical School.

### **The Intervention**

An educational intervention was used to increase the knowledge of the GDM woman about her lifetime risk for Type 2 diabetes. It consisted of a 23-minute Spanish video, English subtitled, culturally sensitive video which was developed by the researcher for this project. For the purposes of this situation, culturally sensitive is an awareness of the “folkways, mores, traditions, customs, formal and informal helping networks, rituals and dialects” of the targeted Mexican American population, and in this case the use of this awareness in the development of the video’s script, sounds, and visual aids

(Saldaña, p 3, 2001). To add to this definition, the cultural competency aspect of this project refers to the requirement that the nurse understand the lifestyle, value system, and the health and illness behaviors of the targeted Mexican American aggregate.

The video addressed the necessary lifestyle changes a GDM woman must make in order to achieve the short term goal of returning to clinic for her 6 week post natal exam and OGTT to determine risk status. It also addressed the long-term goal of decreasing one's lifetime risk for Type 2 diabetes. A central focus was on diet, exercise, and preventative follow-up monitoring. Cultural issues pertaining to the preventive regimen and the potential barriers that might be encountered were also included. The settings for the vignettes in the video were various locations around San Antonio. They included: the DPP clinic, University Community Health Center-Texas Diabetes Institute (TDI), private homes, meeting places, and activity centers.

The video was designed to appeal to the emotions of those who watched it, because it featured the culturally important parenting role of the Mexican American woman in the life of her child. It stressed how critical she is to her family and how she must stay healthy for many years in order to succeed in parenting her children. Although this had the potential to evoke strong reactions, no subjects became severely emotional while watching the video. The clinic doctors, staff, and investigator were available for discussion if needed.

The video presented narrated vignettes told from the perspective of the child. It proceeded in a fashion similar to a lifetime scrapbook. Starting with pregnancy and the diagnosis of GDM, the video moved to the University Hospital and the birth of the baby. It focused on memorable events in a child's life: first communion, first day of school, activities, quinceanera, marriage, and grandchildren. The child communicated, "I love you and want you there." The child appealed to the mother's emotions, to follow the healthy lifestyle depicted in certain vignettes so she could take part fully in the child's life. It portrays the tragic loneliness diabetes causes for the child, if she does not.

The video was created by the researcher, with the assistance of a former student of the University of the Incarnate Word's (UIW) Communication Arts Department, and a current student in the same department. There was a video advisory committee composed of five people: the study's primary researcher, three experienced certified diabetic educators (CDEs), two of whom were nurses and one, a dietician, and the former UIW Communication Arts student who was the video producer. These five authored or advised about the script for the video.

The actors for the video were selected from patients and staff at the University Health System (UHS) DPP, the UHS Community Health Center-TDI, the University of Texas Health Science Center at San Antonio (UTHSCSA) Department of Obstetrics and Gynecology (OB/GYN), Christus

Santa Rosa, the University of the Incarnate Word, Mexican American community leaders, and local community people. A permission form was signed by the actors before participating in the videotaping (Appendix G). The permission forms were from the UTHSCSA Public Affairs Office and the UHS Office of Corporate Communication. The UTHSCSA form (English only) was used for actors in vignettes filmed in the general community, and UHS form (Spanish and English) was used at the specific UHS sites. All permission forms were approved by their respective institutions.

### **Instruments**

Two researcher-generated tools were used to collect the data for this study. A simple, short paper and pen questionnaire was used to collect demographic data. The subjects wrote brief responses to questions or circled answers that were given. In addition to describing the study sample, these responses provided information about variables that could have influenced the educational video's impact on learning, such as language spoken. Cultural issues are a potential influence on the response to the video and on subsequent behavioral change, such as diet, weight, and attitudes toward family. Therefore they were addressed in the video content, and specific questions about culture were included in the instruments. The homogeneous nature of the sample which consisted primarily of those of Mexican descent, limited the variability of cultural issues in this quasi-experimental design (Polit &

Hungler, 1999). However, by eliciting information on cultural beliefs and acculturation the researcher anticipated better sample description.

The second instrument was used to measure pretest and posttest levels of knowledge about the lifetime risk for diabetes. It was administered to subjects before and after watching the video, and consisted of a simple 26-item instrument. The format of items consisted of brief questions answerable with: (1) yes, (2) no, or (3) I don't know. The pre and post-test knowledge of the prevention of Type 2 diabetes (DM) post gestational diabetes (GDM) questionnaire can be divided into four subscales: 1) risk factors for development of DM post GDM, 2) risk assessment and testing post GDM pregnancy, 3) lifestyle intervention change for mother and family, 4) avoiding pre DM, and DM and its complications (Appendix C).

The instrument used to measure diabetes patient knowledge was reviewed by experienced diabetes educators. In this population, the reading level was geared to approximately the 6<sup>th</sup> grade and thus the questions were short and utilized simple vocabulary to best accommodate low literacy skills. Readability levels were scored at 7.3 grade by Flesh-Kincaid.

The demographic questionnaire and knowledge instrument were composed of brief statements that could be read aloud to a study participant if needed. Both were translated into Spanish by a medically trained translator, then back-translated by a non-medically trained person. Subsequently they were approved by the two local Institutional Review Boards (IRB). The same

translation procedure was followed with the Informed Consent Form. An experienced medically trained bilingual translator assisted with enrolling the subjects and administering the demographic and pre-test tools. Because the pre-test tool was the same as the post-test tool, the assistance of the translator was not needed after the original demographic and pre-test tools were administered.

Prior to its use in the study, the pre/post test knowledge instrument was initially tested in 10 Spanish-speaking patients from the DPP clinic population for comprehension of questions and to see how the test performed. An information sheet was given to these possible participants explaining the need for help in developing the questionnaire as part of the planned educational program. Those that participated in this early phase of the educational program read the information sheet, asked questions, and had their questions answered about the information sheet and the test. Then they completed the 54 question test form and three opinion questions that followed. A payment of \$20.00 was given to the women who completed the 54 question pilot test.

### **Instrument Reliability and Validity**

Because the knowledge scale had never been used, no prior validity or reliability testing had been conducted. Only face validity was assessed during the pilot phase. This was accomplished by 2 nurse researchers who assessed the content of the knowledge scale for the extent to which it included the necessary information about GDM and its risks for diabetes.

Reliability of the knowledge instrument was established by assessing the internal consistency of the items. As part of the study, the instrument was administered to 46 DPP clinic patients in order to assess instrument reliability. This group was the intervention sample. A Kuder-Richardson (KR) was calculated for the knowledge instrument, to determine the internal consistency reliability of the dichotomous items, that is, the extent to which all items were measuring knowledge (Polit & Hungler, 1999). A KR score of 0.79 for this sample demonstrated acceptable reliability of the instrument.

Content validity was also assessed. Two Certified Diabetes Educators (CDEs), considered experts in the field of diabetes reviewed the video script for content to be sure it covered the GDM risk for diabetes. Six “experts,” four bilingual CDEs, one English-speaking CDE, and the English-speaking Director of the Diabetes in Pregnancy clinic, assessed the relevance of the 54-item test, by rating each item using a 4-point scale (1= not relevant to 4= very relevant), after which the content validity index (CVI) was computed (Polit & Hungler, 1999). Items with a CVI of 82% or greater were retained. The pre/post test questionnaire was then modified to 24 questions as determined by the CVI scores. Appendix C, Step 4 contains the Knowledge Questionnaire in the order of its development; first are the English questions divided into their subscale divisions; second is the 54 question pre/post test with each question in both Spanish and English; and third is the finalized 27 question pre/post test. Three belief questions that did not address knowledge were



added to the 24 item tool. The finalized 27 questions in the pre/post test are scrambled. They were not kept in the subscale divisions.

### **Procedure**

Subjects were recruited at each of two weekly clinics held at the UHS-D until there was a sufficient subject enrollment of 46. Subjects read and signed the approved informed consent, completed the demographic questionnaire and then the pre test during the nonstress testing part of their weekly OB appointment. At the same appointment the video was viewed, and the post test completed. These occurred in an adjacent room of the clinic, in the UTHSCSA National Center of Excellence in Women's Health (NCEWH), during waiting times for their appointments. The whole process took about one hour and did not cause delays in women's progress through the clinic beyond the normally expected waiting times. The NCEWH room was scheduled for only watching the video on the two days per week that the Diabetes in Pregnancy clinic was held. It was a large quiet room at the back of the clinic with a large conference table surrounded by comfortable chairs that all had a direct view of a large TV.

The study participants watched the video with family, including their children if they accompanied them to clinic that day. Although the family members were allowed to watch the video with the subjects they were asked not to help with the questionnaires. After completing the post test, subjects were given a payment of \$20.00 for remuneration for the time spent

participating in the project. The researcher used petty cash withdrawn from the UTHSCSA Bursar's Office to pay the subjects. The incentive funds were provided from a grant from the San Antonio Area Foundation which supported the research project, including the making the video.

### **Protection of Human Subjects**

The researcher showed the video and administered the pre and post test instruments. A translator was available. All data were collected by the researcher and stored in a locked file.

The institutional review boards of the two universities, UTHSCSA and the University of the Incarnate Word (UIW), and the Research and Development Office of the University Healthcare System (UHS), approved the research study. This included reviewing the Information Sheet, Informed Consent Form and consenting procedure, demographic, pretest and posttest instruments, and the video. Because subjects were only exposed to an educational video intervention, which did not cause physical or mental risks, it was exempted from full board approval, and an expedited approval was obtained. Expedited approval was obtained so future follow-up of these subjects would be possible.

Participation of the subjects in the project occurred after they had been advised of the nature of the study and its procedures; consented to participation after having their questions answered; and after the Informed Consent paperwork had been signed, witnessed, and copied. These

procedures were completed during the non-stress testing part of their weekly appointments.

To assure confidentiality of patient information, the participants' names were only used on their research questionnaires and research chart until they completed the study. At the completion of the post-test their names were removed. A number code was then substituted on the questionnaires and research chart. The investigator retained the number and name list. The list and the pre and post tests are kept in a locked file in a room of the UTHSCSA medical school. This list and research charts are accessible only to the investigator and the director of the DPP. All data were reported in aggregate form only.

### **Statistics**

Data analysis included both descriptive and inferential statistics. Descriptive statistics, namely percents and means were applied to the demographic data. Frequencies of scale items were completed prior to scoring the Knowledge Scale. Comparisons of the summed pre and post intervention knowledge scores were performed using the Wilcoxin signed-rank test for non-parametric, paired data. KR test was applied to post test knowledge test data to obtain an internal consistency reliability of 0.79. The correlation of selected demographic variables were compared to scores from the knowledge scale by analysis of variance providing a more detailed description of the effect of the video intervention.

## **Chapter VI**

### **Data analysis**

The Sample. A convenience sample of 46 study participants was obtained. An approved University of Texas Health Science Center at San Antonio (UTHSCSA) Institutional Review Board (IRB) consent form was signed by subjects during nonstress testing phase of their weekly Diabetes in Pregnancy Clinic appointment. All study subjects met the study criteria of being gestational diabetic (Class A), non-diabetic prior to pregnancy, and in the third trimester of pregnancy. Data from the demographic section of the questionnaire describe the characteristics of the sample. The entire sample of women listed themselves as Hispanic and being of Mexican or Mexican American origins. The mean age was 31.2 years old. The mean grade completed in school was the 8<sup>th</sup> grade plus 8 months. The majority of the subjects read and spoke Spanish (95.7%). Most of the subjects (91.3%) reported watching Spanish television. The majority (78.3%) were not American citizens, with 56.5% not permanent residents of the U.S., and 50.0% without visas. Eighty-three percent were first generation in the U.S. For the majority of the study participants (65.2%), their family could be described as nuclear in structure, as it was composed of themselves and their husband, with or without their children depending on whether this was their first pregnancy.

The last question in the demographic questionnaire asked whether subjects believed gestational diabetes was a disease. According to Saldaña (2001), if the study population is comprised of members from a specific culture, it is important to assess that culture's beliefs whether the illness or disease in question is considered an illness or disease to that population. In this study sample of Mexican origin women, 71.7% did recognize that gestational diabetes was a disease. Table 1 and Table 2 expand the demographics of the study population.

**Table 1. Summary of Ratio Data in Demographic Questionnaire (n=46)**

	Mean(SD)	Mode	Range	Median
Age	31.2(5.29)	32	20-42	32
Grade Completed	8.9(2.61)	9	3-16	9

Translation. As noted above, almost 96% of the sample was Spanish speakers.

Translation of all materials is critical for the success of the interventions as well as for the integrity of the consent process. The informed consent, information sheet and three questionnaire opinion questions, demographic and pre/post test knowledge questionnaire, consent for videotaping, and brief explanatory recruitment tool were translated into Spanish then back-translated by Mexican American translators. The video script was translated into Spanish only. All translators were familiar with the Tex-Mex language used in the study area. Translation into the local dialect is

**Table 2. Summary of Nominal Variables in Demographic Questionnaire (n=46)**

	Frequency Yes (%)	Frequency No (%)	Frequency No Ans(%)
Family Structure			
With Husband&Children	30(65.22)		
With Partner&Children	3(6.32)		
With Parent&Children	2(4.35)		
As Single Parent with Children	3(6.32)		
Husband or Partner/Children/Parent(s)	6(13.04)		
No Answer	2(4.35)		
Read/Speak Spanish	44(95.7)	2(4.3)	
Read/Speak English	8(17.4)	38(82.6)	
Watch Spanish TV	42(91.3)	3(6.5)	1(2.2)
Watch English TV	30(65.2)	13(28.3)	3(6.5)
Amer.Citizenship	7(15.2)	36(78.3)	3(6.5)
Permanent Resident	19(41.3)	26(56.5)	1(2.3)
Visa	16(34.8)	23(50)	7(15.2)
Acculturation			
1 <sup>st</sup> Generation	38(82.6)		
2 <sup>nd</sup> Generation	3(6.5)		
3 <sup>rd</sup> Generation	none		
4 <sup>th</sup> Generation	none		
5 <sup>th</sup> Generation	4(8.7)		
No Answer	1(2.2)		
GDM Belief	33(71.7)	9(19.6)	4(8.7)

preferred, according to Lange, especially when a non-Hispanic, non-Spanish speaking investigator is conducting research with a population of predominately Spanish speaking Hispanic Americans (2002). The two translators who completed the back translation were English speaking residents of the U.S, but born and partly educated in Mexico. Back translations of all documents were useful in determining flaws in the Informed Consent forms and questionnaires. These flaws were corrected,

translated and back-translated again for correctness. The final approval of the informed consent and information sheet was done by the UTHSCSA IRB certified Spanish translator.

Instrument Development. The construct, Knowledge of Prevention of Type 2 Diabetes (DM) Post GDM, was divided into four components: risk factors for development of DM post GDM; risk assessment and testing post GDM pregnancy; lifestyle intervention change for mother and family; and avoiding pre DM and its complications. The four components of the construct led to the creation of four nursing goals and their associated patient knowledge outcomes: 1) After watching the educational video, GDM women will be able to identify the risk factors for Type 2 DM; 2) After watching the educational video, GDM women will realize how important monitoring their risks and pursuing regular testing are for prevention of Type 2 DM; 3) After watching the educational video, GDM women will be familiar with the lifestyle behavioral changes they must make for themselves and their family to prevent or delay Type 2 DM; 4) After watching the educational video, GDM women will understand the health co-morbidities associated with Type 2 DM and correlated to pre-DM, that can be avoided by making lifestyle, behavioral changes. Detailed objectives were created to address each of the four nursing goals. Subsequently knowledge scale questions were developed for each detailed objective. Finally, a 54-item pre/post test questionnaire was developed from the 54 questions created from the objectives. These 54 questions were translated into Spanish and

back translated. Table 3 shows the developmental flow of a sample knowledge questionnaire item.

**Table 3. Developmental Flow of Pre/Post Test Questionnaire with example**

<b>Construct.</b> Knowledge of Prevention of Type 2 DM Post GDM
<b>A Component.</b> Risk Factors for Development of Type 2 DM or 'Adult DM' after GDM or 'Pregnancy DM'
<b>A Nursing Goal.</b> After watching the educational video, Mexican American women with GDM will be able to identify the risk factors for Type 2 DM
<b>An Objective.</b> Know GDM places women at increased risk for DM
<b>A Question.</b> ¿Tener diabetes cuando está embarazada le da más probabilidad de tener diabetes de adulto más tardes en su vida?
Does having 'pregnancy diabetes' give you a bigger chance of getting 'adult diabetes' later in life?

The first phase of establishing the utility of the knowledge instrument occurred through a small pilot test. The 54-item questionnaire was tested in 10 volunteers from the target population who were all Spanish speaking. This was done in order to assess: 1) if the questions accurately represented the meaning of the construct, 2) if they were understandable, 3) what the subjects knew about the construct, and 4) what was the degree of difficulty of the questionnaire. The mean scale score for this target population of ten was 76%  $\pm$  13.41% (range 48-91%). The group answered three separate questions at the end of the 54-item questionnaire pertaining to their ease with answering questions. First, volunteers were asked whether the questions were easy to do. All circled yes. The second and third questions asked if they had skipped any questions, was it because they were too difficult, or was it because they did not know the answer. However, no questions



were skipped. The 54 knowledge questionnaire did have an “I don’t know” option for each question, which was not circled by any of these 10 subjects. From this pilot testing of the questionnaire it was determined that the target group had a good understanding of the nutritional requirements for a healthy lifestyle change but no understanding of the benefit or importance of exercise in preventing DM. It was also determined that subjects had little difficulty understanding and using the instrument form.

Next a Content Validity Index (CVI) was calculated in order to assess if items reflected the domain of knowledge GDM patients required about DM risk. Ratings for each of the 54 questions using a 4-point scale (1=not relevant and 4=very relevant), according to Polit and Hungler (1999) were completed by 6 qualified experts: 5 certified diabetes educators (4 Hispanic Americans and 1 non-Hispanic) and the medical director of the Diabetes in Pregnancy Clinic who is non-Hispanic. CVI scores for individual questions of greater than 82%, or totaling more than 20 points, were used to identify relevant items. On this basis, the 54-item pre/post test questionnaire was reduced to 24 questions. Table 4 gives examples of questions from the final 24 item knowledge questionnaire.

**Table 4. Sample Knowledge Pre/Post Test Questions**

<p>¿Necesita usted hacerse un exámen para ‘diabetes de adulto’ después de que nace su bebé? Do you need to get tested for ‘adult diabetes’ after your baby is born?</p>
<p>¿Puede reducir la probabilidad de tener ‘diabetes de adulto’ con ejercicio? Can you make your chance of getting ‘adult diabetes’ smaller by exercising?</p>
<p>¿La ‘diabetes de adulto’ puede hacer que los riñones paren de trabajar? Can ‘adult diabetes’ make your kidneys stop working?</p>
<p>Spanish translation of question was listed first. Subjects responded to each question: Yes (si); No (no); I don’t know (no se). *’Pregnancy diabetes’ and ‘adult diabetes’ are terms used to describe gestational diabetes and type 2 diabetes by many Diabetes in Pregnancy Clinic patients at the University Health Center-Downtown, San Antonio, Texas.</p>

An assessment of whether the content of the video script answered the 24 questions was also undertaken by the investigator and video producer. It was determined that one question about the increased risk for heart disease associated with diabetes, was not addressed by the video. Therefore this question was dropped from the instrument analysis because knowledge learned, i.e. evaluating the effectiveness of the video, was the focus of this research project. The final statistical analysis of the knowledge questionnaire was done on 23 questions.

Video Evaluation. When the video was completed, it was shown to a group of research nurses who work on the UTHSCSA General Clinical Research Center unit at the VA Hospital in order to elicit their feedback on the appeal of the video. They thought the video very well done but one research nurse who was a certified diabetic educator, felt it needed to have a more dynamic beginning to catch attention and draw

the audience into the message of the video. This was accomplished by moving a section of already filmed footage called “Precious Moments” to the beginning. “Precious Moments” footage takes a life stage approach to memorable events in the life of young Mexican American girls whose mothers had GDM. From christening to quinceanera to wedding day, it shows a young girl praying, encouraging, regretting, or wishing her mother would take better care of herself or perhaps would still be able to care for herself. This proved to be an effective change and created needed drama at the start of the video.

It was important to make the video project culturally sensitive to the intended audience. Therefore cultural considerations were incorporated into the video visually, and into script dialogue and narration. Table 5 presents some examples of how the video addressed and integrated cultural beliefs and issues.

Analysis of the Data. Reliability of the knowledge instrument was established by assessing the internal consistency of the items. As part of the study the instrument was administered to 46 DPP clinic patients. Subjects’ post test scores were used to assess instrument reliability. A Kuder-Richardson (KR) reliability coefficient 20 was calculated to determine the internal consistency reliability of the items, that is, the extent to which all items were measuring the same concept, knowledge of the risk for DM following a GDM pregnancy. The original questionnaire of 23 questions produced a KR score of 0.7469. Because two of the 23 questions had low item correlations, suggesting they did not fit with the rest as far as the internal consistency of the instrument, they were dropped. The KR score was recomputed for the 21 item

instrument producing a KR score of 0.7896. This indicated the knowledge questionnaire had a moderately high degree of reliability.

**Table 5. How Concerns and Cultural Issues were Integrated into the Video**

Characteristics	Integration Method
Ninety-six percent of the study group is Spanish speaking.	Video was done in Spanish with English sub-titles.
Mean educational level is 8 <sup>th</sup> grade plus 8 months, but there is a large range of reading comprehension levels, for 3 <sup>rd</sup> to 16 <sup>th</sup> grade.	Important concepts were promoted by repetition, such as: healthy lifestyle changes (diet and exercise); returning to clinic for the 6 week postpartum exam and testing for diabetes; and the high risk and short time interval between GDM and DM.
<i>Familismo</i> is the cultural concept that the family is the primary social support and influence for a Mexican American. Children validate a marriage and womanhood ( <i>la mujer completa</i> ). Most families composed of subject, husband and children was 65%.	Familiar family scenes, people, and places from the area are the video focus recognizing the importance of this concept. Children are used to communicate health promotion ideas and reinforce prevention. Family health is emphasized throughout the video.
<i>Personalismo</i> is the cultural concept of expecting a warm, personal, caring relationship with an intimate, in this case a health care provider.	Used the video Narrator to tell the viewers that health care providers care about Mexican American women who are at risk for diabetes following their GDM pregnancy.
<i>Marianismo</i> is a debatable concept or stereotype expectation that Latina women must prioritize their children's health needs before their own.	One of the main themes of the videotape is for the mother to prioritize her health equally with her children. If she takes care of herself through out her lifetime she can prevent or delay DM and because of this will be able to take an active role in her child's life.
<i>Fatalismo</i> is the belief that God controls everything and determines destiny. Illness is God's will which is a threat to prevention as an option for illness.	Used a well-known priest to discuss <i>Fatalismo</i> versus a partnership with God for healthcare, making prevention an option.

The descriptive statistics for items on the demographic questionnaire including percents and means, are reported in Table 1. Knowledge scale scores were then calculated with a possible scale score of from 1 to 21, with 21 indicating high knowledge.

Comparisons of the pre and post intervention knowledge scores were performed using the paired *t* test for continuous variables. Initially, the mean paired difference of the post test percent score and the pre test percent score was 10.02 (SD 12.73), (lower confidence interval of the difference=6.24 and upper=13.8), with a 2-

tailed significance of  $p \leq 0.000$  for the 23 item test. After dropping the two items with low internal consistency, the mean paired difference of the post test percent score and the pre test percent score was 11.08 (SD 13.58, lower confidence interval of the difference=7.04 and upper=15.11), for a 2-tailed significance of  $p \leq 0.000$ , for the 21 item test. This indicates that post test knowledge levels were significantly improved following the video intervention.

The comparisons of demographic variables and the difference scores from the knowledge questionnaire were completed using analysis of variance in order to provide a more descriptive picture of the video effect. Only one variable had a confounding effect on the difference in the knowledge questionnaire scores. This variable was age. Younger subjects (aged 20-25) had less knowledge about GDM at baseline. No other demographic variables had a confounding influence on knowledge change, with the possible exception of residence, which in multivariate analysis was shown to be an artifact of age. Table 6 shows the differences by baseline knowledge by demographic questions.

**Table 6. ANOVA to Examine Differences in Baseline Knowledge by Demographic Variables**

<u>Designation</u>	Mean	Standard Deviation	Significance <i>p</i>
Age			0.017 *
20-25	63.6905	24.53817	
26-30	84.1270	12.06957	
31-35	83.1746	13.69134	
36 +	83.1169	10.72510	
Grade Completed			0.895
Low-6	79.4872	22.95158	
7-9	81.5126	12.91898	
10 +	78.8690	14.44030	
Subject's Household			0.433
With husband/children	81.4286	12.95680	
all other groups	77.3810	21.82179	
Read/Speak Spanish			0.591
Yes	80.3030	16.70509	
No	73.8095	10.10153	
Read/Speak English			0.862
Yes	80.9524	12.49959	
No	79.8246	17.30915	
Watch Spanish TV			0.901
Yes	79.7052	16.53121	
No	80.9524	20.75666	
Watch English TV			0.106
Yes	73.9927	23.93739	
No	83.0159	12.03920	
American Citizen			0.438
Yes	84.3537	13.66766	
No	78.9683	17.08892	
Permanent Resident			0.039 *
Yes	85.7143	18.40301	
No	75.4579	11.66424	
Visa			0.639
Yes	80.6548	13.18153	
No	78.0538	19.03350	
Acculturation			0.726
1 <sup>st</sup> Generation	78.9474	17.06660	
2 <sup>nd</sup> Generation	85.7143	9.52381	
5 <sup>th</sup> Generation	83.3333	17.60403	
GDM Belief			0.318
Yes	78.2107	18.05565	
No	84.6561	11.61011	

As discussed, when comparing the demographic differences in knowledge tests, low scores in the youngest age group contributed to a significant test; that is, age was a confounder of the effect of the videotape. Using ANCOVA, with age as a covariate, the difference in knowledge scores remained statistically significant, indicating the effectiveness of the videotape. Specifically, significant differences in knowledge by age ( $F=3.781$ ,  $p=0.017$ ,  $df=3$ ) were retained when age was controlled for ( $F=28.199$ ,  $p=0.000$ ,  $df=1$ ). Therefore, on the basis of this data, the major study hypothesis, that use of an educational video about Type 2 diabetes risk factors was positively associated with knowledge levels in Mexican American women with GDM, was supported.

In an attempt to gain subjects' opinions on the video, they were asked if they liked the video. All applied affirmatively, "Si." The non-Hispanic investigator was not able to converse about the videotape with the majority of the study population because of the language barrier, but one English-speaking participant made the following comment, "I always thought I might someday get diabetes, but I thought I didn't have to worry about it now, today, maybe when I'm old. But the video brings the problem of diabetes to today, and makes me think, how should I live my life right now?" Whether she represents the feeling of the whole group is difficult to say, but awareness and knowledge are the first steps toward positive behavior.

## **Chapter VII**

### **Conclusions**

This chapter is a discussion of the results, conclusions, and implications of the study, “Diabetes prevention education for Mexican American women with gestational diabetes: Pilot testing a videotape.” Chapter VII describes how the independent variable (educational videotape) performed and what impact it had on the dependent variable (knowledge of the lifetime risk for type 2 diabetes) for Mexican American women with gestational diabetes (GDM).

#### **Independent Variable**

Educational videotape. During the process of a literature search about this topic, Sharon Brown’s article, “Diabetes education in a Mexican-American population: Pilot testing of a research-based videotape” was discovered (1992). It was in part the impetus for the educational videotape for this diabetes prevention project. Mexican American women with GDM were the target for the educational videotape because of their increased lifetime risk for type 2 diabetes mellitus (DM) after their GDM pregnancies. Printed materials are typically available to pregnant women, but whether they are appealing enough to be selected, read, and their suggestions adopted by this group, is



highly questionable. Possibly the impersonal nature of written materials limits their appeal and selection.

It was thought that a videotape intervention would be appealing because cultural beliefs could be addressed, psychosocial issues presented, and ordinary people, as well as recognizable community role models, featured as actors. This could possibly have a greater personal impact because a video may subtly draw the viewer into the program message, similar to the way television shows do. This is difficult to accomplish with impersonal printed materials.

A documentary format was selected for its educational potential, but several interesting vignettes emerged as the script was written. These vignettes, although entertaining, could also educate viewers. One vignette that was developed is entitled "Precious moments." It depicts the life of a child in memorable events, while also showing the child's mother aging. However, the mother is sadly ignoring her risk for diabetes as co-morbidities are introduced in her life. The video shows several interesting intimate conversations between mother and daughter, as their coping defenses are presented. In a second vignette, Juanita and her tragic story as a young mother, is told by a Certified Diabetes Educator (CDE). The front porch is the scene for a third scenario, in which Mr. and Mrs. Santos discuss healthy lifestyle changes they have made since dealing with diabetes. A well known local priest, Father David Garcia, compares fatalism and prevention in a scene

filmed in the courtyard of San Fernando Cathedral. The Texas Diabetes Institute's (TDI) mural is the background for a scene featuring Elvira Cisneros, a healthy 80 year old grandmother, who tells us how she has stayed healthy. She is an active volunteer at TDI to this day. Facts about risks, prevention and outcomes of diabetes are sprinkled throughout the video's vignettes, and are frequently directly conveyed by the Spanish-speaking narrator.

The video producer was successful in recruiting a number of recognizable community leaders as actors. This was thought to increase interest and credibility of the film. It must be noted that not all ordinary Hispanic citizens or community leaders can be used as actors because it seems the ability to speak Spanish dies out in the U.S. as acculturation increases. The pool of actors available to participate in a Spanish videotape is limited, and this is especially true for children and adolescents.

The educational intervention videotape was a brief 23 minute introductory overview of a problem faced by Mexican American GDM women. It begins with a view into the human misery associated with the disease and what could be lost if self-management of risk factors throughout one's lifetime is ignored. This dramatic introduction was purposely confrontational because of the belief in fatalism and disbelief in prevention. This was needed to introduce prevention to a group who has only a 17.6% post partum return to clinic rate after delivery (Conway, 1999).

Video Settings. Familiar settings for the video vignettes were carefully planned to personalize prevention and strengthen the health care provider's position with these clients. A broad range of settings was used, from the backdrop of various community health service agencies, to intimate settings within private Hispanic homes. The locations utilized included the Diabetes in Pregnancy Clinic at the University Health Center-Downtown, high school swimming pools and tracks, San Antonio Parks and Recreation baseball fields, San Fernando Cathedral, Texas Diabetes Institute, and the post partum floor at the University Hospital. It was anticipated that women's familiarity with the settings would hopefully influence their acceptance of the video message.

Impact of the video. In showing part of the video and describing its development at the annual 2005 Latina Literature Conference at St. Mary's University in San Antonio, questions came up about how to make the normal Mexican American diet healthy and how to exercise everyday in a neighborhood that has a high crime rate and is dangerous. Although the researcher plans to address these important issues in future videotapes, the answers to these problems were not entirely ignored. Healthy dietary tips are offered, and a scene shows a woman exercising at home. But this pilot videotape had to be limited in time. It was necessarily kept at 23 minutes to not exceed attention span, and in acknowledgement of the varied educational backgrounds of the subjects.

The videotape is an overview of a serious problem. It was designed to impact the subjects by stimulating them to return to clinic after the GDM pregnancy to determine their risk for type 2 DM. It also was expected to impact health promotion and prevention self-management for Mexican Americans at risk for diabetes by increasing their knowledge about their risk.

Language. The importance of filming the videotape in Spanish with English subtitles was critical to its success with the Mexican American aggregate it addresses. It must be emphasized how important it was to rigorously translate and back translate the intervention, questionnaires, consents and information sheets. This required additional resources of people, funding and planning time. A non-Hispanic, non-Spanish speaking investigator can herself become a barrier to the success of an intervention that is culturally specific for Hispanics (Lange, 2002). As a consequence, the investigator must surround herself with qualified bilingual Mexican-Americans, both because of language barriers, and to enhance cultural competency. Throughout the course of video development, production, and evaluation this author/investigator consulted regularly with those considered expert in understanding the local Hispanic culture, and involved knowledgeable Spanish speakers whenever possible.

Cultural Biases. The risk to the project from investigator cultural bias is their unwitting incorporation into the intervention, questionnaires, data collection procedures and interpretation of results, and this may be a particular concern in this case when there is a non-Hispanic investigator (Lange, 2002). This

pitfall was minimized by involving many Hispanics experts: a cultural competency advisor, the video producer, CDE advisors, clinic staff at the research site, and several translators from diverse backgrounds that had cultural as well as linguistic input. Limiting the research plan to a simplified pre test/post test design also helped with the problem of cultural bias by reducing investigator-subject contact to basically a culturally sensitive video message and measuring the message's effectiveness.

The literature review established the critical necessity for diabetes prevention in this Mexican American minority group whose numbers are dramatically climbing and whose health is seriously compromised by DM. But it is understandably difficult to educate about health promotion and the prevention of a chronic disease when it has such an insidious, lengthy, and asymptomatic onset. If those at high risk have the cultural belief that their fate and suffering is in the hands of a superpower and nothing can be done, according to Aguilar (2004), and Flores (2000), motivating these at risk persons to take preventive action may be especially difficult.

Self-Management. One of the goals of this project was to encourage self-management of the individual's risk factors. This approach is promoted by many diabetes educators (Brown, 1992,1995, 1999, 2000; Eakin, 2002; Funnell, 2002; Glasgow,1999, *Diabetes Care*; Keohane, 1990; Mensing, 2003). Self-management of risks therefore was an underlying theme

addressed through education, psychological motivation, and coping defenses in the videotape.

Successful self-management would be evidenced through several long term outcomes, not measured in the current research project. The first step is for the GDM woman to return to clinic at six weeks post partum to reclassify her diabetes status. If she returns to clinic post partum and her type 2 DM status is re-confirmed by lab results, the input by health providers can be continued and preventive self-management education about risk factors can be individualized and emphasized. Evaluation of self-management preventative care, changes in attitude toward risk status, and behavior motivation, are areas that future studies should address.

Gestational Diabetes. The gestational diabetic pregnancy was chosen as the focus of this video because of the risk it poses to the woman and her unborn child. Further it is a medical condition that predisposes one to type 2 DM, a prevalent disease in the Mexican American community. Yet GDM has a short time frame limited to the length of the pregnancy, within which the woman is conveniently accessible to health care providers as well as researchers. This is a nine-month opportunity to effect future behavior, namely diabetes prevention. A primary objective of the video was to ensure that women understood the long term risks to health, and the steps they can take to modify that risk. It is important to recognize the health care provider has a captive client during pregnancy when the pregnant woman is receptive to healthcare,

intervention, and education, especially if it will benefit her unborn child. To take this a step further, during pregnancy the health care provider can encourage prioritization of the mother's health to benefit the child as well as the mother's own long term health.

As parenthood becomes a growing priority during pregnancy, whether a GDM pregnancy or not, the health of the unborn child becomes a serious concern of the parents, especially the mother because she controls her unborn child's health. Because of the infant's fragile health during the GDM pregnancy and immediately after, and because children are highly valued, and to a large extent validate marriage in the Hispanic family and womanhood (*la mujer completa*), the child was selected as the voice of the video message. It is the child that urges the pregnant woman to seek timely care to lower her risk for diabetes when the pregnancy is over.

A secondary objective of the video was to impact the health of the whole family by educating the mother. Because of her role in the family in food procurement and preparation, education about food choices was thought to potentially lower the risks of the entire family for diabetes (Anderson et al, 1998). This was an important long term objective but not measurable within the scope of this project.

Research Design. In considering the research design it was felt that the project needed to be completed in a short time span and as simply as possible. Therefore to evaluate the immediate success of the video a pre test/post test

design was chosen. Issues that were considered in planning the project included: the diagnosis of the GDM is made relatively late in pregnancy, usually around 24-28 weeks gestation; the high risk nature of the GDM pregnancy can lead to a preterm delivery; the non-citizenship status of some of the subjects contributes to a reluctance of women to return for follow-up care after delivery; Medicaid funding has a limited coverage period ending two months after delivery; and cultural barriers such as *fatalismo* (God controls everything including who gets a disease and nothing the person can do will prevent the disease) and *marianismo* (the Latina woman must prioritize her child's health needs before her own) challenge long term prevention and health promotion interventions.

For the above listed reasons this study was designed to be completed during a subject's normal weekly appointment. The consent was read and signed, demographic questionnaire completed, pre test completed, video watched, and post test administered all in one clinic visit. Because the intervention, the video, constituted a one-time educational event, the efficacy of its message for long-term guidance was particularly important.

Teaching strategy. The purpose of this project was to design and test an educational videotape that targets a Hispanic population at risk for diabetes. The teaching strategy developed was to reach large numbers of GDM Mexican American women and provide education about preventing diabetes,



monitoring future risk, and promoting health through healthy lifestyle changes.

The project was unique because it was designed to focus on a specific cultural group. This was important because previously education for these women about their lifelong risk for diabetes consisted of a simple didactic verbal mention of the problem by their health care provider during routine pre partum visits. Typically women were also told at hospital discharge to make an appointment to have their blood tested at their 6 week post partum exam. These verbal reminders were thought to be insufficient because of women's high risk status. Their risk is an 80% chance of being diabetic within 5 years of the GDM pregnancy, if their test results indicate pre diabetes or impaired glucose tolerant at their post partum exam. Further the co-morbidities of diabetes in Mexican Americans are seriously debilitating, with blindness and kidney failure being the most common (Kjos, 1995; Zhang, 1991).

The teaching strategy selected was to use the "Child" as the teacher in a role reversal with their "Mother." The video showed examples of the child talking about the co-morbidities of diabetes and reminding their mother to take care of themselves. It informed this population that they could delay or prevent diabetes. It suggested how important it is for a parent to be healthy throughout their lifetime. We told a true story of a Mexican American woman crippled by type 2 DM at a relatively young age.

The results of this initial research project to evaluate the effectiveness of the videotape were positive and its use as an educational tool supported. Women's knowledge levels were increased after watching the videotape. The mean improvement score of the knowledge post test compared to the pre test was 11% which was statistically significant at the  $p < 0.0001$  level. The answer is affirmative to the research question, "Does viewing a video designed to convey information to a sample of pregnant Mexican American women with GDM who attend a Diabetes in Pregnancy (DPP) clinic, increase knowledge about the risk for type 2 DM after the GDM pregnancy? The data from this study provide us with information about the efficacy of videotapes as an educational medium, and indicates this method of communicating knowledge to a clinic population is potentially useful.

#### Dependent Variable

Knowledge. Another step in the development of this self-management educational prevention program for Mexican American women who have GDM, was the creation of a tool used to measure the videotape as a mode of instruction. A knowledge questionnaire was created to measure the educational capacity of the videotape. A written test given before watching the educational videotape measured the knowledge already known at baseline, and when given after watching the videotape, measured the knowledge acquired. The design chosen was a simple pre test/post test which measured short-term knowledge acquisition from the educational videotape.

Development of the Knowledge Questionnaire. Examining the domain of patient knowledge for preventing type 2 diabetes after a diagnosis of gestational diabetes, was the beginning of the questionnaire development. The knowledge of prevention of type 2 diabetes post GDM content was sectioned into four components. For each of these four components, a nursing goal was developed. Learning objectives were created from the nursing goal for each section. Fifty-four questions were developed from the learning objectives, first in English then translated into Spanish, and back-translated. These 54 questions became the pilot test given to 10 GDM women to assess readability, comprehension, and degree of difficulty. The 54 question test was shortened to 24 selected questions by six diabetes experts who scored each question's content validity index using a 4-point scale of 4=very relevant to 1=not relevant. Subsequently one of the 24 questions was dropped because the video did not address the content of the question (Appendix C, Knowledge Questionnaire #21). Three belief questions were added later which brought the pre test/post test questionnaire to 27 questions (Appendix C, Knowledge Questionnaire #13, #20, #25). Two of the three were unrelated to the experimental condition, in that there was no pre/post difference. None of the three contributed to the internal consistency reliability of the instrument. Therefore all three were excluded from the tool and the analysis. As previously discussed in the Data Analysis section, two items with low internal consistency scores were dropped from the knowledge instrument (Appendix

C, Knowledge Questionnaire, #6, #18). Thus the final instrument consisted of 21 analyzed items.

Reading Level. In discussions with the UTHSCSA IRB staff it was learned that the required national reading grade level for research study consent forms is 10<sup>th</sup> grade or lower. In San Antonio, the requirement has had to be lowered to the 7<sup>th</sup> grade reading level because of low literacy and English comprehension in the largely Hispanic population. The staff at the study site, the Diabetes in Pregnancy Clinic at the University Health Center-Downtown, also suggested knowledge questions be written at the 7<sup>th</sup> grade level. Demographic data of the study sample confirmed a mean grade completion of 8<sup>th</sup> grade and 8 months, suggesting many could have difficulty understanding study materials.

The Flesch Score for Flesch Reading Ease and Flesch Kincaid Grade Level was used to rate the reading level of the knowledge questionnaire (in Microsoft Windows<sup>XP</sup> Professional 2001). The Flesch scores are based on the average number of words per sentence, average number of syllables per word, and text based on the U.S. high school grade level system. With this scoring system, a score of 7.0 would mean a 7<sup>th</sup> grader would be able to comprehend the text. The Flesch Reading Ease score is based on a 100 point scale so the higher the score the easier it is to comprehend (Google, Flesch-Kincaid Reading Level [www.ilovejackdaniels.com/php/flesch-kincaidfunction/](http://www.ilovejackdaniels.com/php/flesch-kincaidfunction/)). The English version of the knowledge questionnaire used

in this study was rated at a reading level of a 7.3 grade text and scored a 70% for reading ease. This standard scored test is used for English learned in the U.S. school system. However 95.7% of the study sample read and spoke Spanish, and most were educated in Mexico as 82.6% were first generation in the U. S. Therefore subjects may have benefited from a questionnaire with an even lower reading index.

To achieve a 7.3 grade readability score, questions were kept short and simple, and included minimal scientific terminology. For example, in this clinic the nursing staff have found it important to describe and distinguish GDM from Type 2 diabetes by referring to 'pregnancy diabetes' versus 'adult diabetes.' So these terms were utilized in the test.

An example of a simple short question in the tool was, "Can 'adult diabetes' be cured?" The researcher recognizes the word 'cured' may connote a medical bias. But a restatement such as, "Can 'adult diabetes' be cured like the common cold?" increased length and complications of another condition. Whether it is better to have a word with medical bias in a sentence to keep a sentence short or to have acknowledged the bias and lengthened the sentence is a point for future debate.

Answers were also limited to 'Yes' or 'Si,' 'No' or 'No,' 'I Don't Know' or 'No se,' which are short and simple. A literature search suggested multiple choice items are the most popular form of item (Dunn et al, 1984). But multiple choice answers make the questions longer, and conflict with the

Flesch Kincaid theories of simple, short words and sentences. Yes/No/I Don't Know answers to the diabetes knowledge questions were successfully used by Brown in her Starr County study (1992).

Language. Designing a measurement tool in a language different from that of the tool's author is a difficult undertaking. A considerable amount of money and time must be planned for the project, in order to address translations, receive advice and critiquing, and to be culturally competent. Recognizing this, the success of a project such as this one, depends upon chance encounters with experts that are not overlooked, and collegial and monetary support that is pursued with a vengeance. One must be committed to a complex process that can take a longer path than anticipated. In the local community bilingual help is available. It must be sought out, funded, and ultimately respected, if the important goal of cultural competence is to be realized. Sometimes bilingual assistance materializes almost spontaneously just because the project is felt by others to be worthwhile, and the struggles of a non-Hispanic investigator recognized and appreciated. Other times it must be paid for.

Spoken and written Spanish has many dialects. One would think the Tex-Mex dialect should be used in the video and knowledge questionnaire in a South Texas study. However, 78.3% of the sample women were from Mexico and not citizens of the U.S., and 82.6% were the first generation in the U.S. Therefore, a border Tex-Mex dialect was used in all study materials and video. This variation on the San Antonio area Spanish dialect emerged from

the translations made by various Hispanic women who were resources for this project.

This version of Tex-Mex was the answer to a question which the researcher contemplated in designing the study: Is Tex-Mex one dialect? According to Anzaldúa, Mexican Americans are a complex group that may speak many languages: “1) Standard English; 2) Working class and slang English; 3) Standard Spanish; 4) Standard Mexican Spanish; 5) North Mexican Spanish dialect; 6) Chicano Spanish (Texas, New Mexico, Arizona and California have regional variations); 7) Tex-Mex; and 8) *Pachuco (or caló)*” (1987, p 55). There are many combinations of the languages with different English words and different Spanish words, depending on the area of Texas and proximity to the Mexican border. The non-Hispanic investigator used advice and suggestions from the following group of people in developing an appropriate Spanish translation of the instrument, who made significant contributions to the project:

- a Mexican American physician, director of the Hispanic Center of Medical Excellence, born in El Paso, who was considered the advisor on cultural competency;
- a Mexican American CDE nurse with a doctoral education, born in Starr County on the Texas Mexico border, who designed the questionnaire used by Sharon Brown for the Starr County Diabetes

Project (Brown, 1992), suggested the project, guided the development of the knowledge questionnaire, acted in the video, and scored the CVI;

- a Mexican American communication arts major at UIW, born in San Antonio, who produced the videotape;
- a Mexican American CDE nurse who acted in the video and scored the CVI,
- a Puerto Rican American CDE dietician who lent her home for video scenes and scored the CVI;
- a San Salvadorian American CDE dietician video narrator-translator for this project, grew up, and was schooled in San Salvador, and moved to the U.S. as an adult, and who scored the CVI;
- a Mexican American UTHSCSA secretary from San Antonio who translated and acted in video;
- a Mexican American UIW secretary born in Mexico, schooled in Mexico, who back-translated the questionnaire;
- a Mexican American UTHSCSA administrator, born in Mexico, first schooled in Mexico, finished school in McAllen, completed her bachelor's degree at University of Texas at San Antonio, who translated and explained the Mexican school system;



- a women's health Mexican American nurse with many years experience as a translator, who translated IRB documents and acted;
- an Anglo American, CDE dietician, born in Chicago, lived in Chile, Peru, Columbia, and Brazil after 5 years of age, schooled until 14 years old in South America, then attended high school in Mexico City, who translated;
- a Diabetes in Pregnancy Clinic Mexican American nurse, born in San Antonio, who assisted in administering consent forms and questionnaires in the non-stress testing room of the clinic;
- a certified UTHSCSA IRB translator born in Panama but a U.S. citizen, who approved the consent and information sheet.

All of the above had varied backgrounds, educations, expertise, and contributed critical insights about implementing a culturally sensitive project. Seven other people important to the project were non-Hispanic, English-speakers, who made innumerable contributions were: my thesis committee (Ph.D. public health nurse, Ph. D. medical anthropologist nurse, Ph.D. adult health nurse, Ph.D. basic scientist-physiologist nurse), the M.D. director of the Diabetes in Pregnancy Clinic, and a CDE nurse. All were a source of information and support from the beginning.

Issues with Knowledge Assessment. According to McNeal et al., (1984), several variables can confound the results of knowledge assessment data. They are: age, years of schooling, reading level, and comprehension level. Dunn et al., (1984), found age was inconsistent but a confounder in juvenile diabetics, and only appears to show a reliable negative correlation in adult diabetics. They also reported that years-of-schooling do not accurately indicate reading and comprehension skills. The authors (McNeal and Dunn) felt reading and comprehension should be determined by word recognition, conceptual understanding, listening tests, and comprehension tests. Each item should be tested separately in addition to assessing sentence length and polysyllabic words for difficulty of materials.

In this study of GDM women, age appeared to have a significant effect on the differences of the knowledge test scores. In particular the youngest women (age 20-25) had less baseline knowledge about their risk for type 2 DM after GDM than older women. This may be due to lack of experience, or lower gravida status. However when accounting for age effects with an analysis of covariance age's impact on the effect of the videotape was slight or not at all.

A second issue in assessing knowledge pertains to the administration of questionnaires. It is a difficult problem if written and oral instructions aren't able to be understood. This may in part be due to an inconsistency between the level of instruction and the level of patient reading and comprehensive

skills. According to McNeal et al., (1984), knowledge factors such as vocabulary, sentence difficulty, concept density, format and use of illustrations can make the levels of instruction, reading and comprehensive skills better matched. Although reading and comprehension skills were not directly tested in this study, an attempt to address vocabulary, sentence difficulty, format, visual illustrations were made by using a video mode of instruction. Vignettes helped to explain difficult concepts.

Dunn et al., (1984), indicated that if comprehensive assessment of DM knowledge is too time-consuming, rapid and reliable assessment is possible with a scale as small as 15 validated items. In this study there was a concerted effort to keep the research design simple in a pre test-post test format, in order to promote rapid assessment. The participants' time in the study was limited to essentially one sitting, so the focus was on speed. Because participants had varied intelligence levels, educational levels, test experiences, and stamina, the investigator had to consider that subjects might experience boredom, fatigue and intimidation during the study. It was also recognized that prior attitudes, beliefs, and anxieties could compromise the results of the GDM educational program. An attempt to address these potentialities was made, through the design of the video, the questionnaire, and the testing setting.

The video teaches visually and auditory but the evaluation method is done using a written test which depends on recall memory, verbal ability, reading comprehension. If investigators are especially concerned about recall

memory, parallel forms of the same test with matched items for content, difficulty variance, and discrimination coefficient have been used, according to Dunn et al., (1984). They found testing of basic diabetes survival information has to be completed and must appear in both parallel forms of the tests. This required testing is time-consuming so it is done if the knowledge questionnaire is a permanent tool. This was beyond the scope of this study. It is a pilot overview of the problem and an in-depth educational program is planned with a series of videotapes in the future, requiring changes of the knowledge test

We acknowledged verbal ability or vocabulary level, recall memory, information about questions left out of the education program, and the 50% probability of a correct response by guessing (answers are Yes/No) could confound the results of an educational program. Verbal ability or vocabulary level, previously discussed, was adjusted based on guidance and extensive experience of the UTHSCSA IRB. All materials were modified to read at the 7<sup>th</sup> grade level. Recall memory was limited by giving the pre test and post test immediately before and after the intervention. Items not addressed in the video were excluded. The third issue, that there is always the 50% probability of a correct response by guessing, was considered, by the researcher. If multiple choice were used rather than dichotomous questions, the tool would increase in length. Then simplicity is lost. The investigator recognized the

varied educational skills by shortening and simplifying the sentences, choosing Yes or No questions/answers.

The in depth comprehensive assessment of the full domain of GDM knowledge is ideal, but there are situations in which it is contraindicated. This is one of those situations. This was a pilot program with a sample of limited education level, and with little time available to learn GDM content and respond to a lengthy questionnaire. In the future the knowledge measurement and patient participants will change as the educational prevention program continues to be developed. This will bring different demands of knowledge measurement. Assessing knowledge rapidly and efficiently was preferable to exhaustively testing the entire range of potential knowledge.

#### Implications

Nursing and Nursing Education. The difficulties of working in a foreign language with a minority group have been repeatedly emphasized throughout this project. When the mode of communication is a language foreign to the nurse health care provider let alone the nurse researcher, nursing care problems are compounded.

Therefore materials, such as a culturally sensitive video are critical to optimize patient care. Knowledge about beliefs, issues, attitudes and anxieties different from the nurse must be recognized even though nursing care tries to be all encompassing to every group. Acknowledging these problems but

maintaining and presenting a caring approach is a large part of the nursing healthcare battle.

Stipulating that patients maintain a dogmatic compliance to the care plan has a small chance of success, especially in the field of DM prevention. This is even more true if language is a barrier. The wholistic self-management approach has a greater chance for success, even if language complicates the nurse-client relationship because other sources of communication can be found, such as a translated videotape. Isolating language out of the context of the whole person and their environment will surely produce ineffective health care. Addressing cultural beliefs and issues are paramount if care is to be optimized.

The necessity for education in cross-cultural nursing is strongly reinforced by this research project. It is the hope of the investigator that nurses' understanding of cultural issues and beliefs, and competent intervening with cultural groups will positively affect health outcomes throughout nursing careers.

DM prevention. Preventing the development of disease is an important goal for nursing, including practice, education, theory, and research. This project addresses both the primary and secondary prevention of diabetes through program planning, and research. It encompasses primary prevention by promoting health, protecting health, and presenting disease prevention activities to inhibit the development of DM in high risk women.

Some have asked if GDM is a risk factor or the start of a chronic disease. This is a difficult question to answer because a single causative factor for DM is unknown, and its origins are highly complex. But primary prevention is considered a critical goal after a GDM pregnancy, and an important risk factor (Keohane and Lacey, 1991; American Diabetes Association, 2003; National Institute of Diabetes, Digestive, and Kidney Disease, 2003).

This project offers suggestions via the video message that nurses can use for primary prevention in all health care settings, such as clinics, hospitals, schools, churches, health fairs, work sites. This video project can also be used for secondary prevention because it promotes screening, regular physical exams and diagnostic testing to detect the disease process in the early stages. At the post partum exam or during every annual well-woman exam, diabetes testing for women at risk should be done. Then the DM results and an evaluation of progress made in healthy lifestyle change should be individually addressed by clinic nurses at these exams by tracking progress in clinical charts. Educational self-management interventions developed for waiting rooms would be a boon, such as the videotape for this project.

Studying aggregate health programs and applying theory. The most significant educational course used in the development of this project was the Aggregate Health series of three graduate level courses (12 credit hours). Simply stated they included the following:

- In Aggregate I a needs assessment for a vulnerable population categorized with health disparities, was done. In this project, an aggregate of Mexican American women with GDM, treated at an inner city specialty clinic was assessed.
- In Aggregate II, a theoretical framework was applied to a culturally and linguistically appropriate program designed to meet the needs assessment of the vulnerable population. The use of Swanson's mid-range caring theory was the underlying framework. The design for a culturally appropriate intervention conducted in Spanish, was completed.
- In Aggregate III, the implementation and evaluation of the health program planned was completed. To meet this requirement, the investigator developed an educational video, the evaluation tool (knowledge questionnaire), and adapted a pre test/post test research design to the diabetes prevention educational program for the vulnerable group. The efficacy of the video as a teaching tool was evaluated.

As mentioned Swanson's mid-range caring theory was applied to the planned intervention. Swanson defines caring as "acting in a way that preserves human dignity, restores humanity and avoids reducing persons to



the moral status of object.” (Woods, 1995, p 132). Swanson further divides caring into:

- Knowing or striving to understand a (health) event as it has meaning in the life of the person being cared for. This is a requirement for cultural competency in health care.
- Being with or emotionally present to the person being cared for is the necessary component of a self-management equalitarian healthcare program.
- Doing for the person being cared for as she would do for herself if it were possible encompasses the development of an educational prevention program.
- Enabling is facilitating a person’s passage through life transitions and unfamiliar events. This includes the impact of a GDM pregnancy in the life of a Mexican American woman.
- Maintaining belief is the sustaining faith in the cared for person’s capacity to get through a transition, to face a future of fulfillment, and to make the necessary lifestyle changes so that future is healthy.

These tenants of the Swanson theory guided the development, conduct, and evaluation of the current research project.

Nursing research. Nursing research guides nursing practice. This nursing research project as discussed has many implications for nursing practice, such as validating the effectiveness of primary and secondary prevention applications, and the use of culturally sensitive interventions. What is important to nursing research is its ability to direct nurses to evidence based practices that will improve the health of women with GDM.

Diabetes is a serious global problem affecting both men and women. It is severe in the Texas Mexican American population. Although it is a global problem, narrowing the focus to smaller discrete subsets of at risk patients better serves research and practice. Research about interventions for women is more effective with a limited population possibly because the research is more efficient. Women's health research historically has been overlooked and is in a catch-up mode, and so the effectiveness of an intervention to prevent DM in women is one potentially important step toward improved health for women.

In this study project, the GDM women were already being served by the health care system. This clinic population was almost entirely Mexican American and was known to be at a high risk for type 2 diabetes mellitus. Nevertheless, barriers to working with this group exist. They are their non-English language, limited income, limited health insurance, living conditions, first generation acculturation, lack of education, non-permanent U.S. residency status, and other culturally specific issues and beliefs. All are

considerable barriers for both their own care and for a chronic disease prevention project. This project has shown that if they are recognized and addressed, barriers can be surmounted for a non-Hispanic, English-speaking investigator.

Although interest in women's health research is gaining in popularity, for the most part it remains illness oriented and concerns itself with pathology not health promotion or disease prevention. In diabetes prevention research, acknowledging the difficulties the individual is having with incorporating lifestyle change into their life may predict a research change. How a woman expresses her concerns about her ability to perform her mothering role may be key for women's health research in chronic disease. The psychosocial area of women's health research is limited at this time.

To continue this research project a focus on women's feelings is important. What does "healthy" mean to the individual woman? What does she want to learn about how to stay or become healthy? What are her concerns and difficulties about making healthy lifestyle changes? It is anticipated that the next stage for this program of research about diabetes prevention education for Mexican American women who have GDM, will be a qualitative study. Focus group meetings made up of Mexican American women with GDM will be conducted during which the needs of the women with the problem will be identified. The completed educational videotape will be used to facilitate the focus group discussions. With the completion of the

focus groups, a series of educational prevention videotapes will be produced. Eventually, the use of educational videotapes to stimulate support group discussions of self-management problems will be pursued.

Summary. This project started at an OB/GYN Grand Rounds presentation done by Deborah Conway, M.D., who is the Director of the Diabetes in Pregnancy Clinic located downtown San Antonio. The investigator and Dr Conway discussed a statistic from this presentation, that gestational diabetic women who attend the UTHSCSA faculty-run DPP Clinic had a 17.6% return to clinic rate after their delivery to re-classify their high risk for type 2 DM status (Conway, 1999). During this discussion she said there was a need for an educational intervention for these GDM women. A literature search for diabetes education interventions uncovered Sharon Brown's article, "Diabetes education in a Mexican-American population: Pilot testing of a research-based videotape" (1992). An article by Kjos et al., substantiated the high risk for Type 2 DM in GDM Latinas (1995). Furthermore, the literature suggested the potential benefit of an educational intervention.

Critical to this project was the graduate nursing educational coursework taken at the UIW School of Nursing, the guidance of two recognized nursing CDEs from San Antonio, and the critical network of educated, bilingual, Hispanic women who assisted in the translation, cultural competency, and planning issues that arose during this project's completion.

The project was funded by the San Antonio Area Foundation. Support for producing the video came in the form of a former student and current student for the UIW Communication Arts Department.

The final statistical analysis of the project was positive. The knowledge instrument had a Kuder –Richardson reliability coefficient 20 score of 0.7896. The comparisons of the pre and post intervention knowledge scores were done for the 21 item test with the mean paired difference of the post test percent score and the pre test percent score 11.08 (SD 13.58) and a 2-tailed significance of  $p \leq 0.0001$ . Therefore, on the basis of this data, the major study hypothesis, that use of an educational video about type 2 diabetes risk factors is positively associated with knowledge levels in Mexican American women with GDM, was supported.

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Appendix A

Informed Consent and Recruitment Tool

SUBJECT INFORMED CONSENT TO TAKE PART IN A STUDY OF  
Diabetes Prevention Education for Mexican American Women with Gestational  
Diabetes: Pilot Testing a Videotape

University of Texas Health Science Center at San Antonio  
University of the Incarnate Word  
University Health Center-Downtown

We are asking you to take part in a research study of a diabetes teaching program. This diabetes teaching program is for women with pregnancy diabetes. We want to tell women with pregnancy diabetes about their chance for adult diabetes after the pregnancy is over. We are trying to stop or prevent adult diabetes in women who have had pregnancy diabetes. We want to learn if a video can teach women with pregnancy diabetes about adult diabetes. We are asking you to help us with testing this video because you have pregnancy diabetes, are 18 years old or older, are Mexican American, and come to the University Health Center-Downtown, Diabetes in Pregnancy Clinic for your care. We will be asking 50 women with pregnancy diabetes to be part of this study.

If you decide to take part, we will give you 3 tests to do and you will watch a videotape. Test One will ask you the following:

- Age,
- Grade in school finished,
- English or Spanish speaking,
- Citizenship,
- Generation of family in the US,
- If you feel pregnancy diabetes is a disease?

Test Two will ask you about what you know about adult diabetes. The video you watch will tell you about your chance for adult diabetes. After watching the video we will test you again to see what the video teaches. We think you can watch the 15 minute video, and do the tests, while you wait for your doctor. This whole study should take about 1 and ½ hours to finish.

The test questions are not hard. They are answered by circling: 1) Si or Yes, 2) No, 3) No se or I don't know. There are short answers in Test One, such as your age, or grade in school you finished.

We think you will not have any discomfort from watching the video. But parts of the video may make you sad or worried. This may make you uncomfortable if you are not taking care of yourself to stay healthy.

We are very concerned about how many people have adult diabetes. We think a diabetes learning program is important. We don't want you to get adult diabetes. We want you to be as healthy as possible your whole life. If you are healthy, we hope your whole family and your baby will be healthy.

The video will tell you how you can prevent your chance for adult diabetes. It will tell you:

- what your chances are for adult diabetes.
- when you should have your sugar tested for adult diabetes.
- how to take care of yourself.
- what problems people can have with adult diabetes.
- how you can avoid getting these problems.



**SUBJECT INFORMED CONSENT TO TAKE PART IN A STUDY OF  
Diabetes Prevention Education for Mexican American Women with Gestational  
Diabetes: Pilot Testing a Videotape**

We think the video is a good way to teach how you can prevent your chance for adult diabetes. You may benefit from watching the video and learning how you can prevent your chance for adult diabetes. We do not guarantee you will benefit from taking part in this study.

We are asking your permission to look at your medical record after your baby is born to see your blood sugar test results. By signing this form you allow us to look at your medical record.

The diabetes teaching program you already have in this clinic will stay the same. The clinic nurses and doctors tell you that you are at risk for adult diabetes after your baby is born. This is your standard of care. This project is a research study. This research study offers you more teaching.

You will receive money after taking the two tests, watching the video, and doing the test again. You will be given \$20.00 for your time.

There will be no cost to you for participating in this project.

We do not feel you will be injured as a result of the research procedures for this project, taking tests and watching a video. But if you are we will have you talk to your doctor. If you need treatment your doctor will treat you. You will be responsible for any charges. We have no plans to give you money if you are injured.

### **CONFIDENTIALITY**

#### **WHAT IS PROTECTED HEALTH INFORMATION (PHI)?**

Protected Health Information is information about a person's health that includes information that would make it possible to figure out whose it is. According to the law, you have the right to decide who can see your protected health information. If you choose to take part in this study, you will be giving your permission to the investigators and the research study staff (individuals carrying out the study) to see and use your health information for this research study. In carrying out this research the health information we will see and use about you will include: blood test results that we get from your medical record, information you give us during your participation in the study such as the answers you provide on the questionnaire, and demographic information including:

- Age,
- Grade in school finished,
- English or Spanish speaking,
- Citizenship,
- Generation of family in the US,
- If you feel pregnancy diabetes is a disease.

We will get this information by having you complete questionnaires, and by looking at your medical record.

#### **HOW WILL YOUR PHI BE SHARED?**

Because this is a research study, we will be unable to keep your PHI completely confidential. We may share health information with people and groups involved in overseeing this research study including:





SUBJECT INFORMED CONSENT TO TAKE PART IN A STUDY OF  
Diabetes Prevention Education for Mexican American Women with Gestational  
Diabetes: Pilot Testing a Videotape

- The primary investigator at the University of Texas Health Science Center at San Antonio, the primary investigator's graduate nursing thesis committee at the University of the Incarnate Word, the co-investigator at Texas Diabetes Institute and the co-investigator at the South Texas Veterans Health Care System, and the co-investigator Director of the Diabetes in Pregnancy Program at the University Health System-Downtown.
- The Institutional Review Board and the Compliance Office of the University of Texas Health Science Center at San Antonio, and other groups that oversee how research studies are carried out.
- Institutional Review Board of the University of the Incarnate Word, and Research and Development office of the University Health Systems.

The groups receiving your health information may not be obligated to keep it private. They may pass information on to other groups or individuals not named here.

If you decide to participate in this study, you will be giving your permission for the groups named above, to see and share your health information. If you choose not to let these groups see and share your health information as explained above, you will **not** be able to participate in the research study.

**HOW WILL YOUR PHI BE PROTECTED?**

In an effort to protect your privacy, the study staff will use code numbers instead of your name, to identify your health information. Initials and code numbers will be used on any photocopies of your study records. If the results of this study are reported in medical journals or at meetings, you will not be identified.

**DO YOU HAVE TO BE IN THIS STUDY?**

Being in the study is voluntary. You are free to choose not to be in this study or to stop being in this study at any time. You are also free to not let the researchers and other groups see and share your health information. If you choose not to be in the study or not to let the researchers and other groups use your health information, there will be no penalties. In other words, you will still be able to get medical treatments without being in the study and it will not affect your eligibility for any health plan or any health plan benefits or payments you may be eligible for.

**WHAT IF YOU CHANGE YOUR MIND?**

You may ask the researchers to stop using your health information at any time. However, you need to say this in writing and send your letter to Carann Easton, RN, BSN, Dept. Ob/Gyn, Mail Code 7836, 7703 Floyd Curl Drive, University of Texas Health Science Center at San Antonio, San Antonio, Texas 78229-3900. If you tell the researchers to stop using your health information, your participation in the study will end and the study staff will stop collecting new health information from you and about you for this study. However, the study staff will continue to use the health information collected up to the time they receive your letter asking them to stop.

**CAN YOU ASK TO SEE THE PHI THAT IS COLLECTED ABOUT YOU FOR THIS STUDY?**

The federal rules say that you can see the health information that we collect about you and use in this study. Contact the study staff if you have a need to review your PHI collected for this study.

**HOW LONG WILL YOUR PHI BE USED?**

By signing this form, you agree to let us use and disclose your health information for purposes of the study at any time in the future. There is no expiration date because we do not know how long it will take us to finish doing all of the analysis and we will need to use your health information for as long as it takes.

**WHAT TO DO IF YOU HAVE QUESTIONS OR NEED TO REPORT A PROBLEM?**

If you have questions now, feel free to ask us. If you have additional questions later or you wish to report a medical problem that may be related to this study Carann Easton, RN, BSN may be reached during work hours



SUBJECT INFORMED CONSENT TO TAKE PART IN A STUDY OF  
Diabetes Prevention Education for Mexican American Women with Gestational  
Diabetes: Pilot Testing a Videotape

at (210) 567-4924 or Deborah L. Conway, M.D., Director of the Diabetes in Pregnancy clinic, may be reached during working hours at (210) 567-5035.

The University of Texas Health Science Center committee that reviews research on human subjects (Institutional Review Board) will answer any questions about your rights as a research subject (210-567-2351).

SIGN THIS FORM ONLY IF ALL OF THE FOLLOWING ARE TRUE:

- You have voluntarily decided to take part in this research study.
- You authorize the collection, uses and sharing of your protected health information as described in this form.
- You have read the above information.
- Your questions have been answered to your satisfaction and you believe you understand all of the information given about this study and about the use and disclosure of your health information.

\_\_\_\_\_  
Signature of Subject

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Date/Time

\_\_\_\_\_  
Signature of Person Obtaining Consent

\_\_\_\_\_  
Printed Name and Title of Person  
Obtaining Consent



Consentimiento del Sujeto para Participar en el Estudio de la Educación de Prevención de la Diabetes para la Mujer México-Americana con Diabetes Durante la Gestación: Video Piloto de Prueba

University of Texas Health Science Center at San Antonio  
University of the Incarnate Word  
University Health Center – Downtown

Se le invita a participar en un estudio de investigación del programa para educar sobre la diabetes. Este programa de la educación de la diabetes es para mujeres que tienen diabetes durante el embarazo. Queremos informarles a las mujeres con diabetes durante el embarazo, de su disposición para la diabetes en adultos después de su embarazo. Estamos tratando de detener o prevenir la diabetes en adultos en mujeres que han tenido diabetes mientras están embarazadas. Queremos aprender si un video puede enseñar de la diabetes en adultos a mujeres embarazadas que tienen diabetes. Le pedimos a usted que nos ayude con la prueba de este video porque usted sufre de la diabetes durante el embarazo, tiene diez y ocho años o más, es México-Americana, y viene al University Health Center-Downtown, Diabetes in Pregnancy Clinic para su cuidado. Le pediremos a 50 mujeres con diabetes durante el embarazo que sean parte de este estudio.

Si usted decide participar, le daremos 3 exámenes que complete y verá un video. El Examen **Uno** le preguntará lo siguiente:

- Su edad
- El grado terminado en la escuela
- Habla Inglés o Español
- Ciudadanía
- Generación de familia en los Estado Unidos
- ¿Si usted siente que el embarazo con diabetes es una enfermedad?

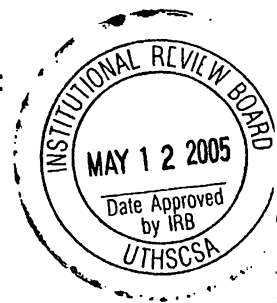
El Examen **Dos** le preguntará acerca de lo que usted sabe de la diabetes en adultos. El video que usted mire, le dirá qué riesgo tiene usted para la diabetes en adultos. Después de que usted vea el video le daremos el examen otra vez para saber qué enseñó el video. Pensamos que usted puede ver el video de 15 minutos y completar los exámenes mientras espera a su doctor. Todo este estudio tomará como hora y media para terminar.

Las preguntas del examen no son difíciles. Se contestarán poniendo un círculo: 1) Si o Yes, 2) No, 3) No sé o I don't know. Hay contestaciones cortas en el Examen **Uno** tal como su edad, o grado de escuela terminado.

Pensamos que no sufrirá ninguna incomodidad al ver el video. Pero quizá partes del video la pongan triste o la mortifican. Esto la puede incomodar si usted **no** se está cuidando para estar saludable.

Estamos muy mortificados por las muchas personas que tienen diabetes en adultos. Pensamos que un programa para aprender de la diabetes es importante. No queremos que usted sufra de la diabetes en adultos. Queremos que usted sea lo más saludable posible en su vida entera. Si usted está saludable, esperamos que toda su familia y su bebé serán saludables.

El video le dirá cómo puede usted prevenir su riesgo de la diabetes en adultos. Le dirá:



## Consentimiento del Sujeto para Participar en el Estudio de la Educación de Prevención de la Diabetes para la Mujer México-Americana con Diabetes Durante la Gestación: Video Piloto de Prueba

- Cuáles son sus riesgos para la diabetes en adultos
- Cuándo debe hacerse prueba del azúcar para la diabetes en adultos
- Cómo cuidarse
- Qué problemas se pueden tener con la diabetes en adultos
- Cómo usted puede evitar estos problemas

Pensamos que el video es un modo bueno para enseñarle cómo puede prevenir su riesgo para la diabetes de adulto. Puede beneficiarse al ver el video y aprendiendo cómo puede prevenir su riesgo para la diabetes de adulto. No le garantizamos que se beneficie al tomar parte en este estudio.

Le pedimos su permiso para ver su expediente después del nacimiento de su bebé, para revisar sus resultados de azúcar en la sangre. Al firmar este documento usted nos permite revisar su expediente.

El programa que usted ya tiene en esta clínica, para educar sobre la diabetes permanecerá lo mismo. Los doctores y enfermeras de la clínica le dicen que usted está a riesgo para la diabetes en adultos después del nacimiento de su bebé. Esto es su nivel de cuidado. Este proyecto es un estudio de investigación. Este estudio de investigación le ofrece más educación.

Usted recibirá dinero después que usted tome los dos exámenes, vea el video y tome el examen otra vez. Se le darán \$20.00 por el uso de su tiempo.

Usted no tendrá ningún gasto al participar en este proyecto.

Nosotros no sentimos que usted sea herida como resultado de los procedimientos de este estudio de investigación al tomar exámenes y ver un video. Pero si usted es herida, le diremos que hable con su doctor. Si usted necesita tratamiento, su doctor la atenderá. Usted es responsable por cualquier gasto. Nosotros no tenemos planes de darle dinero si usted es herida.

### Confidencialidad

¿Qué es Información Protegida de Salud (Protected Health Information- PHI)?

Información Protegida de Salud es información acerca de la salud de alguien que incluye información que lo hace posible saber de quien es la información. De acuerdo con la ley, usted tiene derecho a decidir quién puede ver su "Información Protegida de Salud" (PHI). Si usted toma parte en este estudio, usted está dando su permiso a los investigadores y al personal de investigación (individuos que están llevando a cabo el estudio) que vean y usen su "Información Protegida de Salud "(PHI) para este estudio. Al llevar a cabo este estudio la información suya de salud que veremos y usemos, incluirá resultados de análisis de sangre que saquemos de su expediente, información que usted nos dé durante su participación, tal como sus respuestas en el cuestionario, información demográfica incluyendo:

- Edad
- Grado terminado en la escuela
- Habla Inglés o Español



Consentimiento del Sujeto para Participar en el Estudio de la Educación de Prevención de la Diabetes para la Mujer México-Americana con Diabetes Durante la Gestación: Video Piloto de Prueba

- Ciudadanía
- Generación de familia en los Estados Unidos
- ¿Si usted siente que el embarazo con diabetes es una enfermedad?

Nosotros obtendremos esta información cuando usted complete los cuestionarios y veamos su expediente.

¿Cómo será su **PHI** compartido?

Porque éste es un estudio de investigación, no podremos guardar su (**PHI**) completamente confidencial. Compartiremos su información de salud con personas y grupos involucrados en revisar este estudio de investigación incluso:

- El investigador principal en la University of Texas Health Science Center at San Antonio el comité de tesis de enfermería para graduados en la University of the Incarnate Word, el co-investigador en el Texas Diabetes Institute y el co-investigador en el South Texas Veteran's Health Care System y el co-investigador, Director del Diabetes in Pregnancy Program en la University Health System – Downtown.
- El Institutional Review Board y el Compliance Office of the University of Texas Health Science Center at San Antonio, y otros grupos que están revisando de cómo los estudios de investigaciones son llevados a cabo
- El Institutional Review Board of the University of the Incarnate Word y la oficina de Research and Development de University Health System

Los grupos que reciban su información no estarían obligados a mantenerla privada. Es posible que pasen su información a otros grupos o individuos no nombrados aquí.

Si usted decide participar en este estudio, usted estará dando su permiso para que los grupos mencionados vean y compartan su información de salud (**PHI**). Si escoge no dejar que estos grupos vean y compartan su información de salud como ha sido explicada, usted **no podrá** participar en el estudio de investigación.

¿Cómo será su **PHI** protegida?

En un esfuerzo de proteger su privacidad, el personal del estudio usará números de código en vez de su nombre para identificar su información de salud. Iniciales y número de código serán usados en las fotocopias de su expediente del estudio. Usted no será identificada, si los resultados del estudio son reportados a revistas médicas o en juntas.

¿Tiene usted que tomar parte en este estudio?

Su participación es voluntaria. Usted es libre de escoger no estar en el estudio o de dejar de estar en este estudio, en cualquier tiempo. También es libre de no dejar que los investigadores y otros grupos vean y compartan su información de salud. Si usted escoge no estar en el estudio o no dejar que los investigadores y otros grupos vean su información de salud no habrá ningún castigo. En otras palabras, usted aún podrá seguir con sus tratamientos médicos sin estar en el



Consentimiento del Sujeto para Participar en el Estudio de la Educación de Prevención de la Diabetes para la Mujer México-Americana con Diabetes Durante la Gestación: Video Piloto de Prueba

estudio y no afectará su elegibilidad para cualquier plan de salud o cualquier beneficio o pago por cual usted sea elegible.

¿Qué tal si cambia de pensamiento?

Usted puede pedirles a los investigadores que dejen de usar su información de salud en cualquier tiempo. Sin embargo, usted tiene que pedir esto por escrito y mandar su carta a Carann Easton, RN, BSN, Dep. of Ob/Gyn, Mail Code 7836, 7703 Floyd Curl Drive, University of Texas Health Science Center at San Antonio, San Antonio, Texas 78229-3900. Si usted les dice a los investigadores que dejen de usar su información de salud, su participación en el estudio terminará y el personal del estudio dejara de coleccionar información nueva de salud sobre usted, para el estudio. Sin embargo, el personal del estudio continuara a usar su información de salud coleccionada hasta el punto que reciban su carta pidiéndoles que paren.

¿Puede usted pedir ver su **PHI** relacionada a usted para este estudio?

Las reglas federales dicen que usted puede ver la información de salud relacionada a usted y usada para este estudio. Contacte al personal del estudio si necesita revisar su **PHI** coleccionada para este estudio.

¿Porque tanto tiempo se usará su **PHI**?

Al firmar este documento, usted está de acuerdo que nos dejará usar y revelar su información de salud para el propósito del estudio en cualquier momento en el futuro. No hay fecha de vencimiento porque no sabemos qué tiempo se tomará para terminar todos los análisis y necesitamos su información por el tiempo que se tome.

¿Qué hacer si tiene preguntas o necesita reportar algún problema?

Si usted tiene cualquiera pregunta ahora, favor de preguntarlas libremente. Si tiene preguntas adicionales más tarde, o desea reportar algún problema médico relacionado a este estudio, Carann Easton, RN, BSN podrá ser encontrada en el número de teléfono del trabajo (210)567-4924 o Deborah L. Conway, M.D., Directora de Diabetes in Pregnancy Clinic, podrá ser encontrada en el número de teléfono del trabajo (210) 567-5035.

El comité de The University of Texas Health Science Center que revisa las investigaciones en sujetos humanos (Institutional Review Board) contestará cualquier pregunta acerca de sus derechos como sujeto de investigación (567-2351).



Consentimiento del Sujeto para Participar en el Estudio de la Educación de Prevención de la Diabetes para la Mujer México-Americana con Diabetes Durante la Gestación: Video Piloto de Prueba

FIRME ESTE DOCUMENTO SOLAMENTE SI TODO LO SIGUIENTE ES VERDAD:

- Usted ha decidido voluntariamente tomar parte en este estudio de investigación.
- Usted autoriza la colección, el uso y revelación de su información de salud personal, aquí explicada en este documento.
- Usted ha leído la información previa en este documento.
- Usted está satisfecha que se le han contestado todas sus preguntas y usted cree que comprende toda la información aquí presentada acerca del estudio, el uso y revelación de su información de salud.

\_\_\_\_\_  
Firma del Sujeto

\_\_\_\_\_/\_\_\_\_\_  
Fecha

\_\_\_\_\_  
Hora

\_\_\_\_\_  
Firma del Testigo

\_\_\_\_\_  
Firma de la Persona que Obtiene el Consentimiento

\_\_\_\_\_  
Nombre y Título de la Persona que Obtiene el  
Consentimiento, en letra de molde



Participation in a Study of Diabetes Prevention for Education for Mexican American  
Women with Gestational Diabetes: Pilot Testing a Videotape  
Carol Easton, RN, BSN  
University of Texas Health Science Center at San Antonio  
Obstetrics and Gynecology



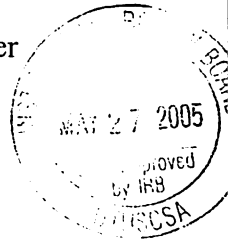
We would like you to take part in an educational study about diabetes prevention. Everything for the study is in Spanish and English. If you take part in the study, this is what you would do:

- Read and sign the study permission form.
- Answer questions, such as how old you are, what grade you finished in school.
- Take a test about what you know about diabetes prevention.
- Watch a 20 minute educational VCR movie in Spanish and English about diabetes prevention.
- Take the test again to see if the VCR movie taught you anything about diabetes prevention.

We will give you \$20.00 for your time.



Participar en el Estudio de la Educación de Prevención de la Diabetes para la Mujer  
México-Americana con Diabetes Durante la Gestación: Video Piloto de Prueba  
Carol Easton, RN, BSN  
University of Texas Health Science Center at San Antonio  
Obstetrics and Gynecology



Nos gustaría que UD. participara en un estudio educativo en la prevención de diabetes. Todo en el estudio se llevara acabo en español e ingles. Si UD. toma parte en este estudio, esto es lo que tendrá que hacer:

- Lea y firme la autorización.
- Conteste las preguntas acerca de su edad y su grado de educación.
- Conteste el examen sobre las preguntas de cuanto sabe UD de la prevención de diabetes.
- Vea un video de 20 minutos acerca de la prevención de la diabetes que esta en ingles y en español.
- Tome el examen otra vez para ver si el video le enseñó algo sobre la prevención de la diabetes.

Le recompensáremos con 20.00 por su tiempo.

Appendix B  
Demographic Questionnaire

Diabetes Prevention Education for Mexican American Women with Gestational  
Diabetes: Pilot Testing a Videotape

Demographic Questionnaire  
Cuestionario Demografico

1. Que es su etnico? (circula uno)  
 Caucasio  
 Mexicano Americano  
 Hispanico que no sea Mexicano  
 Africano Americano  
 Otro: \_\_\_\_\_

1. What is your ethnic background? (Circle one)  
 Caucasian (white)  
 Mexican American  
 Hispanic other than Mexican  
 African American  
 Other: \_\_\_\_\_

2. Su edad? \_\_\_\_\_ años

2. How old are you? \_\_\_\_\_ years

3. Que grado completo en la escuela? \_\_\_\_\_ grado

3. What grade in school did you complete? \_\_\_\_\_ grade

4. Quien vive en su casa? \_\_\_\_\_  
 (madre-padre-esposo-compañero-amigo-hijos-abuela-abuelo)

4. Who lives in your household? \_\_\_\_\_  
 (mother-father-husband-partner-friend-children-grandmother-grandfather)

5. Sabe leer y hablar el Ingles? Si No

5. Do you know how to read and speak English? Yes No

6. Sabe leer y hablar el Español? Si No

6. Do you know how to read and speak Spanish? Yes No

7. Ve la televisión en Ingles? Si No

7. Do you watch TV in English? Yes No

8. Ve la television en Español? Si No

8. Do you watch TV in Spanish? Yes No

9. Es Ciudadano Americano? Si No

9. Are you an American citizen? Yes No

10. Es resident permanente de los Estado Unidos? Si No
10. Are you a permanent resident of the United States? Yes No
11. Tiene Visa? Si No
11. Do you have a visa? Yes No
12. Que generacion es en los Estados Unidos? (marca uno)
- Primero, si nacio en Mexico o otro provincial
- Segundo, si nacio en los Estados Unidos o otro provincial
- Tercero, si nacio en los Estados Unidos, su padre y madre nacieron en Mexico o otro provincial y todos sus abuelos nacieron en Mexico o otro provincial
- Cuarto, si usted y sus padres nacieron en los Estados Unidos, y uno de sus abuelos nacieron en Mexico o otro provincial y todos los demas nacieron en los Estados Unidos
- Quinto, si usted y sus padres nacieron en los Estados Unidos, y todos sus abuelos naceiron en los Estados Unidos
12. What generation are you in the United States? (check one)
- First, if you were born in Mexico or other country
- Second, if you were born in the USA, either parent born in Mexico or other country
- Third, if you were born in the USA, both parents born in the USA and all grandparents born in Mexico or other country
- Fourth, if you and your parents were born in the USA, and at least one grandparent born in Mexico or other country with all others born in USA
- Fifth, if you and your parents were born in the USA, and all your grandparents were born in the USA
13. Cree que la diabetes cuando esta embarazada es una enfermedad? Si No
13. Do you feel pregnancy diabetes is an illness? Yes No

## Appendix C

Knowledge Questionnaire Step 1 (Schematic)

Knowledge Questionnaire Step 2 (Nursing Goals)

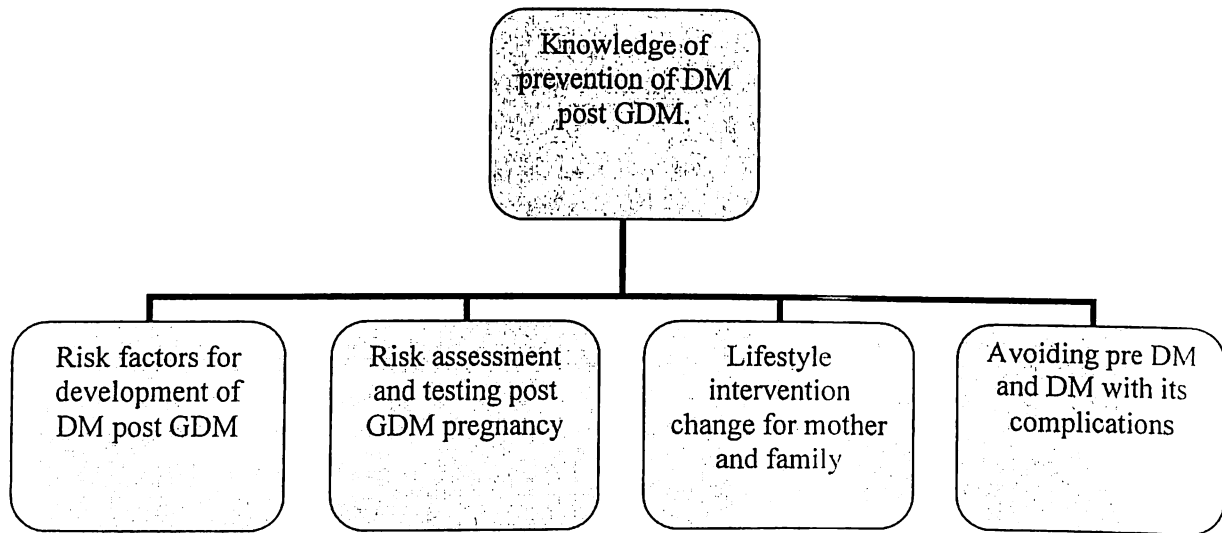
Knowledge Questionnaire Step 3 (Learning Objectives)

Knowledge Questionnaire Step 4 (Objectives-Questions)

Knowledge Questionnaire Step 5 (54 Questions)

Knowledge Questionnaire Step 6 (Pre and Post Test)

## Appendix C: Step 1



## **Appendix C: Step 2**

### **Video Knowledge Nursing Goals**

The goal of this project is to use an educational video to increase the knowledge of prevention and lifelong risk of Type 2 diabetes (DM) in women with gestational diabetes (GDM).

#### **Risk factors for development of DM post GDM.**

After watching the educational video, GDM women will be able to identify the risk factors for Type 2 DM.

#### **Risk assessment and testing post GDM pregnancy.**

After watching the educational video, GDM women will realize how important monitoring their risks and pursuing regular testing are for prevention of Type 2 DM.

#### **Lifestyle intervention change for mother and family.**

After watching the educational video, GDM women will be familiar with the lifestyle, behavioral changes they must make as well as their family to prevent or delay Type 2 DM.

#### **Avoiding pre DM, and DM and its complications.**

After watching the educational video, GDM women will understand the health implications of pre DM and DM that can be avoided by making lifestyle, behavioral changes.

### **Appendix C: Step 3**

#### **Video Knowledge Objectives in detail**

The goal of this project is to use an educational video to increase the knowledge of prevention and lifelong risk of Type 2 diabetes (DM) in women with gestational diabetes (GDM).

#### **Risk factors for development of DM post GDM.**

1. Know GDM places them at increased risk.
2. Realize the Mexican American ethnic group has a higher risk.
3. Understand a family history increases the risk.
4. Know weight can raise the risk.
5. Know being sedentary raises the risk.
6. Be informed about the increased risk a diet high in fats, carbohydrates and low in fiber causes.

#### **Risk assessment and testing post GDM pregnancy.**

1. Understand if the 2 hour OGTT at the six weeks post partum exam indicates pre diabetes or impaired glucose tolerance (IGT), the Mexican American woman with GDM has an 80% (8 in 10) chance of being diabetic in 5 years (normal is less than 140; IGT is 140 to 199; and diabetes is 200 or greater).
2. Know testing for the risk of DM should be done with an OGTT every year if the 6 week post partum exam was IGT or other risk factors are identified.
3. Know testing for the risk of DM should be done every year with a fasting blood glucose test if the 6 week post partum exam was normal and no other risk factors exist.
4. Understand that assessing the risk and testing will change if an overweight problem worsens or stays the same, sedentary lifestyle doesn't change, the family history of DM increases, and the results of the yearly fasting blood glucose test becomes worse.
5. Be motivated to make lifestyle changes to decrease the risk factors that can be changed so medical assessment of the risks and testing is improved.

#### **Lifestyle intervention change for mother and family.**

1. Realize how important losing extra weight and maintaining this weight loss is.
2. Realize that fat babies are not necessarily healthy babies.
3. Understand the importance of moderate exercise for 30 minutes a day.
4. Be motivated to eat a well-balanced healthy diet with plenty of vegetables, fruits, lean meats, high fiber whole grain breads and cereals, and drink plenty of water and limit fats.
5. Be informed about the importance of preparing foods using small portions of good fats (vegetable oils) or no fats, and stopping fried foods.
6. Be aware of the importance of limiting portion sizes, especially for carbohydrate foods such as: tortillas, beans, rice and corn.
7. Understand how important stopping sugar drinks such as: Coke, Big Red, or fruit juices.



**Avoiding pre DM, and DM and its complications.**

1. Realize the importance of identifying your individual risk for DM after the GDM pregnancy at the 6 week post partum exam
2. Comprehend how important monitoring the DM risk with an OGTT at the post partum exam and then with annual fasting blood glucose is throughout a woman's lifetime.
3. Realize eating a well-balanced diet is important.
4. Understand the importance of losing extra weight.
5. Be motivated to exercise moderately everyday.
6. Understand your baby will not be born with Type 2 diabetes but is at increased risk.
7. Acknowledge how important prevention or delay of DM is for you and your baby because the disease is irreversible with no cure after diagnosis.
8. Be aware treatments with medications will not cure DM.
9. Realize prevention of DM with permanent lifestyle changes (healthy well-balanced diet, weight loss, daily moderate exercise) are the best treatments.
10. Understand the significance of preventing DM because it is the 6<sup>th</sup> leading cause of death, leading cause of blindness in the U.S., and has other serious complications such as, loss of feeling in extremities, amputations, kidney failure, heart disease, and stroke.
11. Feel responsible to the parenting role so shortening the lifespan by 15 years and decreasing the quality of life are important considerations for avoiding pre DM and DM and its complications for the GDM woman.

**Diabetes Prevention Education for Mexican American women with Gestational  
Diabetes: Pilot Testing a Videotape  
Appendix C Step 4 (Spanish in development)  
KNOWLEDGE QUESTIONNAIRE with divisions**

**Risk Factors for Development of Adult Diabetes after Pregnancy Diabetes**

---

1. Spanish	Si	No	No se
2. Does having pregnancy diabetes (high blood sugar during pregnancy) give you a bigger chance of getting adult diabetes (high blood sugar) later in life?	Yes	No	I don't know

---

1.Spanish	Si	No	No Se
2. Do fat women have a bigger chance of getting adult diabetes?	Yes	No	I don't know

---

1. Spanish			
2. Does exercising give you a smaller chance of getting adult diabetes?			

Does being Mexican American give you a bigger chance of getting adult diabetes?

Does pregnancy diabetes go away after the baby is born?

If you have pregnancy diabetes in your first pregnancy is there a bigger chance of getting it in your next pregnancy?

Can women your age get adult diabetes?

Can a child get adult diabetes?

If you have pregnancy diabetes will your baby have diabetes when it is born?

If you have pregnancy diabetes will your children have a bigger chance of getting adult diabetes?

If you do nothing to take care of yourself will you have a big chance of getting adult diabetes in 5 years?

**Risk Assessment and Testing Post Delivery**

Can you forget about pregnancy diabetes when the baby is born?

Do you need to get tested for adult diabetes after your baby is born?

If your blood sugar is just a little high after your baby is born will you have just a little chance of getting adult diabetes before your baby starts school?

If you had to change what you ate for your pregnancy diabetes do you need to get tested for adult diabetes after your baby is born?

If you had to take insulin for your pregnancy diabetes do you need to get tested for adult diabetes after your baby is born?

If your blood sugar test is good after your baby is born you can forget about adult diabetes?

Do you have adult diabetes if your blood sugar is high after your baby is born?

Can you make chance of getting adult diabetes smaller by eating good food?

Can you make your chance of getting adult diabetes smaller by exercising?

Can you make your chance of getting adult diabetes smaller by losing weight?

After your baby is born you can forget about diabetes until you get pregnant again?

If you get adult diabetes you will know it because it makes you feel bad?

Do you think you can do anything to stop from getting adult diabetes?

If you are fat you need to be tested for adult diabetes every year?

If you do not exercise you need to be tested for adult diabetes every year?

If your mother and father have adult diabetes you need to be tested for adult diabetes every year?

If you are thin and exercise a lot do you need to be tested for adult diabetes every year?

If no one in your family has adult diabetes do you ever need to be tested?

### **Lifestyle Interventions to Prevent Diabetes for Mother and Family**

Can you make the chance of getting adult diabetes smaller by exercising?

Can you make the chance of getting adult diabetes smaller by a good diet?

Can exercise make your blood sugar go down?

Can exercising half an hour everyday after your baby is born make your chance of getting adult diabetes smaller?

Can adult diabetes be cured?

Should you keep being careful about what you eat after your baby is born?

Does cooking with fats or lard make your chance of getting adult diabetes bigger?

If you stop frying foods will your chance of getting adult diabetes be smaller?

Do vegetables and fruits help keep your blood sugar good?

Are corn tortillas better than flour tortillas for your blood sugar?

If you eat beans, rice and corn most of the time your chance for adult diabetes will be smaller?

Should you give up eating sugar and foods with a lot of sugar?

If you had pregnancy diabetes should you make different foods for your family than what you eat?

If your diet is healthy can your whole family eat it?

### **Avoiding Pre-diabetes, and Diabetes and its Complications**

If you go back to the way you ate before your pregnancy will you make your chance of getting adult diabetes bigger?

Should you keep track of your blood sugars after your baby is born?

If you get adult diabetes and do not take care of yourself do you have a bigger chance of going blind?

Can adult diabetes make you blind?

Can adult diabetes hurt your heart?

Can adult diabetes make your kidneys stop working?

Is there a chance of having your leg cut off with adult diabetes?

If you exercise and eat good foods can you forget about adult diabetes testing?

Do you believe everyone in your family gets adult diabetes so why test for it?

Do you believe if you get adult diabetes it is because you did something bad?

Are you gambling with your life by not testing for adult diabetes after pregnancy diabetes?

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**KNOWLEDGE QUESTIONNAIRE**

CUESTIONARIO DE CONOCIMIENTO DE LA DIABETES  
 DIABETES KNOWLEDGE QUESTIONNAIRE

**INSTRUCCIONES:** Por favor lea éstas frases cuidadosamente y marque su respuesta con un círculo de acuerdo a la siguiente escala:

Si = 2, No = 1, No se = 0

**INSTRUCTIONS:** Read the following statements below carefully, and circle your response according to the following scale:

Yes = 2, No = 1, I don't know = 0

	Si	No	No se
	Yes	No	I don't know
1. ¿Tener diabetes cuando está embarazada le da mas probabilidad de tener diabetes de adulto más tarde en su vida?	2	1	0
1. Does having 'pregnancy diabetes** (high blood sugar during pregnancy) give you a bigger chance of getting 'adult diabetes** (high blood sugar) later in life?	2	1	0
2. ¿La mujer obesa tiene más probabilidad de tener diabetes de adulto?	2	1	0
2. Do obese women have a bigger chance of getting 'adult diabetes'?	2	1	0
3. ¿El ejercicio le da menos probabilidad de tener diabetes de adulto?	2	1	0
3. Does exercising give you a smaller chance of getting 'adult diabetes'?	2	1	0
4. ¿Ser Mexicano Americano le da más probabilidad de desarrollar diabetes de adulto?	2	1	0
4. Does being Mexican American give you a bigger chance of getting 'adult diabetes'?	2	1	0
5. ¿La diabetes del embarazo termina cuando el niño nace?	2	1	0
5. Does 'pregnancy diabetes' go away after the baby is born?	2	1	0
6. ¿Si tiene diabetes en su primer embarazo, tiene más probabilidad de tener diabetes en su próximo embarazo?	2	1	0
6. If you have 'pregnancy diabetes' in your first pregnancy is there a bigger chance of getting it in your next pregnancy?	2	1	0
7. ¿Pueden mujeres de su edad tener diabetes de adulto?	2	1	0
7. Can women your age get 'adult diabetes'?	2	1	0
8. ¿Un niño puede tener diabetes de adulto?	2	1	0
8. Can a child get 'adult diabetes'?	2	1	0
9. ¿Si tiene diabetes durante el embarazo, su bebé también tendrá diabetes cuando nazca?	2	1	0
9. If you have 'pregnancy diabetes' will your baby have diabetes when it is born?	2	1	0
10. ¿Si tiene diabetes durante el embarazo, sus hijos tienen más probabilidad de tener diabetes cuando sean adultos?	2	1	0
10. If you have 'pregnancy diabetes' will your children have a bigger chance of getting 'adult diabetes'?	2	1	0

	Si Yes	No No	No se I don't know
11. ¿Si no hace nada para cuidarse, tendrá más probabilidad de desarrollar diabetes en 5 años?	2	1	0
11. If you do nothing to take care of yourself will you have a big chance of getting 'adult diabetes' in 5 years?	2	1	0
12. ¿Puede olvidarse de la diabetes cuando nasca su niño?	2	1	0
12. Can you forget about 'pregnancy diabetes' when the baby is born?	2	1	0
13. ¿Necesita usted hacerse un exámen para la diabetes después de que nace su bebé?	2	1	0
13. Do you need to get tested for 'adult diabetes' after your baby is born?	2	1	0
14. ¿Si su azúcar está un poco alta antes que nasca su bebé, tendrá más probabilidad de desarrollar diabetes despues que su niño empieze la escuela?	2	1	0
14. If your blood sugar is just a little high after your baby is born will you have just a little chance of getting 'adult diabetes' before your baby starts school?	2	1	0
15. ¿Si tubo que cambiar lo que comió por su diabetes durante el embarazo, tiene que hacerse un exámen para diabetes después que nasca su bebé?	2	1	0
15. If you had to change what you ate for your 'pregnancy diabetes,' do you need to get tested for 'adult diabetes' after your baby is born?	2	1	0
16. ¿Si tiene que tomar insulina para su diabetes, tiene que hacerse exámen para la diabetes después que nasca su niño?	2	1	0
16. If you had to take insulin for your 'pregnancy diabetes', do you need to get tested for 'adult diabetes' after your baby is born?	2	1	0
17. ¿Si el exámen del azúcar está bien después que nasca su niño, puede olvidarse de la diabetes?	2	1	0
17. If your blood sugar test is good after your baby is born can you forget about 'adult diabetes'?	2	1	0
18. ¿Tiene diabetes si la azúcar está alta después que nasca su niño?	2	1	0
18. Do you have 'adult diabetes' if your blood sugar is high after your baby is born?	2	1	0
19. ¿Puede reducir la probabilidad de tener diabetes de adulto si come alimentos nutritivos?	2	1	0
19. Can you make your chance of getting 'adult diabetes' smaller by eating good food?	2	1	0
20. ¿Puede reducir la probabilidad de tener diabetes de adulto con ejercicio?	2	1	0
20. Can you make your chance of getting 'adult diabetes' smaller by exercising?	2	1	0
21. ¿Puede reducir la probabilidad de tener diabetes de adulto perdiendo peso?	2	1	0
21. Can you make your chance of getting 'adult diabetes' smaller by losing weight?	2	1	0
22. ¿Despues que nasca su niño usted se puede olvidar de la diabetes hasta su próximo embarazo?	2	1	0
22. After your baby is born can you forget about diabetes until you get pregnant again?	2	1	0
23. ¿Si tiene diabetes de adulto lo sabrá porque se siente mal?	2	1	0
23. If you get 'adult diabetes' will you know it because it makes you feel bad?	2	1	0
24. ¿Piensa que puede hacer algo para evitar tener diabetes de adulto?	2	1	0
24. Do you think you can do anything to stop from getting 'adult diabetes'?	2	1	0
25. ¿Si tiene demasiado peso, tiene que hacerce un exámen para la diabetes de adulto cada año?	2	1	0
25. If you are obese will you need to be tested for 'adult diabetes' every year?	2	1	0

	Si	No	No se
	Yes	No	I don't know
26. ¿Si no hace ejercicio tiene que hacerse un exámen para la diabetes cada año?	2	1	0
26. If you do not exercise you need to be tested for 'adult diabetes' every year?	2	1	0
27. ¿Si su madre y padre tienen diabetes, usted tiene que hacerse exámen para la diabetes cada año?	2	1	0
27. If your mother and father have 'adult diabetes' you need to be tested for 'adult diabetes' every year?	2	1	0
28. ¿Si esta delgada y hace ejercicio frecuentemente, tiene que hacerse exámen para la diabetes cada año?	2	1	0
28. If you are thin and exercise a lot, do you need to be tested for 'adult diabetes' every year?	2	1	0
29. ¿Si nadie en su familia nunca ha tenido diabetes tiene que hacerse exámen para la diabetes?	2	1	0
29. If no one in your family has 'adult diabetes' do you ever need to be tested?	2	1	0
30. ¿Puede reducir la probabilidad de tener diabetes con ejercicio?	2	1	0
30. Can you make the chance of getting 'adult diabetes' smaller by exercising?	2	1	0
31. ¿Puede reducir la probabilidad de tener diabetes con una dieta nutritiva?	2	1	0
31. Can you make the chance of getting 'adult diabetes' smaller by a good diet?	2	1	0
32. ¿Puede el ejercicio reducir la azúcar en la sangre?	2	1	0
32. Can exercise make your blood sugar go down?	2	1	0
33. ¿Haciendo ejercicio media hora todos los días después que nace su niño hace menor la probabilidad de tener diabetes?	2	1	0
33. Can exercising half an hour everyday after your baby is born make your chance of getting 'adult diabetes' smaller?	2	1	0
34. ¿Puede la diabetes ser curada?	2	1	0
34. Can 'adult diabetes' be cured?	2	1	0
35. ¿Tiene que tener cuidado de lo que come después que nazca su niño?	2	1	0
35. Should you keep being careful about what you eat after your baby is born?	2	1	0
36. ¿Cocinando con grasa o manteca aumenta la probabilidad de tener diabetes?	2	1	0
36. Does cooking with fats or lard make your chance of getting 'adult diabetes' bigger?	2	1	0
37. ¿Si para de freír alimentos su probabilidad de tener diabetes será menor?	2	1	0
37. If you stop frying foods will your chance of getting 'adult diabetes' be smaller?	2	1	0
38. ¿Vegetales y frutas ayudan a mantener el azúcar bien?	2	1	0
38. Do vegetables and fruits help keep your blood sugar good?	2	1	0
39. ¿La tortilla de maíz es mejor que la tortilla de harina para su azúcar?	2	1	0
39. Are corn tortillas better than flour tortillas for your blood sugar?	2	1	0
40. ¿Si come frijoles, arroz, y helote frecuentemente su probabilidad de tener diabetes sera menor?	2	1	0
40. If you eat beans, rice and corn most of the time your chance for 'adult diabetes' will be smaller?	2	1	0
41. ¿Debería de parar de comer azúcar o alimentos con mucho azúcar?	2	1	0
41. Should you give up eating sugar and foods with a lot of sugar?	2	1	0
42. ¿Si tiene diabetes cuando está embarazada, tiene que cocinar comida diferente para su familia?	2	1	0
42. If you had 'pregnancy diabetes' should you make different foods for your family than what you eat?	2	1	0
43. ¿Si su dieta es saludable, su familia puede comer tambien?	2	1	0
43. If your diet is healthy can your whole family eat it?	2	1	0

	Si Yes	No No	No se I don't know
44. ¿Si regresa a la manera que comía antes de su embarazo, puede aumentar el riesgo de tener diabetes?	2	1	0
44. If you go back to the way you ate before your pregnancy will you make your chance of getting 'adult diabetes' bigger?	2	1	0
45. ¿Debe saber el nivel de su azúcar despues que nacer su niño?	2	1	0
45. Should you keep track of your blood sugars after your baby is born?	2	1	0
46. ¿Si tiene diabetes de adulto y no se cuida, tiene mas riesgo de perder la vista?	2	1	0
46. If you get 'adult diabetes' and do not take care of yourself do you have a bigger chance of going blind?	2	1	0
47. ¿Tener diabetes de adulto puede hacerle perder la vista?	2	1	0
47. Can 'adult diabetes' make you blind?	2	1	0
48. ¿Tener diabetes de adulto puede dañarle el corazón?	2	1	0
48. Can 'adult diabetes' hurt your heart?	2	1	0
49. ¿La diabetes de adulto puede hacer que los riñones paren de trabajar?	2	1	0
49. Can 'adult diabetes' make your kidneys stop working?	2	1	0
50. ¿Hay probabilidad de tener que amputar las piernas por la diabetes de adulto?	2	1	0
50. Is there a chance of having your leg cut off from 'adult diabetes'?	2	1	0
51. ¿Si hace ejercicio y come alimentos nutritivos se puede olvidar de los exámenes para la diabetes de adulto?	2	1	0
51. If you exercise and eat good foods can you forget about 'adult diabetes' testing?	2	1	0
52. ¿Piensa que no tiene que hacer el examen para la diabetes si todos en su familia desarrollan diabetes?	2	1	0
52. Do you believe everyone in your family gets 'adult diabetes' so why test for it?	2	1	0
53. ¿Cree usted que si tiene diabetes es porque hizo algo malo?	2	1	0
53. Do you believe if you get 'adult diabetes' it is because you did something bad?	2	1	0
54. ¿Está jugando con su vida si no se hace un examen de la diabetes despues de su embarazo?	2	1	0
54. Are you gambling with your life by not testing for 'adult diabetes' after 'pregnancy diabetes'?	2	1	0

### Social Desirability Questions

55. ¿Cuando nazca mi bebe, ya no me voy a preocupar por la diabetes?	2	1	0
55. When my baby is born I will not be concerned about diabetes?	2	1	0
56. ¿No tengo riesgo de diabetes?	2	1	0
56. I do not have any risks for diabetes?	2	1	0
57. ¿Diabetes es solamente un problema cuando estoy embarazada?	2	1	0
57. Diabetes is only a problem when I am pregnant?	2	1	0

\*\*Pregnancy diabetes' and 'adult diabetes' are terms used to describe gestational diabetes and type 2 diabetes by many Diabetes in Pregnancy Clinic patients at the University Health Center-Downtown, San Antonio, Texas.



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Si = 2, No = 1, No se = 0

**INSTRUCTIONS:** Read the following statements below carefully, and circle your response according to the following scale:

Yes = 2, No = 1, I don't know = 0

	Si	No	No se
	Yes	No	I don't know
1. ¿Tener diabetes cuando está embarazada le da mas probabilidad de tener diabetes de adulto más tarde en su vida?	2	1	0
1. Does having 'pregnancy diabetes'* (high blood sugar during pregnancy) give you a bigger chance of getting 'adult diabetes'* (high blood sugar) later in life?	2	1	0
2. ¿Necesita usted hacerse un exámen para la diabetes después de que nace su bebé?	2	1	0
2. Do you need to get tested for 'adult diabetes' after your baby is born?	2	1	0
3. ¿Puede el ejercicio reducir la azúcar en la sangre?	2	1	0
3. Can exercise make your blood sugar go down?	2	1	0
4. ¿Si regresa a la manera que comía antes de su embarazo, puede aumentar el riezgo de tener diabetes?	2	1	0
4. If you go back to the way you ate before your pregnancy will you make your chance of getting 'adult diabetes' bigger?	2	1	0
5. ¿La mujer obesa tiene más probabilidad de tener diabetes de adulto?	2	1	0
5. Do obese women have a bigger chance of getting 'adult diabetes'?	2	1	0
6. ¿Si el exámen del azúcar está bien después que nasca su niño, puede olvidarse de la diabetes?	2	1	0
6. If your blood sugar test is good after your baby is born can you forget about 'adult diabetes'?	2	1	0
7. ¿Puede la diabetes ser curada?	2	1	0
7. Can 'adult diabetes' be cured?	2	1	0
8. ¿Debe saber el nivel de su azúcar despues que nacer su niño?	2	1	0
8. Should you keep track of your blood sugars after your baby is born?	2	1	0
9. ¿El ejercicio le da menos probabilidad de tener diabetes de adulto?	2	1	0
9. Does exercising give you a smaller chance of getting 'adult diabetes'?	2	1	0
10. ¿Puede reducir la probabilidad de tener diabetes de adulto si come alimentos nutritivos?	2	1	0
10. Can you make your chance of getting 'adult diabetes' smaller by eating good food?	2	1	0
11. ¿Tiene que tener cuidado de lo que come después que nasca su niño?	2	1	0
11. Should you keep being careful about what you eat after your baby is born?	2	1	0

	Si	No	No se
	Yes	No	I don't know
12. ¿Si tiene diabetes de adulto y no se cuida, tiene mas riesgo de perder la vista?	2	1	0
12. If you get 'adult diabetes' and do not take care of yourself do you have a bigger chance of going blind?	2	1	0
13. ¿Diabetes es solamente un problema cuando estoy embarazada?	2	1	0
13. Diabetes is only a problem when I am pregnant?	2	1	0
14. ¿Ser Mexicano Americano le da más probabilidad de desarrollar diabetes de adulto?	2	1	0
14. Does being Mexican American give you a bigger chance of getting 'adult diabetes'?	2	1	0
15. ¿Puede reducir la probabilidad de tener diabetes de adulto con ejercicio?	2	1	0
15. Can you make your chance of getting 'adult diabetes' smaller by exercising?	2	1	0
16. ¿Si su dieta es saludable, su familia puede comer tambien?	2	1	0
16. If your diet is healthy can your whole family eat it?	2	1	0
17. ¿Tener diabetes de adulto puede hacerle perder la vista?	2	1	0
17. Can 'adult diabetes' make you blind?	2	1	0
18. ¿La diabetes del embarazo termina cuando el niño nace?	2	1	0
18. Does 'pregnancy diabetes' go away after the baby is born?	2	1	0
19. ¿Puede reducir la probabilidad de tener diabetes de adulto perdiendo peso?	2	1	0
19. Can you make your chance of getting 'adult diabetes' smaller by losing weight?	2	1	0
20. ¿Cuando nazca mi bebe, ya no me voy a preocupar por la diabetes?	2	1	0
20. When my baby is born I will not be concerned about diabetes?	2	1	0
21. ¿Tener diabetes de adulto puede dañarle el corazón?	2	1	0
21. Can 'adult diabetes' hurt your heart?	2	1	0
22. ¿Si tiene diabetes en su primer embarazo, tiene más probabilidad de tener diabetes en su próximo embarazo?	2	1	0
22. If you have 'pregnancy diabetes' in your first pregnancy is there a bigger chance of getting it in your next pregnancy?	2	1	0
23. ¿Despues que nazca su niño usted se puede olvidar de la diabetes hasta su próximo embarazo?	2	1	0
23. After your baby is born can you forget about diabetes until you get pregnant again?	2	1	0
24. ¿La diabetes de adulto puede hacer que los riñones paren de trabajar?	2	1	0
24. Can 'adult diabetes' make your kidneys stop working?	2	1	0
25. ¿No tengo riesgo de diabetes?	2	1	0
25. I do not have any risks for diabetes	2	1	0
26. ¿Piensa que puede hacer algo para evitar tener diabetes de adulto?	2	1	0
26. Do you think you can do anything to stop from getting 'adult diabetes'?	2	1	0
27. ¿Está jugando con su vida si no se hace un exámen de la diabetes despues de su embarazo?	2	1	0
27. Are you gambling with your life by not testing for 'adult diabetes' after 'pregnancy diabetes'?	2	1	0

"Pregnancy diabetes" and "adult diabetes" are terms used to describe gestational diabetes and type 2 diabetes by many Diabetes in Pregnancy Clinic patients at the University Health Center-Downtown, San Antonio, Texas.

Appendix D

Video Script

Video <b>Appendix D</b> in development	Audio
Wide Shot: UHC-D Clinic waiting room	
Medium Shot: Narrator and CG  Respeto, Positivismo, Personalismo, Marianismo, Familismo.	<p><b>Narrator:</b>                      THIS VIDEO WAS MADE FOR YOU, THE WOMAN WITH PREGNANCY DIABETES, TO MAKE YOU AWARE OF YOUR INCREASED RISK FOR ADULT DIABETES FOR THE REST OF YOUR LIFE. WE WILL NOT FOCUS ON RISKS YOU CANNOT CHANGE, BEING HISPANIC OR HAVING DIABETES IN YOUR FAMILY. WE WILL FOCUS ON THE RISKS YOU CAN CHANGE. WE HOPE TO PROVIDE YOU WITH INFORMATION TO CONTROL THESE RISKS, MONITOR THESE RISKS, AND IMPROVE YOUR HEALTH AND THE HEALTH OF YOUR WHOLE FAMILY. WE FOCUS ON YOU BECAUSE OF HOW IMPORTANT YOUR CHILD IS TO YOU DURING THIS DIABETIC PREGNANCY, AND HOW IMPORTANT YOUR RELATIONSHIP WITH THIS CHILD WILL BE DURING YOUR LIFETIMES. WE CARE ABOUT YOU AND YOUR HEALTH, YOUR CHILD'S HEALTH, AND THE HEALTH OF YOUR FAMILY.</p>
Pan: clinic waiting room Cut to Close-ups: patients, women and children	<p><b>Narrator:</b>                      THESE WOMEN HAVE THE BEGINNING OF THE CHRONIC DISEASE, ADULT DIABETES. THIS DISEASE STARTS WITHOUT SYMPTOMS AND SLOWLY PROGRESSES OVER YEARS TO SYMPTOMS, SUCH AS YOUR EYESIGHT FAILING, OR LOSS OF FEELING IN YOUR FEET. WHEN SYMPTOMS TAKE YOU TO THE DOCTOR'S OFFICE AND THE DIAGNOSIS OF ADULT DIABETES IS MADE, THE SYMPTOMS HAVE BECOME IRREVERSIBLE. REMEMBER THERE IS NO CURE FOR ADULT DIABETES. MEDICATIONS DO NOT CURE ADULT DIABETES.</p>
Medium Shot: Narrator	<p><b>Narrator:</b>                      YOU MUST CATCH THIS DISEASE BEFORE YOU HAVE SYMPTOMS, WHILE YOU CAN STILL REVERSE IT. IT WILL BE IMPORTANT FOR THESE WOMEN TO RETURN TO THIS CLINIC 6 WEEKS AFTER</p>

	<p>THEIR BABY IS BORN TO FIND OUT HOW SERIOUS THEIR RISK FOR ADULT DIABETES IS. WE KNOW THAT 80% OR 4 OF THE 5 WOMEN WE SEE HERE WHO RETURN AFTER THEIR BABY IS BORN FOR TESTING WILL BE DIABETIC IN 5 YEARS IF THE RESULT OF THEIR TESTING SHOWS THEY ARE A BORDERLINE DIABETIC. YOU MAY WONDER, DID PREGNANCY DIABETES JUST APPEAR DURING PREGNANCY AND THEN YOU WERE CURED? PROBABLY NOT! YOU MUST RETURN TO CLINIC, STARTING WITH 6 WEEKS AFTER YOUR BABY IS BORN AND REPEAT THE BLOOD TEST TO KNOW WHAT YOUR RISK IS BECAUSE YOU WILL NOT HAVE SYMPTOMS! IT IS A SILENT DISEASE.</p>
<p>Medium Shot: Woman drinking Glucola</p> <p>Positivismo</p>	<p><b>Narrator:</b>          WITH PROPER TREATMENT, MONITORING, AND MANAGEMENT, THE SYMPTOMS OF ADULT DIABETES MAY BE MINIMIZED, MAY BE CONTROLLED, OR MAY NEVER APPEAR. BUT YOU MUST MAKE A LIFE LONG COMMITMENT TO TAKING CARE OF YOURSELF AND MONITORING THE PROGRESS OF ADULT DIABETES.</p>
<p>Close-up: Blood drawn with syringe from arm</p>	
<p>Medium Shot: Woman who drank the Glucola being tested</p>	<p><b>Narrator:</b>          THIS BLOOD TEST IS HOW YOU SHOULD MONITOR YOUR RISK FOR ADULT DIABETES. IT INVOLVES TWO BLOOD DRAWS, ONE BEFORE YOU DRINK THE SUGARY DRINK CALLED GLUCOLA, AND THE SECOND TWO HOURS LATER. YOU MUST COME TO THIS TEST FASTING, WHICH MEANS YOU WILL NOT HAVE EATEN SINCE DINNER THE NIGHT BEFORE - NO BREAKFAST AND NO COFFEE.</p>
<p>Close-up: Test results</p> <p>CG:          200 or over = Diabetic          140 – 199 Diabetic within 5 yrs.          Less than 140 = okay</p>	<p><b>Narrator:</b>          THE TWO-HOUR RESULT IS IMPORTANT FOR THE DIAGNOSIS OF ADULT DIABETES. IF IT IS OVER 199, YOU WILL BE ASKED TO COME BACK TO REPEAT THIS TEST TO CONFIRM THE DIAGNOSIS OF ADULT DIABETES. IF IT IS 140 TO 199, YOU ARE</p>

	<p>ONE OF THE 4 IN 5 WOMEN WHO WILL BE DIABETIC IN FIVE YEARS UNLESS YOU MAKE SOME LIFESTYLE CHANGES SUCH AS EATING HEALTHY AND EXERCISING. IF YOU ARE BORDERLINE WE ENCOURAGE YOU TO MONITOR THIS RISK WITH THE BLOOD TEST EVERY YEAR. IF YOU ARE NORMAL, YOU SHOULD STILL BE COMITTED TO EATING HEALTHY, LOSING WEIGHT, EXERCISING EVERY DAY AND MONITORING YOUR BLOOD SUGAR EVERY YEAR.</p>
<p><b>Insert and expand the information about LIFESTYLE CHANGES from the Diabetes Prevention Program “achieve and maintain a weight loss of 7% with healthy eating and increased physical activity; and maintain physical activity at least 150 minutes a week with moderate exercise, such as walking or biking.”</b></p>	<p>EXERCISING EVERYDAY FOR 30 MINUTES IS VERY IMPORTANT. YOU CAN JUST WALK FOR THE 30 MINUTES. EATING HEALTHY AND MAKING YOUR PORTIONS SMALLER IS VERY IMPORTANT. A HEALTHY DIET IS EATING A SMALL AMOUNT OF LEAN MEAT AND CARBOHYDRATES, PLENTY OF FRUITS AND VEGETABLES, WHOLE GRAIN BREAD AND CEREAL, AND STOPPING SUGAR, FRIED FOODS, SODA AND FRUIT DRINKS. YOUR WHOLE FAMILY SHOULD EAT AND EXERCISE LIKE YOU BECAUSE IT IS HEALTHY. DO NOT GIVE YOUR BABY SUGAR DRINKS, LIKE SODA OR FRUIT DRINKS.</p>
<p>Close-up: new baby</p>	<p>YOUR BABY IS NOT BORN WITH ADULT DIABETES BUT HE OR SHE CAN DEVELOP IT. IT IS UP TO YOU TO PREVENT DIABETES IN YOUR CHILD.</p>
<p>Medium Shot: Parent in hospital room holding newborn</p>	<p><b>VO:</b> HEALTHY CHILDREN ARE BORN TO MOTHERS THAT TAKE CARE OF THEMSELVES. HEALTHY CHILDREN ARE RAISED BY MOTHERS AND FATHERS THAT TAKE CARE OF THEMSELVES. HEALTHY BABIES ARE NOT FAT BABIES. HEALTHY CHILDREN ARE NOT FAT CHILDREN. EVERYONE IN YOUR FAMILY NEEDS TO BE ACTIVE. CAREFUL PLANNING OF YOUR LIFE, YOUR FAMILY’S LIFE, FOLLOWING THE ADVICE OF HEALTH CARE PROVIDERS, DECIDING TO MEET THE CHALLENGES OF ADULT DIABETES, AND</p>

	CONTROLLING IT SHOULD BE YOUR GOALS.
Shots of children participating in sports, playing, mother cheering them on.  Simpatia.	YOUR REWARD WILL BE TO ACTIVELY PARTICIPATE IN YOUR CHILD'S LIFE. WE DO NOT THINK THIS IS EASY BECAUSE MOTHERS ARE BUSY. THEY HAVE MANY TASKS THAT ARE PART OF THEIR NORMAL DAILY ROUTINES.
Shots of busy mothers, in kitchen, at work, playing with children, in clinic waiting room, etc.  Simpatia.	THEY MAINTAIN A HOUSEHOLD, RAISE CHILDREN, NURTURE A MARRIAGE, WORK AT AN OCCUPATION, MAINTAIN SOCIAL AND COMMUNITY TIES (SUCH AS CHURCH, SCHOOL EVENTS), AND COORDINATE ALL THESE ACTIVITIES WITH THE REST OF THE FAMILY. SOME WOMEN MUST ALSO MANAGE A CHRONIC DISEASE ALONG WITH THESE TASKS.
Close-up: Child reaching toward camera	BUT YOUR CHILD WANTS YOU THERE FOR ALL THEIR IMPORTANT LIFE EVENTS BECAUSE YOU ARE IMPORTANT AND THEY LOVE YOU.
Interview with diabetic patient: Juanita Aleman: She is blind and needs kidney dialysis 3 times a week, she is 39 years old, and she had gestational diabetes with her two pregnancies when she was 24 years old. She became diabetic at 27 years old. Her daughter is with her, pushing her in her wheelchair. She is diabetic too, at 15 years of age. The mother looks at the camera and gives some advice about how important it is to take care of yourself, she did not.	
Medium Shot: Narrator	<b>Narrator:</b> HOW DO YOU COPE WITH LIFE'S CHANGES?
CG: <b>The Denier</b>	
Wide Shot: Church interior, a baptism, God-parents holding child, mother and father looking on	
Close-up: Mother Alternates with Close-up: baby	<b>Mother's VO:</b> WHAT WAS THAT DOCTOR TALKING ABOUT? I FEEL FINE. THERE IS NO

	PROBLEM. I HAD MY BEAUTIFUL BABY, AND JUST LOOK AT HER, SHE'S PERFECT, AND SHE'S HEALTHY. THE PROBLEM ENDED, DIDN'T IT?
<b>CG: The Minimizer</b>	
Wide Shot: Girls playing and dancing in the yard Medium Shot: Mother is sitting talking to her sister. Mother looks worn out, no energy.	<b>Sister:</b> WELL IF YOU'RE FEELING TIRED, MAYBE YOU SHOULD GO SEE THE DOCTOR. HAVE YOU GONE FOR A CHECK-UP? ARE YOU PREGNANT? I KNOW YOU WANT ANOTHER BABY BUT YOU SHOULD GET TESTED FOR ADULT DIABETES BEFORE YOU GET PREGNANT AGAIN. <b>Mother:</b> OH, NO. IT'S NOTHING... I'M JUST TIRED FROM ALL THAT I HAVE TO DO. I'M FINE. I'M SURE THERE IS NOTHING TO WORRY ABOUT. I DON'T THINK I'M PREGNANT.
<b>CG: The Chancer</b>	
Wide shot: Mother folding baby clothes.	<b>Mother's VO:</b> I MISSED THAT APPOINTMENT AGAIN. OH WELL, THERE'S PROBABLY NOTHING TO WORRY ABOUT. ALTHOUGH I PROBABLY SHOULD GET TESTED...MAYBE NEXT MONTH. I'D RATHER NOT KNOW RIGHT NOW, ANYWAY BECAUSE I KNOW I'M SUPPOSED TO LOSE WEIGHT AND EXERCISE. I DON'T THINK I'M EATING HEALTHY EITHER. I JUST DON'T HAVE TIME!
<b>CG: The Fatalist</b>	
Full Shot: Child walking away towards school  Fatalismo	<b>Mother's VO:</b> I FEEL SO TIRED BECAUSE I'M NOT SLEEPING WELL AT NIGHT; I HAVE TO GET UP TO GO "PEE" SEVERAL TIMES. I GUESS THAT COMES WITH AGE. WHATEVER HAPPENS, HAPPENS, THERE IS NOTHING I CAN DO TO CHANGE FATE. MYCHILD WILL GROW UP, AND I WILL GROW OLD AND SICK. I'LL PUT US IN GOD'S HANDS, AND IF I AM DIABETIC, THERE WILL BE NOTHING FOR ME TO DO BUT PRAY.
Interview with Priest on the subject of fatalism	
<b>CG: The Prioritizer</b>	
Wide shot and close-ups of family gathered around a little girl, they	<b>Mother's VO:</b> ISN'T THIS GREAT? I'M SO GLAD I



<p>sing “Cumpleanos Feliz”, and she blows out the candles.</p>	<p>DECIDED TO WORK ON PLANNING THE BIRTHDAY PARTY. IF I HAD GONE TO THAT DOCTOR’S APPOINTMENT NONE OF THIS WOULD HAVE BEEN DONE IN TIME. I’M JUST TOO BUSY, THERE’S NEVER ENOUGH TIME FOR ME.</p>
<p><b>CG: Life’s Moments</b></p>	
<p>Close-up: Girl in communion dress with veil, praying</p>	<p><b>Narrator:</b>          COMMUNION, YOUR CHILD IS NOW TEN. ARE YOU THERE? HOW ARE YOU DOING, HAVE YOU MONITORED YOUR RISK FOR ADULT DIABETES?  <b>Child:</b>          GOD, I LOVE MY MOM. PLEASE WATCH OVER HER, AND KEEP HER HEALTHY SO SHE CAN BE WITH ME TODAY.</p>
<p>Close-up: Teenager in debutante dress, looking at her mother’s picture.</p>	<p><b>Narrator:</b>          QUINCEANERA, THAT’S IMPORTANT! ARE YOU STILL PRETENDING, OR GUESSING YOU DON’T HAVE A PROBLEM?  <b>Child:</b>          I WISH MY MOM COULD SEE ME CLEARLY.</p>
<p>Long Shot: Teenager in prom dress, fixing her corsage</p> <p>Fatalismo</p>	<p><b>Narrator:</b>          SO, ARE YOU STILL TAKING CHANCES? DO YOU STILL BELIEVE IT’S FATE, THERE’S NOTHING YOU CAN DO?  <b>Child:</b>          I LOVE MY MOM, I NEED HER BUT SHE CAN’T BE WITH ME TODAY, SHE’S HAVING KIDNEY DIALYSIS.</p>
<p>Long Shot: Teenager tosses her cap in the garden</p> <p>Fatalismo</p>	<p><b>Narrator:</b>          SHE’S SAYING SHE MADE IT BECAUSE OF YOU. THAT’S SPECIAL. ARE YOU THERE? CAN YOU SEE HER?  <b>Child:</b>          MY MOM CAN’T SPEAK SINCE HER STROKE; I WISH SHE HAD TAKEN CARE OF HERSELF BY EATING HEALTHY AND WALKING EVERYDAY.</p>
<p>Wide Shot: Wedding in Church, close-up of young bride</p>	<p><b>Narrator:</b>          THEY HOPED YOU WOULD BE ABLE TO DANCE AT THEIR WEDDING BUT YOU’VE LOST A FOOT.  <b>Child:</b>          MOM, I WISH YOU HAD STARTED TO TAKE CARE OF YOURSELF WHEN I WAS A BABY.</p>

<p>Medium Shot: Young mother playing with children in the back yard.</p>	<p><b>Narrator:</b> WE KNOW YOU WILL NOT BE LIKE THIS BECAUSE YOU WILL TAKE CARE OF YOURSELF. HERE'S A CHILD, ALL GROWN-UP. SHE HAS A LITTLE GIRL. SHE EXERCISES AND TAKES CARE OF HERSELF. LOOK AT HER DANCE. SHE IS FUN TO WATCH. I BET SHE'S A PLANNER AND TAKES CARE OF HERSELF, MONITORS HER DISEASE RISK, WILL CATCH IT EARLY, WILL FOLLOW HER HEALTH CARE PROVIDERS' ADVICE, CAN STILL RAISE A FAMILY, AND TAKE PART IN ALL THEIR ACTIVITIES.</p>
<p>Interview with patient: She is a borderline diabetic at 30 years of age, managing her risk by eating healthy, losing weight, and exercising at home to a CD. She is about to go into a study at Texas Diabetes Institute so she can learn more about how to take care of herself and to try a new drug for diabetes. She doesn't have children yet but her sisters do. Her youngest sister is 23 years old. She was a type I diabetic before she became pregnant. But by carefully monitoring this life-long disease and taking care of herself, she has a healthy 1-year-old little girl. She went to a specialist during her pregnancy. Her older sister is 31 years old. She has a healthy 4-year-old little boy and had gestational diabetes. Her mother and father both have diabetes. During the interview we find out how this family deals with healthy lifestyle changes and exercise, in their own words.</p> <p>Exercise class St Phillip of Jesus Walking at Woodlawn Lake Walking in a mall Exercise class House of Neighborly</p>	

<p>Shots of toddlers playing. Great Grandmother walking hand in hand with them (Mrs. Cisneros).</p>	<p><b>Narrator:</b>                  GREAT GRANDCHILDREN AND YOU CAN STILL WALK HAND-IN-HAND WITH THEM! YOU CAN STILL SEE THEM! YOU CAN STILL TELL THEM HOW IMPORTANT IT IS TO EAT HEALTHY AND EXERCISE YOUR WHOLE LIFE LONG.</p>
<p>Medium Shot:                   Simpatia.</p>	<p><b>Narrator:</b>                  WHICH ONE WILL YOU BE? THE DENIER? THE MINIMIZER? THE CHANCER? THE FATALIST? THE PRIORITIZER? WILL WE SEE YOU IN CLINIC FOR YOUR SIX WEEKS POST-PARTUM BLOOD TEST? HOW WILL YOU LIVE YOUR LIFE? WILL YOU MAKE POSITIVE, HEALTHY LIFESTYLE CHOICES? WILL YOU PREVENT THIS CHRONIC DISEASE NOW, SO THAT YOU CAN BE THERE WITH YOUR CHILDREN LATER? START TO TAKE CARE OF YOURSELF RIGHT NOW, AND AFTER THE BIRTH OF YOUR BABY DON'T STOP. OTHERWISE YOUR LIFE WILL BE SHORTENED BY 15 YEARS AND SAD BECAUSE OF DIABETES. WE CARE ABOUT YOU, AND WANT TO HELP YOU, SO YOU CAN HAVE THE BEST QUALITY OF LIFE THAT'S POSSIBLE.</p>
<p>Close-up: Child reaching toward the camera.</p>	<p><b>Narrator:</b>                  SO DOES YOUR CHILD.</p>
<p>Fade to Black</p>	
<p><b>Resources:</b> Run through pictures of the children in the video, backwards (oldest to youngest), as the resources roll.  <b>For care:</b> University Health System Downtown (GDM clinic), Texas Diabetes Institute, University Center for Community Health, and San Antonio Metropolitan Health District, Maternity Clinics.  <b>For support:</b> House of Neighborly, St Phillip of Jesus, your own group, your family.  <b>For information:</b> American Diabetes Association Regional</p>	

<p><b>Office.</b></p> <p><b>Texas Diabetes Council (TDH)</b></p> <p><b>Society of Maternal Fetal Medicine</b></p> <p><b><a href="http://www.SMFM.org">www.SMFM.org</a></b></p> <p><b>Someone famous, either local or national, speaks seriously, briefly about diabetes, alone on a stool, dark background.</b></p>	
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## Appendix E

### Themes and Definitions in the Video

The following cultural concepts are central themes implied in the video:

*Una mujer completa* defined as “a complete woman,” and is used to describe a woman, one who has given birth to a baby.

*Cuidate, mi hija* is defined as “take care of yourself, my daughter” (Delgado, 2002).

*La familia primero* is defined as “family first” (Delgado, 2002).

*Hay que tener respeto* is defined as “you must be respectful, subordinate, and unassertive” (Delgado, 2002).

*Hay que aguantar* is defined as “you must tolerate or accept” (Delgado, 2002).

*Fatalismo* is defined as “this is my fate; there is nothing that can be done.” It is a defense mechanism in which the individual’s life is in God’s hands (Fishman, et al., 1993).

*Personalismo* is defined as “staying connected to one’s world, and highlighting the personal interactions within that world” (Ginorio, et al., 1995).

*Quinceanera* is defined as the fifteen year old Hispanic girl’s debut into society.

*Pinata* is the paper-covered, decorated wire figure filled with candies and small gifts that is broken apart at birthdays by those who attend the party.

*Flamenco* is a classic costumed Spanish dance, characterized by foot stomping, which is learned and performed in special schools in the Mexican-American communities.

*Ballet folklorica* are traditional indigenous dances from regions of the Southwestern United States and Mexico that are learned in special community programs and performed at fiestas.

Appendix F

Information Sheet and Following Three Questions

SUBJECT INFORMATION SHEET TO TAKE PART IN A STUDY OF  
Diabetes Prevention Education for Mexican American Women with Gestational  
Diabetes: Pilot Testing a Videotape

University of Texas Health Science Center at San Antonio  
University of the Incarnate Word  
University Health Center-Downtown

We are asking you to take part in a research study of a diabetes teaching program. This diabetes teaching program is for women with pregnancy diabetes. We want to tell women with pregnancy diabetes about their chance for adult diabetes after the pregnancy is over. We are trying to stop adult diabetes in women who have had pregnancy diabetes. We are making this test to use with a future teaching program. We need to "test" the test to see if it is good and you understand it. We need 10 women to help us by taking our test. We are asking you to help us with the test because you have pregnancy diabetes, are 18 years old or older, are Mexican American, and come to the University Health Center-Downtown, Diabetes in Pregnancy Clinic, for your care.

If you decide to take part, we will give you the test questions to do today. We will not put your name on the tests. There are three questions at the end of the test we are asking you to do after you have done all the test questions. Number 1 is, "Do you think these questions were easy to do? Yes/No." Number 2 is, "If you skipped any questions was it because they were too hard to do? Yes/No." Number 3 is, "If you skipped any questions was it because you did not know the answer? Yes/No." We will also ask you to mark or circle questions that are hard to understand or you think are not good questions.

We think you will need about 30 to 50 minutes to complete the test. We are asking you to do this as you wait to see the doctor.

The test will be in Spanish and English. You may choose the language you like. There are no expected risks in taking this test.

We do not expect there to be any benefits to you for taking this test. But we hope our program will benefit women with pregnancy diabetes in the future.

You will receive money after taking this test. You will be given \$20.00 for your time. There will be no cost to you for doing this test.

Everything we learn about you in the study will be confidential. If we publish the results of the study in a scientific journal or book, we will not identify you in any way.

Your decision to take part in the study is voluntary. You are free to choose not to take part in the study or to stop taking part at anytime.





If you choose not to take part or to stop at any time, it will not affect your future medical care at the University of Texas Health Science Center at San Antonio or the University Health Center-Downtown Diabetes in Pregnancy clinic.

The principal investigator for this study is Carann Easton, RN, BSN. She can be reached at the University of Texas Health Science Center at San Antonio, Department of Obstetrics and Gynecology, at 210-567-6121. If you have questions now, feel free to ask us. If you have additional questions later, Carann Easton, RN, BSN, can be reached at the same number listed above.

The University of Texas Health Science Center at San Antonio committee that reviews research on human subjects (Institutional Review Board) will answer any questions about your rights as a research subject (210-567-2351).

If you want to take part in this study please tell us now and we will give you a test to complete. We will pick it up as soon as you tell us you are finished.

This form is yours to keep. We thank you for helping us.

HOJA DE INFORMACIÓN DEL SUJETO PARA PARTICIPAR EN EL ESTUDIO DE  
LA EDUCACIÓN DE PREVENCIÓN DE LA DIABETES PARA LA MUJER  
MEXICO-AMERICANA CON DIABETES DURANTE LA GESTACIÓN: VIDEO  
PILOTO DE PRUEBA

University of Texas Health Science Center at San Antonio  
University of the Incarnate Word  
University Health Center-Downtown

Se le invita a participar en el estudio de investigación del programa para educar sobre la diabetes. Este programa de la educación de la diabetes es para las mujeres que tienen diabetes durante el embarazo. Queremos informarles a las mujeres con diabetes durante el embarazo, de su disposición para la diabetes en adultos después de su embarazo. Estamos tratando de detener la diabetes en mujeres que han tenido diabetes mientras están embarazadas. Estamos haciendo esta prueba para usarla en el futuro con un programa educativo. Necesitamos "probar" si la prueba es buena y usted la entiende. Necesitamos 10 mujeres que nos ayuden a tomar nuestro examen. Le pedimos a usted que nos ayude con este examen porque usted está embarazada y tiene diabetes, tiene diez-y-ocho años o más, es Mexico Americana, y viene a University Health Center-Downtown, Diabetes in Pregnancy Clinic para su cuidado.

Si usted decide tomar parte, le daremos las preguntas en el examen para que lo tome hoy. Nosotros no pondremos su nombre en los exámenes. Hay tres preguntas al final del examen que le pedimos conteste después que termine todas las preguntas del examen en nuestro programa de educación. Número 1 es, "¿Usted cree que estas preguntas fueron fáciles de contestar?" Si/No. Número 2 es, "¿Si usted omitió alguna de las preguntas, fue porque eran difíciles de contestar?" Si/No. Número 3 es, "¿Si usted omitió alguna de las preguntas, fue porque no supo la contestación?" Si/No. También le pedimos que marque o circule preguntas que son difíciles de entender o que usted piense que no son buenas preguntas.

Pensamos que necesitará de 30 a 50 minutos para completar el examen. Le pedimos que haga esto mientras espera ver a su doctor.

El examen será en Español e Inglés. Usted puede escoger el idioma que le guste. No hay riesgos esperados al tomar este examen.

No esperamos que haya beneficio para usted al tomar este examen. Aún esperamos que en el futuro nuestro programa de educación beneficie a las mujeres con diabetes durante el embarazo.

Usted recibirá dinero después que usted tome el examen. Se le darán \$20.00 por el uso de su tiempo. No hay gasto para usted al tomar este examen.

Todo lo que aprendamos acerca de usted durante la investigación será confidencial. Si nosotros publicamos los resultados de la investigación en alguna revista científica o libro, nosotros no la identificaremos de ninguna manera.



Su decisión de tomar parte en el estudio es voluntaria. Usted es libre de decidir no tomar parte en la investigación o dejar de tomar parte en cualquier momento.

Si usted decide no tomar parte o dejar de tomar parte en cualquier momento, no afectará su futuro cuidado médico en The University of Texas Health Science Center at San Antonio o el University Health Center-Downtown Diabetes in Preganancy clinic.

La investigadora principal para este estudio es Carann Easton, RN, BSN. Ella puede ser encontrada en The University of Texas Health Science Center at San Antonio, Department of Obstetrics and Gynecology, al (210) 567-6121. Si tiene preguntas ahora, sientase libre de preguntarnos. Si tiene preguntas adicionales más tarde, Carann Easton, RN, BSN, puede ser encontrada al mismo número previamente apuntado.

El comité de The University of Texas Health Science Center que revisa las investigaciones en sujetos humanos ( Institutional Review Board) contestará cualquier pregunta acerca de sus derechos como sujeto de investigación (210 567-2351).

Si usted quiere tomar parte en este estudio, por favor díganos ahora y le daremos un examen para completar. Nosotros recogeremos el examen tan pronto usted nos diga que ya terminó.

Esta forma es suya. Le damos las gracias por ayudarnos.

Diabetes Prevention Education for Mexican American Women with Gestational  
Diabetes: Pilot Testing a Videotape

Educación de Prevención de la Diabetes para la mujer Mexicana Americana con  
Diabetes Gestacional: Piloto de prueba para un videocinta

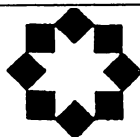
- |   |     |    |
|---|-----|----|
| 1. Do you think these questions were easy to do?                            | Yes | No |
| 1. Cree que estas preguntas fueron de contestar?                            | Si  | No |
| <hr/>   |     |    |
| 2. If you skipped any questions was it because they were too hard to do?    | Yes | No |
| 2. Si no contesto unas de las preguntas fue porque estaban muy dificiles?   | Si  | No |
| <hr/>   |     |    |
| 3. If you skipped any questions was it because you did not know the answer? | Yes | No |
| 3. Si no contesto unas de las preguntas fue porque no supo la respuesta?    | Si  | No |

Please mark or circle any questions that are hard to understand or you think are not good questions.

Favor de marcar o circular las preguntas que son dificil de entender o si cree que no son buenas preguntas.

Appendix G

Permission forms for Videotaping



# UNIVERSITY HEALTH SYSTEM CONSENT FORM

*For photos, interviews, audio and video recordings*

Date: \_\_\_\_\_  
Patient: \_\_\_\_\_  
Parent or Legal Guardian (if any): \_\_\_\_\_

I (patient) understand that as a general rule, records of patient identity, diagnosis, evaluation, or treatment are confidential and privileged unless a written consent to their release is submitted. It is my desire to waive confidentiality, ONLY to the extent that my interview, audio or video recording, and/or photograph(s) contains information relating to my identity (including my image and/or likeness), diagnosis, evaluation, or treatment.

I do therefore, hereby consent to be interviewed, audio or video recorded and/or photographed by \_\_\_\_\_ (media) for the sole purpose of \_\_\_\_\_.

This consent allows the use, publication, broadcast, telecast, distribution and circulation of my name, photograph, image, and/or likeness for the purpose expressed above and no special favors have been promised to me for agreeing to consent. I may withdraw this consent at any time, and such withdrawal will not in any way affect my treatment. I understand a withdrawal of consent must be made in writing, and that withdrawal of consent does not affect any information disclosed prior to the written notice of withdrawal. I understand further, that in some cases my facial features may be visible and/or recognizable. I (or the legal guardian, or parent signing on my behalf) am over 18 years or older, and mentally competent.

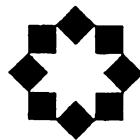
I hereby release, indemnify and hold harmless the University Health System, its staff and employees from any and all claims or causes of action that I may have, of any nature whatsoever, which may in any manner result from the use of the interview, photos, video or audio recordings.

I HAVE FULLY READ THE FOREGOING "CONSENT FORM." I FULLY UNDERSTAND ITS CONTENTS. I AM SIGNING THIS AS MY FREE AND VOLUNTARY ACT.

Signed \_\_\_\_\_ Date \_\_\_\_\_  
Patient, parent, or legal guardian

Signed \_\_\_\_\_ Date \_\_\_\_\_  
Witness to signature of patient, parent or legal guardian

Printed name of witness \_\_\_\_\_



## UNIVERSITY HEALTH SYSTEM

### FORMA DE CONSENTIMIENTO

#### *Para fotografías, entrevistas, grabaciones de audio y video*

Yo (paciente) entiendo que como regla general, archivos referentes a identidad del paciente, diagnóstico, evaluación o tratamiento son confidenciales y privilegiados a menos que una orden de aprobación para su retiro sea sometida. Es mi deseo de renunciar esa confidencialidad **SOLO** con la condición de que mi entrevista, grabaciones de audio o video y fotografías contengan información relacionada con mi identidad (incluyendo mi imagen o semejanza), diagnóstico, evaluación o tratamiento.

Con la presente se certifica que \_\_\_\_\_ (paciente), por este medio da su consentimiento para ser entrevistado, grabado en audio y/o fotografiado por \_\_\_\_\_ (medios publicitarios), con el único propósito de \_\_\_\_\_.

Doy mi consentimiento libremente para que me graben o me tomen fotografías, y no se me ha prometido ningún favor especial a cambio de dar mi consentimiento. Este consentimiento también permite el uso, publicación, transmisión, distribución y circulación de mi nombre, fotografía o semejanza con el propósito ya expresado. Puedo retirar este consentimiento en cualquier momento y al hacerlo, no afectará de ninguna manera mi tratamiento. Entiendo que a petición para autorizar dicho retiro de consentimiento debe hacerse por escrito, y que este retiro de consentimiento no afecta cualquier tipo de información dada antes de la sumisión de el retiro. También entiendo que en algunos casos, mis cara y facciones pueden ser visibles y reconocibles. Yo (o representante legal o padre/madre) soy mayor de 18 años y poseo todas mis facultades mentales.

Yo por este medio descargo, desagravio y libero de responsabilidad al University Health System, su personal y empleados, de todo y cualquier reclamo o causas de acción por lesión de cualquier índole, que pudiera resultar de alguna manera del uso autorizado de estas fotografías, grabaciones de video o grabaciones de audio.

HE LEIDO LA FORMA DE CONSENTIMIENTO ANTECEDENTE Y ENTIENDO TODO SU CONTENIDO. ES MI DESEO Y ACTO VOLUNTARIO FIRMAR ESTA FORMA.

Firma \_\_\_\_\_ Fecha \_\_\_\_\_  
Paciente o representante legal

Firma \_\_\_\_\_ Fecha \_\_\_\_\_  
Testigo de la firma del paciente o representante

Relacion \_\_\_\_\_  
Testigo a la firma de el paciente, padre/madre o representante legal

Nombre de testigo con letra de imprenta \_\_\_\_\_

The University of Texas Health Science Center  
at San Antonio

RELEASE FORM

- (a) I authorize the health care professionals who treated me through The University of Texas Health Science Center at San Antonio to release and discuss any and all patient information about me and my treatment, medical condition or related topics.
- (b) I release the Health Science Center, and its spokesmen, from any and all state or federal statutes relating to patient privacy.
- (c) I specifically authorize officials from the Health Science Center to discuss my case (or my child's case, or an individual to whom I provide guardianship), with members of the media.
- (d) I voluntarily give my permission for Health Science Center staff to record me (or my child or an individual to whom I provide guardianship) on video/audio tape, photographic film or any other medium.
- (e) I authorize use of my (or my child or an individual to whom I provide guardianship) name, likeness, voice and biographical material in Health Science Center publications such as magazines, brochures and newsletters.
- (f) I give the Health Science Center the right to exhibit or distribute such recordings in whole or in part, without limitations, for any educational purposes that the Health Science Center and those acting under its authority deem appropriate.

Name (Please Print): \_\_\_\_\_

Signature: \_\_\_\_\_

Parent/Guardian Signature for (Please Print): \_\_\_\_\_

Date: \_\_\_\_\_

Telephone number: \_\_\_\_\_



THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT SAN ANTONIO  
Patient Authorization for Release of Health Records

1. I authorize \_\_\_\_\_ to disclose information from the health records of: \_\_\_\_\_

MRN#: \_\_\_\_\_ Date of Birth: \_\_\_\_\_ (patient)

2. The information is to be disclosed to: \_\_\_\_\_

Address (sender/receiver if other than UTHSCSA): \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone/Fax: \_\_\_\_\_

I authorize this information to be disclosed in the following ways:

- Written/Photocopy/Paper       Verbal       Fax       Electronic Mail \*

Purpose of the disclosure: \_\_\_\_\_

3. Dates of Treatment: From: \_\_\_\_\_ To: \_\_\_\_\_

Specific reports to be disclosed:

- Progress Notes       Laboratory Reports       Operative Reports  
 Discharge Summary       Radiology Reports       Consultation Reports  
 X-ray films or other images       Photographs/Videotapes       Records from other facilities  
 Entire Health Records (including, but not limited to, information regarding medical/health treatment, insurance, demographics, referral documents, and records from other facilities.)  
 Other(Specify): \_\_\_\_\_

I give specific authorization to disclose the following information:

- HIV test results       Documentation of AIDS diagnosis  
 Drug and alcohol abuse treatment records       Psychiatric/Mental Health treatment records

I understand that I may withdraw or revoke my permission at any time. If I withdraw my permission, my information may no longer be used or released for the reasons covered by this authorization. However, any disclosures already made with my permission are unable to be taken back. I may revoke this authorization by notifying UTHSCSA in writing.

My treatment will not be based on the completion of this authorization form. The information to be released by this authorization may be re-released by the person or organization that receives it and may no longer be protected by Federal or Texas privacy regulations.

Unless revoked earlier, this authorization expires in one year unless I specify another time: \_\_\_\_\_

I release the individual or organization named in this authorization from legal responsibility or liability for the disclosure of the records as authorized on this form. I understand that this authorization is voluntary and that I may refuse to sign it. I will be provided a copy of this signed authorization, if requested. A photocopy of this authorization is as valid as the original.

\_\_\_\_\_  
Signature of Patient (or Patient Representative)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name of Patient or Patient Representative

\_\_\_\_\_  
Authority of Representative to Act for Patient  
(Relationship to Patient)

\* Need to ensure separate E-mail Authorization Agreement is signed.  
Note: Release of Psychotherapy notes requires a separate authorization.

## VITAE

The first two years of my life were spent on Alcatraz Island where my father began his career as a correctional officer for the U. S. Prisons Service. I was born May 10, 1939, in Mt Sinai Hospital, San Francisco, two years after my mother completed nursing training at the same hospital. Most of my childhood was spent on another island in the Puget Sound, McNeil Island. It also was a federal prison but now it is part of the Washington State Correctional Institutions. My father and mother were role models of determination and hard work. No goal was too impossible nor challenge too great. They believed in helping those who were less fortunate. Both were strong advocates of collegiate educations. My mother's nursing training was excellent and never forgotten. She has used it her whole life.

I graduated from Washington State University in 1962 with a B.S. degree in Bacteriology and Public Health. I worked for a few years, raised a family of three children, and then returned to the working force as a registered nurse in 1985, with an A.D.N. from San Antonio Community College. I worked for a year as a pediatric surgical intensive care nurse and then another year as an adolescent psychiatric nurse. I became a stroke research nurse in 1987 for the department of neurology at the University of Texas Health Science Center at San Antonio. I moved to women's health research in the department of obstetrics and gynecology in 1989, where I have remained for 17 years. In 1994, I earned my B.S.N. degree from the University of the Incarnate Word School of Nursing. In May of 2006, I will graduate with my M.S.N. degree from the same university.

My interest in women's health research is only surpassed by my interest in the health disparities of the Mexican American women who live in the San Antonio area of South Texas. I am passionately committed to nursing.

My permanent address is: 11836 Petal, San Antonio, Texas, 78216.

This thesis was typed by Carann Easton with assistance from Karen Brewer, April McCleave, Noemi Pasterol, Joyce Bogue, and Lynda Barnett..