

DNP Portfolio Executive Summary
Rodica Malos, RN, MS, ANP, GNP,
Doctor of Nursing Practice Candidate, OHSU School of Nursing
O4.14.09

The components from the portfolio provide evidence for my accomplishments for the program outcomes which helped me expand my thinking beyond the one on one care as a primary care provider. The assignments gave me a broader perspective on health promotion, anticipatory guidance, counseling and disease prevention in the patient population with metabolic syndrome. In the ethical paper I demonstrated how I practice as an adult and geriatric nurse practitioner in a professional manner using ethical framework in providing care. The environmental paper provided tools for me to increase my knowledge in assessing and intervening for patients and their family incorporating environment factors contributing to incidents of the disease in underserved population.

My ability as demonstrated by the reports papers to analyse complex clinical situations and practice systems reflected in the organizational paper and the clinical cases on metabolic syndrome and its complications. I grew in the area of applying research in order to improve health care in minorities and uninsured who are my population focus. I am able to analyse political, economic and social components which affect the care in underserved patient population. I grew in assuming leadership roles in developing standards of care for this patient population with metabolic syndrome who lack health care coverage. I developed systems of care for prevention and management that can be used by others to improve the quality of care. I have actively advocated to community leaders and policy makers about the unmet health care needs of underserved populations who end up costing more for care due to the lack of access and adequate treatment. As I provided care as DNP I improved the trust of the underserved patient population in health care providers and extended the use of resources and improved self-care.

As a eyewitness in providing care to an underserved patient population and patients losing their health care insurance as DNP I worked on informing and influencing the policymakers of the needs for health promotion and diseases prevention in patients with metabolic syndrome in underserved population and the consequences of untreated diabetes, hypertension and high cholesterol levels. Through Clinical Inquiry Project I was able to influence health and health outcomes of individuals, groups, and populations through clinical inquiry on the effectiveness of follow up visits for uninsured patients with metabolic syndrome.

In the health policy paper I described how to influence health policy and systems of health care in the local, regional, state, national and international forums. I advocate to community leaders and policy makers related to the unmet health care needs of underserved populations to develop a community health fair targeting hypertension, diabetes, hypercholesterolemia in the underserved population. I negotiated with leaders to implement a successful program for health promotion and disease prevention on recurring basis and to evaluate the program acquiring resources needed, securing participation of providers and recruiting patients.

Running head: CLINICAL INQUIRY PROJECT PROPOSAL

FOLLOW UP VISITS IN PATIENTS WITH METABOLIC SYNDROME IN A CLINIC FOR
AN UNDERSERVED POPULATION

RODICA MALOS, RN, MS, ANP, GNP, DNP STUDENT

OREGON HEALTH & SCIENCES UNIVERSITY

SCHOOL OF NURSING

09.05.08

Description of the problem

Patients with metabolic syndrome (MS) seeking care at Portland Adventist Community Service (PACS) often fail to return to the clinic for follow up care. It is unknown how many of these patients proceed with follow-up visits for their syndrome and make the recommended changes in their lifestyle. Unfortunately the delay in care results in complications from the metabolic disorder. The complications increase the complexity and severity of their health care needs and result in higher rates of mortality and morbidity. Here MS is identified as 3 of 5 conditions usually included in umbrella term MS in literature. These 3 elements of MS (hypertension, diabetes, dyslipidemia) are associated significantly with high risk for increased mortality and morbidity even though the other two additional metabolic syndrome components are not involved (Guize, Thomas, Pannier, Bean, Jago & Benetos, 2007).

Description of the population affected by the problem

Underserved patient populations who do not have follow up care for uncontrolled diabetes, hypertension, and dyslipidemia are at high risk for morbidity and mortality of MS. These patients with MS wait until they develop signs and symptoms and complications from their untreated condition and then go to the Emergency Department (ED) to receive care. After discharge, the hospital refers them to the PACS clinic hoping to break the cycle of using the ED which is a more expensive option for treating a chronic condition. Most of these patients need follow-up visits to manage their diseases to prevent complications from the syndrome and premature death.

Epidemiology of the problem

It is estimated that 47 million Americans have MS with risk factors for cardiovascular disease (CVD), cerebrovascular accidents (CVA), chronic kidney disease, and infections. The prevalence rate increases with age, level of hyperglycemia, and the presence of hypertension, and high lipids (Israili, Lyoussi, Hernandez-Hernandez & Velasco, 2007). Individuals with MS have 2 to 3 times higher risk for heart disease and 2 times higher risk for stroke (Israili, et al., 2007).

Portland Adventist Community Service Organization

PACS is a private, not-for-profit service organization that started in 1934 during the depression days for the nation and addresses the needs of persons and families with incomes below poverty level living in the Portland community. Every year between 1,500- 2,000 uninsured patients seek care at this clinic. The primary objective for PACS clinic is to provide open, accessible primary care at the community level for those who have slipped through the cracks in governmental programs. All laboratory, radiology, and emergency services are paid by Portland Adventist Medical Center. The Family Health Clinic at PACS works closely with Adventist Medical Center, Oregon Health & Sciences University and other specialists willing to provide free primary medical care to persons of restricted income with no access to health care.

The leadership role of DNP student

The role of the DNP student is to integrate theories that predict behavior changes and develop an effective management program to prevent and reduce risk factors for MS. The DNP student integrates a lifestyle change management program with a more aggressive therapeutic approach to treat high blood sugar, high blood pressure, and lipid disorders simultaneously to prevent or postpone the complications of coronary artery disease, cerebrovascular accidents, myocardial infarctions, infections, limb amputations, blindness and kidney failure.

Outcomes

The desired outcomes for this project are to increase the number of patients with MS attaining ADA national standards of care and to increase the number of patients with improved blood pressure (BP), blood sugar (BG), hemoglobin A1C (HgA1C) and total cholesterol (TC). At the end of the year more patients will meet these goals by obtaining the following laboratory results: BP < 130/80 mmHg; HgA1C < 7 mmol/L; TC < 200 mg/dl. By meeting these goals the risk factors for heart diseases, MI, CVA, and kidney failure will be reduced. Patients with follow up care will experience fewer complications in the future and the ED visits and hospitalizations will be further reduced. Patients with MS must return for follow up care to receive appropriate treatment in order to meet those goals.

This project is a retrospective analysis of the program using chart audit of outcomes for patients with uncontrolled BP, BG, Hg A1C, and TC receiving follow up visits at PACS clinic. The purpose of this study is to describe primary care and evaluate outcomes of this care against American Diabetes Association national standards for adult patients with type 2 diabetes mellitus, hypertension and hyperlipidemia seen at the PACS clinic in the one year period. This study will lead to increased efforts to develop intervention programs in the future to reduce mortality and decrease morbidity from MS. The clinical inquiry questions are: 1) How many average visits have adult patients with metabolic syndrome made in the one year period starting September 01, 2007 at PACS clinic? 2) Do adult patients with metabolic syndrome seen at the PACS clinic in this period attain ADA's national standards for blood pressure, blood glucose, and total cholesterol? 3) What percent of the patients with metabolic syndrome improved in blood pressure, blood glucose and total cholesterol during this period? 4) How many follow up visits did these patients have during this time period? 5) What are the characteristics of patients with metabolic syndrome who showed the greatest improvement in blood pressure, blood glucose and total cholesterol during this period?

Conceptual framework

The Conceptual Framework (CF) is used to relate the concepts of MS, the risk factors that exacerbate the syndrome, and the proposed outcomes. The CF defines the needs of the patients with MS, the services provided at the follow up visits in the one year interval and the outcomes. MS is conceptually defined as a cluster of metabolic risk factors for atherosclerotic cardiovascular disease (ASCVD). The most widely recognized of the metabolic risk factors are atherogenic dyslipidemia, elevated blood pressure, and elevated plasma glucose (Grundy, Cleeman, Daniels, Donato, Eckel, Franklin, et al., 2005). The MS, also, is recognized as the major risk factor for cerebrovascular accident (CVA), chronic kidney disease, and for the complications from those chronic conditions. Patients with MS, also, are susceptible to other conditions as fatty liver, polycystic ovary syndrome, cholesterol gallstones, some forms of cancer, asthma, and sleep disturbances. The atherogenic dyslipidemia consists of elevations of triglycerides, serum total apolipoprotein B (apoB), low levels of high density lipoproteins (HDL) and small particles in low density lipoprotein (LDL). Blood glucose elevation can be in the range of impaired fasting glucose (IFG) 100 – 125 mg/dl or at the level of diabetes with BG >126 mg/dl. Other risk factors are physical inactivity, high level of stress, hormonal imbalance, endocrine dysfunction, smoking, , alcohol intake, advancing age, and genetic or ethnic predisposition. Operationally, the risk factors that exacerbate the MS are elevated blood pressure > 130/80, elevated fasting glucose > 100 mg/dl, increased total cholesterol > 200 mg/dl, reduced HDL cholesterol (HDL-C < 40 mg/dl), elevations of plasminogen activator inhibitor-1 and fibrinogen, and a proinflammatory state (Grundy, 2008).

The patients with MS have needs for treatment to control blood sugar, blood pressure, and cholesterol. They also have needs for education for lifestyle change to stop smoking, to follow a healthy diet and a regular exercise program, anti-platelet therapy with daily low dose of Aspirin, eye exam, and dental and foot care. The patient population with MS need follow up visits for this condition such as history and physical exam, counseling on medications use,

patient education classes, referral to a nutritionist, an ophthalmologist, a podiatrist, and a dentist. The patients needs, services provided at the follow up visits and one year retrospective record audit program evaluation is used to describe the effect of the follow up visits in treating patients with MS. Follow up visits are believed necessary to reach the desired goal and achieve the expected outcome.

Components of follow up visits and outcomes

Services provided during the follow up visits will positively influence patients care and will impact their participation in caring for their conditions. The outcome variables measured include the number of patients served, number of follow up visits per patient, blood pressure level, blood sugar level, hemoglobin A1C and total cholesterol level. Counseling on treatment is expected to increase medicine use; self-care behaviors will decrease physical and psychological symptoms. The CF for the MS evaluation program for follow up visits for the patients with MS is presented in Figure 1. After two follow up visits with three physiological measures in a one year period patients are expected to have reduced blood pressure, reduced blood sugar, reduced total cholesterol (TC), and reduced Hg A1C. Over time the patients will also have fewer signs and symptoms from hypertension, diabetes, and dyslipidemia as shortness of breath, chest pain, headache, neuropathy, skin infections, exercise intolerance, fatigue, and edema. It is predicted that ED visits and hospitalization will decrease. Reduced morbidity and mortality are expected to reduce cost of care and increased quality of life. Follow up visits may decrease expenses of ED and hospitalization but by increased length of life also increase chance of complications since the MS is a progressive syndrome.

Review of the literature

Studies with a variety of designs have reported significant risk factor reduction in cardiovascular (CV) disease, stroke, and chronic kidney disease for person with MS. Several large, population-based studies and clinical trials have demonstrated that patients with metabolic syndrome had higher risk of dying compared to those without metabolic syndrome. Mortality is higher among patients with both elevated fasting blood sugar and hypertension compared to those with neither condition (Guize, Thomas, Pannier, Bean, Jago & Benetos, 2007). Metabolic syndrome is associated with Heart Failure (HF), not including risk factors for HF as myocardial infarction. The causes of HF are coronary heart disease and hypertension. Metabolic syndrome has atherogenic and myocardial. Insulin resistance effects left ventricular remodeling, diastolic dysfunction, and left ventricular systolic (Ingelsson, Arnlov, Lind & Sundstrom, 2006).

Lifestyle

Lifestyle intervention is the initial approach to prevent metabolic syndrome (Orchard, Temprosa, Goldberg, Haffner, Ratner & Marcovina et al, 2005). The lifestyle changes produce a reduction in all of the metabolic risk factors simultaneously. Lifestyle management should include exercise, proper diet, no alcohol, no smoking, and stress management (Guize, Thomas, Pannier, Bean, Jago & Benetos, 2007). Modification of lifestyle risk factors associated with the syndrome is important for prevention and for reducing the risks of CVD in this population. A recent study has shown that lifestyle intervention in physical activity and weight reduction can reduce the development of the metabolic syndrome (Wannamethee, Shaper & Whincup, 2006). The beneficial effect of lifestyle intervention on the metabolic syndrome provides important evidence in reducing blood pressure, weight, and lipids level in general (Orchard, Temprosa, Goldberg, Haffner, Ratner & Marcovina et al, 2005). Most life style change interventions were found effective in achieving short-term adherence (Fappa, Yannakoulia, Pitsavos, Skoumas, Valourdou & Stefanadis, 2008).

Pharmacology

If lifestyle changes are not sufficient, then drug therapies are indicated. Concentrated preventive action should be targeted to control all the features of the metabolic disorder (Grundy, Cleeman, Daniels, Donato, Eckel, Franklin, et al., 2005). Attention must be given to the metabolic risk factors, beyond lifestyle therapies directed toward underlying risk factors. If ASCVD or diabetes is present, then drug therapies for risk factors are required (Grundy, Cleeman, Daniels, Donato, Eckel & Franklin et al, 2005).

An integrated therapeutic approach is required to simultaneously treat high blood sugar, high blood pressure, lipid disorders to fully protect cardiovascular, cerebrovascular and renal systems (Israili et al 2007). Management of individual components of the metabolic syndrome, including lifestyle measures and pharmacotherapy are recommended in the National Cholesterol Education Program ATP III and the JNC 7 (Goldstein et al, 2006). Pharmacologic treatment is necessary to meet the goals for blood glucose, lipid, and blood pressure control and to reduce the risk of cardiovascular complications (Sanders, Lubsch & West, 2006).

Drugs are often needed to control metabolic abnormalities. Hyperlipidemia represents the component of the metabolic syndrome most strongly associated with a history of myocardial infarction and stroke. Antilipids therapy results in significant reductions in fasting lipids concentrations and reduction of cardiovascular events. It has been shown to reduce fibrinogen and C-reactive protein in inflammatory mediators (Rosenson, Wolff, Huskin, Helenowski, Rademaker & Fenofibrate, 2007). Atorvastatin therapy reduced the risks of cardiovascular, coronary and cerebrovascular events, and the risk of congestive heart failure requiring hospitalization. A broad range of clinical trial data confirm cardiovascular risk reduction attained with atorvastatin therapy in patients with diabetes or metabolic syndrome (Arca, 2007).

The treatment of hypertension improves long-term morbidity and mortality.

Hypertension is known as a determinant of micro- and macrovascular disease in type 2 diabetes (Monami, Lambertucci, Ungar, Pieri, Masotti & Marchionni et al., 2006). For treatment of hypertensive patients, the Angiotensin Converting Enzyme (ACE) inhibitors or Angiotensin Receptor Blockers (ARBs) are the drugs of choice. Diuretics and calcium channel blockers have been used effectively also. The [beta]-blockers can be used for secondary prevention of MI. If diabetes develops the oral agents or insulin are used to treat hyperglycemia. Metformin therapy reduced the development of the syndrome (Orchard, Temprosa, Goldberg, Haffner, Ratner & Marcovina et al, 2005). Significant improvement is needed in developing tools to assess short-term risk for ASCVD and diabetes in patients with the metabolic syndrome.

Most individuals with the metabolic syndrome have a prothrombotic state characterized by elevations of plasminogen activator inhibitor-1 and fibrinogen. Low-dose aspirin or clopidogrel is recommended for patients with the metabolic syndrome and anti-inflammatory drugs for the proinflammatory state. Increasing participants' adherence to the medicine use and follow up visits guidelines will reduce the risk factors of metabolic syndrome.

Gaps and critique.

For MS, many drugs try to compensate for inability to make the lifestyle changes which adds to complexity of care and needs for follow up visits. Even with life style changes, the chronic progressive nature of MS needs follow up care. Low adherence to follow up care and prescribed medical interventions are ever present and complex problems, especially for patients with chronic illnesses and no access to health care system. In complex treatment plans, as is the case in metabolic syndrome, a possible way of helping people become being adherent is helping them define their own priorities. It is important to explore the patient's expectations towards the disease and its treatment and translate these individual expectations in realistic objectives for the patient (Wens, Vermeire, Royen, Sabbe & Denekens, 2005). Further research is needed to

evaluate a range of communication strategies between health professionals and patients in the context of structured, tailored metabolic syndrome interventions for translating recommendations into an everyday behavior modification program (Fappa et al, 2008).

The evidence related to an everyday behavior modification program is limited and lacks the attention to motivational factors in helping patients to adhere to the multifaceted lifestyle changes. The follow up care to manage their health conditions is very problematic for an underserved patient population due to the absence of health insurance coverage. Health care costs are high and continue to rise. Unaffordable health care jeopardizes patients' health status (Tompson, 2007). More high quality studies are needed to assess these aspects and systematic reviews/meta-analyses are required to study the effects of follow up care on adherence among underserved patient population. Follow-up in a multidisciplinary team might help to influence behavior changes, increase adherence to medicine use and promote self management of metabolic syndrome. The patients' own experiences, knowledge, and ideas as well as those of family members and friends have also been shown to correlate with behavior changes in medicine use and follow up care for disease management (Morris & Schulz, 1992).

Summary

It has been demonstrated that follow up visits are needed for the modification of several risk factors of metabolic syndrome which will further reduce the risk for ASCVD and all-cause mortality. The critical challenge is how the risk factors can be modified at both clinical and public health levels. It is difficult to place prevention on political agendas because of the chronicity of the syndrome. It is important to examine each of the major risk factors and use a comprehensive intervention program to reduce them simultaneously (Grundy, 2008).

DNP must examine effectiveness of follow up visits as they develop programs to reduce high risk among patients with MS. Data from the clinical inquiry can influence development of

policies to address health promotion and include intervention programs for disease prevention (Heisler, Vijan, Anderson, Ubel, Bernstein & Hofer, 2003). The DNP influences patients to change their behavior (Bissell, May & Noyce, 2004).

Intervention programs with follow up visits are needed to improve patient care. The interventions programs with follow up visits must be re-conceptualized and research based. Medication usage and related health behaviors outside the clinic should be studied (Trostle, 1988). Follow up visits, interventions programs, strategies and treatment goals are associated with higher patients' self-efficacy and self-management which lead to improved patient outcomes (Heisler, Vijan, Anderson, Ubel, Bernstein & Hofer, 2003).

Methods

Clinical Inquiry Design

The purpose of this study is to describe primary care and evaluate outcomes of this care against American Diabetes Association national standards using records for adult patients with type 2 diabetes mellitus, hypertension and hyperlipidemia seen at Portland Adventist Community Services (PACS) clinic in one year period. This study will lead to increased efforts to develop intervention programs in the future that reduce risk factors to reduce mortality and decrease morbidity from MS. The clinical inquiry questions are: 1) How many average visits have adult patients with metabolic syndrome made in one year period starting September 01, 2007 to August 31, 2008 at PACS clinic? 2) Did adult patients with metabolic syndrome seen at the PACS clinic in this period attain ADA's national standards for blood pressure, blood glucose, and total cholesterol? 3) What percent of the patients with metabolic syndrome at the PACS clinic improved in blood pressure, blood glucose and total cholesterol during this period? 4) How

many follow up visits did the patients with improved blood pressure, blood sugar and total cholesterol have during this time period? 5) What are the characteristics of patients with metabolic syndrome who showed the greatest improvement in blood pressure, blood glucose and total cholesterol during this period?

The Metabolic Syndrome observational program evaluation project will use a descriptive retrospective longitudinal design to answer the above questions. The descriptive variables are numbers of follow up visits, percentage of patients, blood pressure, blood glucose, hemoglobin A1C and total cholesterol. All these variables are continuous. The characteristics of patients such as gender, ethnicity, education level, poverty level are descriptive categorical variables. Frequency of follow up visits, and percent of patients with reduced blood pressure, percent of patients with reduced blood sugar, and percent of patients with reduced total cholesterol in patients with metabolic syndrome will be determined. Follow up visits are expected to reduce risk factors for MS as high blood pressure, high blood sugar and high lipids. The descriptive variables (blood pressure (BP), hemoglobin A1C (Hg A1C), capillary blood glucose (CBG) at the time of visit, and total cholesterol (TC) are predicted to improve from first to last visit in one year period.

This retrospective longitudinal design is used to evaluate the effectiveness of the follow-up visits in attaining national standards for blood pressure, blood sugar and total cholesterol and reducing risk factors through the services provided to patients with metabolic syndrome (hypertension, diabetes and dyslipidemia) at PACS clinic in one year period. Through a retrospective record audit, the design is feasible to determine the improvement in blood pressure, blood sugar and total cholesterol at the time of each visit. The diagram is (O1, O2) because it is an observational study versus a pretest-posttest intervention program.

Setting

The Portland Adventist Community Services Family Health Clinic is a non profit organization where five Medical Doctors (MDs) and three Nurse Practitioners (NPs) are volunteering their time to provide care to thousands of medically underserved patients who do not have access to the health care system otherwise. Patients with MS are referred to this clinic from the Emergency Department (ED) where they have been seen for their symptoms and complications from their untreated conditions. Patients come to this clinic because they have easy access and the visits, labs and procedures are free. The patients may apply for the indigent medicine programs to get free prescriptions for their expensive chronic drug regimens. Patients who do not qualify for the free medication programs are directed toward other programs that are available at a lower price at Fred Meyer or Wal Mart Pharmacies. Most of these patients need follow-up visits to manage their diseases to prevent complications from the syndrome and premature death. These patients are seen in the PACS clinic where their blood pressure and blood sugar are measured at every visit by the Registered Nurse when the patients are checked in. The provider orders labs at the time of visit appropriate for the patients' conditions. The patients must have the labs done at Portland Adventist Medical Center (PAMC) as soon as the order is given to the patient. PAMC is about 1.5 mile away from PACS and takes extra effort with transportation for the patients to have the labs done on time. The results from the labs will be faxed and mailed to this clinic immediately, reviewed by the providers and placed in the patients' chart. All the charts are kept in the records room accessible to all providers. The Nurse Supervisor coordinates the filing of the patients' health records. The charts for patients with diabetes have a red tag which will make the sample selection more feasible for the study.

The organization is ready to change to improve the care provided to the underserved population. The Director of the Clinic and the Nurse Supervisor are looking to recruit more providers and RNs to volunteer their time to better manage the patients with multiple chronic conditions such as the patients with metabolic syndrome. The clinic's readiness to change is

reflected in its plan to change its structure to have a bigger private area to finish the paper work and to answer patient's questions about their health conditions and further reinforce teaching. The teaching includes: medication use, healthy diet, regular exercise, smoke cessation, avoidance of alcohol and drug abuse to improve the quality of care for the underserved population.

Sample

A convenience sample of approximately 60 patients' records who were seen at PACS clinic and have uncontrolled blood pressure, uncontrolled blood sugar and uncontrolled total cholesterol will be chosen. This size was determined based on the increased number of patients with metabolic syndrome who are seen by MDs and NPs at this clinic. All charts of patients with metabolic syndrome who visited the clinic in one year period starting September 01, 2007 will be selected for evaluation to answer how many average visits have adult patients with metabolic syndrome made in one year period to PACS clinic. Only those patients with two visits will be included to answer the question what percent of the patients with metabolic syndrome at the PACS clinic improved in either blood pressure, blood glucose or total cholesterol during this period. Inclusion criteria are: age 18 and older male and female patients with blood pressure higher than 130/80mmHg, blood sugar higher than 110 mg/dl fasting and higher than 140 mg/dl nonfasting, hemoglobin A1C higher than 7 mmol and total cholesterol higher than 200 mg/dl at the time of visit 1. Exclusion criteria include: a severe life threatening illness not related to metabolic syndrome, major psychiatric illness, dementia, and substance abuse morbidity. The clinic refers this group to different specialists for their needs and specific conditions. This project will evaluate the participants who have a mailing address or telephone number to be notified about their follow up visits. Because I am one of the providers at this clinic I have seen many of these patients and I am familiar with the problem presented.

Measures

Descriptive statistics are used to describe and summarize the data using counts and percentages. The variables as numbers of follow up visits, percentage of patients meeting the national standards, blood pressure, blood sugar, hemoglobin A1C, total cholesterol are descriptive continuous variables. To measure the number of follow up visits, percentage of patients, changes in blood pressure, blood sugar, hemoglobin A1 C and total cholesterol interval measures are used. The number of follow up visits will be measured by a range from 2 to 5 visits in one year period. Percentage of patients meeting the national standards will be measure by using intervals of 1-30 low percentage, 31-60 medium percentage, 60-90 medium high percentage, and > 91 high percentage. The systolic blood pressure will be measured using intervals 120-139 prehypertension, 140-159 stage 1, > 160 stage 2. The diastolic blood pressure will be measured using intervals 80-89 prehypertension, 90-99 stage 1 and >100 stage 2. Blood glucose will be measured using intervals of 110-125 mild impaired fasting glucose (IFG) and >126 severe impaired glucose tolerance (IGT). Hemoglobin A1C will be measured with interval > 7 high risk. The total cholesterol will be measured by using the interval 201-239 high risk and > 240 very high risk. The descriptive statistics and frequency distribution will illustrate the frequency of the follow up visits of the patients with metabolic syndrome by using mean and standard deviation, central tendency of numbers of follow up visits, blood pressure, blood sugar, total cholesterol. Frequency distributions for descriptive variables are used to describe follow up visits, blood pressure, blood sugar, total cholesterol levels. The range, variance and standard deviation will be reported. The shape of the distribution will be shown by the skewness and Kurtosis using the histogram. Assertions of the existence of a relationship between these variables in the population cannot be made without assessing the significance of correlation between number of follow up visits and reduced risk factors for metabolic syndrome as blood pressure, blood sugar and total cholesterol. Significant correlation between the follow up care and the reduced blood pressure, blood glucose HgA1C, total cholesterol will support concurrent

validity. Construct validity will be supported by significant correlation between targeted services provided as counseling on medication use, patient education for healthy diet, regular exercise and smoke cessation, referral to a nutritionist and reduced blood pressure, blood glucose, Hg A1C and total cholesterol. The physiological outcome measures will demonstrate whether the follow up care in patients with metabolic syndrome was effective. Nominal measures is used for gender, ethnicity, education and poverty level. Gender will be coded 1 for female and 2 for male. Ethnicity will be coded 1 for white, 2 for black, 3 for Hispanic and 4 for non-Hispanic. Education level will be coded 1 for less then high school, 2 for high school, and 3 more then high school education. Poverty level will be coded 1 for 100% FPL, 2 for 200% FPL and 3 for > 201% FPL. A Binomial test is used to compare the sample with national standards on each of the indicators of MS.

Data collection procedure

A retrospective record audit will be used to collect the data for this study. A list with all the patients with diabetes will be obtained from the Registered Nurse (RN) Supervisor from the PACS clinic. Descriptive data will be collected only at the beginning of the study include age, ethnicity, gender, tobacco use, and diagnosis of hypertension, diabetes, and dyslipidemia. The DNP student will review all charts of the patients with MS at the PACS clinic and select 60 records of patients who meet eligibility criteria and will collect data as BP> 130/80, Hg A1C> 7 mg/dl, CBG > 140 mg/dl; TC>200 mg/dl at the first visit after September 01, 07 and then will collect the data on BP, CBG, FBG, nonfasting BG, HgA1C and TC from each visit for one year period. A screening form with information for eligibility criteria will be used for sample selection. For this study will be reviewed records of all patients who are 18 years or older, male or female, with blood pressure higher then 130/80, fasting blood sugar higher then 110 mg/dl, nonfasting blood glucose higher then 140 mg/dl, Hgb A1cC > 7 mmol/dl and total cholesterol >

200 mg/dl, who are not threatened by severe illnesses and have no severe mental illnesses.

The pilot test of the data collection forms (Appendix A) will be done by reviewing 5 charts before starting data collection for this study. For pretesting the procedure for data collection five charts will be reviewed using the newly developed data collection forms. The data will be verified by an RN for reliability of the newly developed tool used to collect the data. Based on the list provided by the RN the charts of patients with diabetes will be pulled from the shelf and reviewed for hypertension and hyperlipidemia and only the patients with all three conditions will be evaluated (N=60). A flow sheet will be used to record the blood pressure, blood sugar, HgA1C and total cholesterol level at the first visit starting September 01, 2007 then at every follow up visit for the subsequent year from records for each of the 60 patients in the study. Because the data already exist and no identification is used to collect the data a consent form will not be needed from the patients. A flow sheet will be developed to check off targeted services provided at the follow up visits including counseling for medication use, daily aspirin, patient education for healthy diet, regular exercise and smoking cessation, referral to a nutritionist, an ophthalmologist, a podiatrist and a dentist for further description of the care provided to the patients with MS. In the DNP student role I will collect the data by myself. Volunteer staff will obtain the charts based on the list provided by the Nurse Supervisor at PACS clinic. These two persons will not need special education for those tasks considering their experience and familiarity with this clinic. The clinic is providing support for chart retrieval. No additional cost is needed to collect the data for this study. Since this clinic is based on volunteers' work, there will be minimal cost to the clinic (none beyond chart retrieval). I will be responsible for the cost for the reproduction of all forms. There is no charge for blood test for the patients. All the blood pressure readings and blood test results exist already in the patients' charts. Chart retrieval is facilitated by the clinic staff. The space for me to collect the data already exists and the

equipment is maintained by the clinic's staff already working in the clinic.

To meet the HIPAA regulation the collected data will remain in the clinic at all times lacked in an office with all other patients charts. After data collection is completed the data will be entered in my computer using SPSS for data analysis. To access the data a user name and password will be needed so the data will be protected per HIPAA regulations. Computer and data collection forms are locked up in a fire proof cabinet.

Limitations are acknowledged in this study. Limitations will include missing data due to lack of documentation of blood pressure and blood sugar measurements at the time of each visit. For example, capillary blood test procedure is done without documentation of the patient's the last meal. Another limitation is that the documentation may not include everything that was done at the time of visit such as patients' education for medication use including daily Aspirin, healthy diet, regular exercise, smoking cessation, referrals to a nutritionist, an ophthalmologist, a podiatrist, or a dentist due to providers' busy schedules. The hand written charting may be illegible and increase the limitation of the study. The feasibility of the data collection is increased by my familiarity with the underserved patient population seen in this clinic where I have provided care for about six years.

Analytic methods

The program evaluation project will use a descriptive analysis to answer how many average visits adult patients with metabolic syndrome had in one year period starting September 01, 2007 by using mean (M). The descriptive analysis will be used to answer whether adult patients with metabolic syndrome seen at the PACS clinic in this period attain ADA's national standards for blood pressure, blood glucose, and total cholesterol by using mean (M) to measure average number of patients meeting the national standards. To avoid misinterpreting data the

standard deviation (SD) will be used to show the variability in the distribution of patients meeting the national standards.

The descriptive analysis will be used to answer what percent of the patients with metabolic syndrome improved in blood pressure, what percent of patients improved blood glucose and what percent of patients improved total cholesterol during this period by using interpercentile measures. To answer the question how many follow up visits did these patients have during one year period the descriptive analysis will use mean and standard deviation.

Descriptive analyses will be used to answer the question what are the characteristics of patients with metabolic syndrome who showed the greatest improvement in blood pressure, blood glucose and total cholesterol during this period?

Protection of the human subjects/ethics

This study uses a retrospective chart audit and will not use interventions or experimentation in human subjects. The data used for this study exists in patients' chart recorded at the time of visits for care for their health conditions.

Plan for dissemination to key stakeholders

The PACS clinic can use the data to increase the number of staff providing care to this underserved population. The data can be used to motivate donors to increase funds to hire an RN to contact all patients to remind them about the importance for follow up visits and reinforce patients' education about medication use, healthy diet, regular exercise, and smoking cessation. The data can also be used to develop group visits for multidisciplinary team interventions in the future to increase the services provided to the underserved population and to improve patients'

outcomes.

The reason to evaluate this program is to evaluate the effectiveness and the benefits that outweigh the risks for this vulnerable population and improve practice for patients with MS in this setting. This study also will yield valuable information on risk factors and development of hypotheses for future studies. Ideally patients should come for follow up visits every three months with the data recorded electronically for further research. Ultimately, the goal is to improve the quality of care for this underserved patient population with multiple chronic conditions despite limited access to the health care system.

Timeline for project

IRB Review & Approval Start up activities	Organize Submit application to eIRB	Collect data Analyze data	Write CI final report submit to Portfolio	PowerPoint presentation
10/01-10/13/08	10/13/08	11/01/08 - 03/31/09	05/ 04/ 09	05/18-05/21/ 09

References

- Arca, M. (2007). Atorvastatin efficacy in the prevention of cardiovascular events in patients with diabetes mellitus and/or metabolic syndrome. *Drugs*. 67, 43-54.
- Bissell, P., May, C.R., Noyce, P.R. (2004). From compliance to concordance: barriers to accomplishing a re-framed model of health care interactions. *Social Science & Medicine*. 58, 851–62.
- Cramer, J.A. (2004). A systematic review of adherence with medications for diabetes. *Diabetes Care*. 27, 1218–1224.
- Fappa, E., Yannakoulia, M., Pitsavos, C., Skoumas, I., Valourdou, S., Stefanadis, C. (2008). Lifestyle intervention in the management of metabolic syndrome: could we improve adherence issues?. *Nutrition*. 24, 286-91.
- Goldstein, L.B., Adams, R., Alberts, M.J., Appel, L.J., Brass, L.M.& Bushnell, C.D., (2006). American Heart Association. American Stroke Association Stroke Council. Primary prevention of ischemic stroke: a guideline from the American Heart Association/American Stroke Association Stroke Council: cosponsored by the Atherosclerotic Peripheral Vascular Disease Interdisciplinary Working Group; Cardiovascular Nursing Council; Clinical Cardiology Council; Nutrition, Physical Activity, and Metabolism Council; and the Quality of Care and Outcomes Research Interdisciplinary Working Group. *Circulation*. 113, 873-923.
- Griffith, S.(1990). A review of the factors associated with compliance and the taking of prescribed medicines. *British Journal of General Practice*. 40, 114–116.
- Grundy, S.M. (2008). A changing paradigm for prevention of cardiovascular disease: emergence of the metabolic syndrome as a multiplex risk factor. *European Heart Journal*. 10. 16-B23.

- Grundey, S.M., Cleeman, J.I., Daniels, S.R., Donato, K.A., Eckel, R.H. & Franklin, B.A., (2005). American Heart Association, National Heart, Lung, Blood Institute. Diagnosis and management of the metabolic syndrome: An American Heart Association/National Heart, Lung, and Blood Institute Scientific Statement. *Circulation*. 112, 2735–2752.
- Heisler, M., Vijan, S., Anderson, R.M., Ubel, P.A., Bernstein, S.J., Hofer, T.P. (2003). When do patients and their physicians agree on diabetes treatment goals and strategies, and what differences does it make? *Journal of General Internal Medicine*. 18, 893–902.
- Hunt, L.M., Arar, N.H. (2001). An analytical framework for contrasting patient and provider views of the process of chronic disease management. *Med Anthropol Q*. 15, 347–67.
- Ingelsson, E., Arnlov, J., Lind, L., Sundstrom, J. (2006). Metabolic syndrome and risk for heart failure in middle-aged men. *Heart*. 92, 1409-13.
- Israili, Z.H., Lyoussi, B., Hernandez-Hernandez, R., Velasco, M. (2007). Metabolic syndrome: treatment of hypertensive patients. *American Journal of Therapeutics*. 14, 386-402.
- Monami, M., Lambertucci, L., Ungar, A., Pieri, M., Masotti, G. & Marchionni, N., (2006). Is the third component of metabolic syndrome really predictive of outcomes in type 2 diabetic patients?. *Diabetes Care*. 29, 2515-7.
- Morris, L.S., Schulz, R.M. (1992). Patient compliance: an overview. *J Clin Pharm Ther*. 17, 283–295.
- Orchard, T.J., Temprosa, M., Goldberg, R., Haffner, S., Ratner, R., & Marcovina, S., (2005). The effect of metformin and intensive lifestyle intervention on the metabolic syndrome: The Diabetes Prevention Program Randomized Trial. *Annals of Internal Medicine*. 142, 611-9.
- Rosenson, R.S., Wolff, D.A., Huskin, A.L., Helenowski, I.B., Rademaker, A.W. (2007). Fenofibrate therapy ameliorates fasting and postprandial lipoproteinemia, oxidative stress, and the inflammatory response in subjects with hypertriglyceridemia and the metabolic syndrome. *Diabetes Care*. 30, 1945-51.

- Sanders, B.H., Lubsch, L.M., West, D.S. (2006). Prevalence and treatment of metabolic syndrome in adolescents with type 2 diabetes. *Annals of Pharmacotherapy*. 40, 1517-21.
- Thompson, J.A., Lee, V. (2007). The effect of health insurance disparities on the health care system. *AORN Journal*. 86, 745-56.
- Trostle, J.A. (1988). Medical compliance as an ideology. *Soc Sci Med*. 27, 1299-308.
- Wannamethee, S.G., Shaper, A.G., Whincup, P.H. (2006). Modifiable lifestyle factors and the metabolic syndrome in older men: effects of lifestyles changes. *Journal of the American Geriatrics Society*. 54, 1909-14.
- Wens, J., Vermeire, E., Royen, P.V., Sabbe, B., Denekens, J. (2005). GPs' perspectives of type 2 diabetes patients' adherence to treatment: A qualitative analysis of barriers and solutions. *BMC Family Practice*. 6, 20 retrieved on May 17 from <http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=1589007>

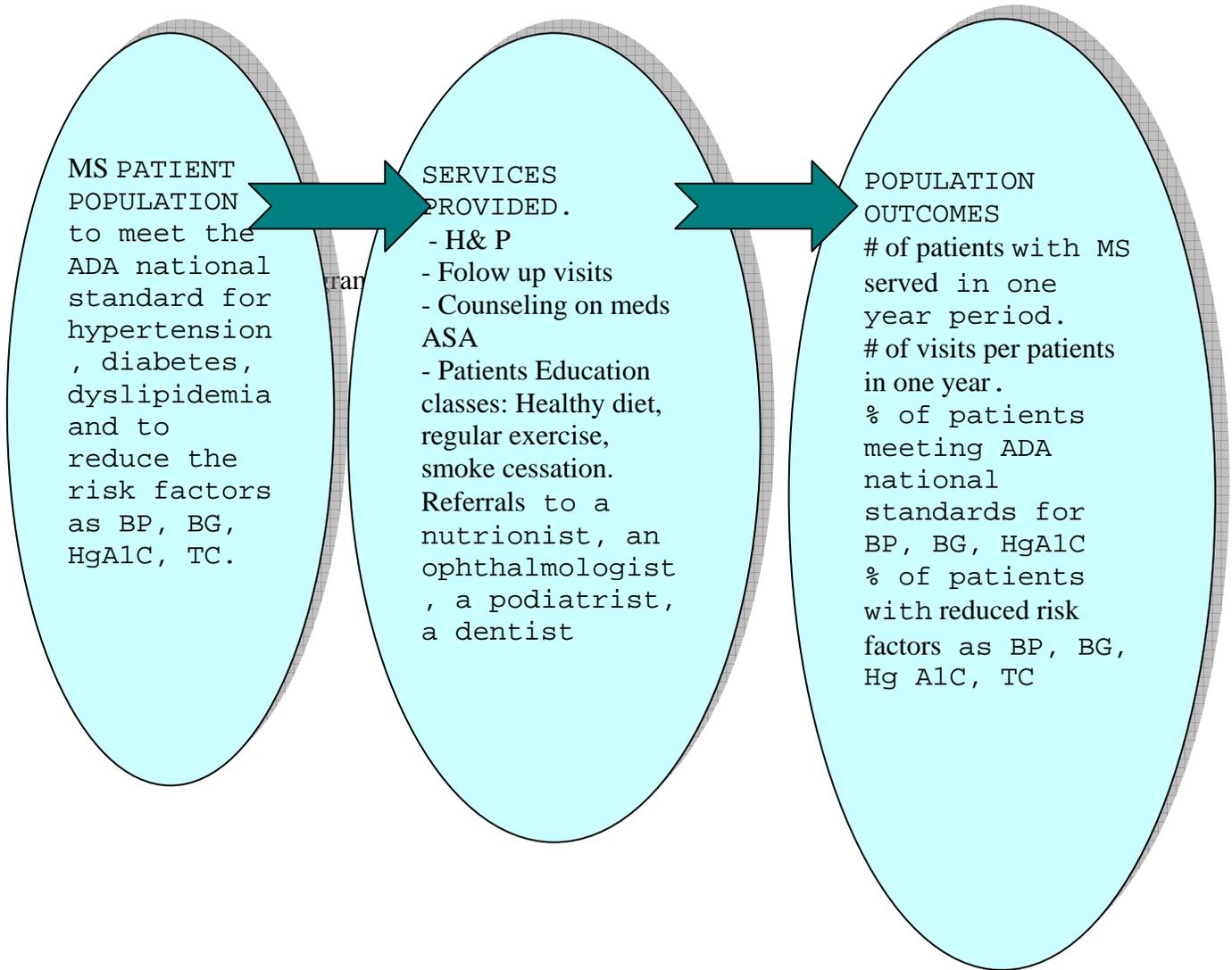


FIGURE 1. MS Program Evaluation.

Appendix A

Data Collection Form 1

SUBJECT NUMBER _____

SUBJECT'S CHARACTERISTICS					
Age (Birth date)					
Gender: M or F					
Education: Years completed					
Income: 100% below poverty level 200% below of poverty level					
English speaking					
Ethnicity					
VARIABLES	Date Visit: 1	Date Visit: 2	Date Visit: 3	Date Visit: 4	Date Visit: 5
Blood pressure:					
a. Systolic					
b. Diastolic					
Blood glucose: CBG					
a. Fasting					
b. Nonfasting					
c. Hg A1C					
Total Cholesterol					
Comments					

CLINICAL INQUIRY PROJECT PROPOSAL 26

DATA COLLECTION FORM 2.

SUBJECT _____

	Date Visit:1	Date Visit:2	Date Visit:3	Date Visit:4	Date Visit:5
CHARACTERISTICS					
Age					
Gender					
Education					
Income					
English					
Ethnicity					
VARIABLES					
Blood pressure					
Systolic					
Diastolic					
Blood glucose CBG					
Fasting					
Nonfasting					
Hg A1C					
Total Cholesterol					

CLINICAL INQUIRY PROJECT PROPOSAL 27

DATA COLLECTION FORM 3.

FLOW SHEET FOR TARGETED SERVICES AND REFERRALS

SUBJECT _____

	Date Visit:1	Date Visit:2	Date Visit:3	Date Visit:4	Date Visit:5
CHARACTERISTICS					
Age					
Gender					
Education					
Income					
English					
Ethnicity					
VARIABLES					
PATIENT EDUCATION					
Consult Medication use Daily Aspirin					
Healthy Diet					
Regular Exercise					
Smoke Cessation					
REFERRALS					
Nutritionist					
Smoking Cessation Program					
Ophthalmologist					
Podiatrist					

CLINICAL INQUIRY PROJECT PROPOSAL 28

Running head: FOLLOW UP VISITS IN PATIENTS WITH METABOLIC SYNDROME

Follow Up Visits in Patients with Metabolic Syndrome in a Clinic for Underserved Population.

Clinical Inquiry Report

Rodica Malos, RN, MS, ANP, GNP, DNP STUDENT

Oregon Health & Science University

School of Nursing

May 4, 2009

Results

Sample

This project was a retrospective analysis of patients' health outcomes after receiving care for Metabolic Syndrome (MS) in a community clinic serving the uninsured. Chart audits of outcomes for patients with hypertension, diabetes and dyslipidemia receiving two or more follow up visits at the clinic between Sept. 1, 2007 and Aug. 31, 2008 were conducted after IRB approval. A total of 60 patients with MS were seen by MDs and NPs at this clinic during this time period; however, only 44 met the eligibility criterion of having documented a minimum of two visits during this time. The other 16 patient charts did not meet this criterion. Other inclusion criteria were that patients be age 18 or older, male or female patients with diagnoses of hypertension, diabetes, and dyslipidemia. Patients were excluded if they had severe life threatening illness not related to metabolic syndrome, major psychiatric illness, dementia, and substance abuse morbidity. Those excluded patients had been referred to different specialists for their needs and specific conditions.

Findings

This clinical inquiry project answered five questions regarding follow up visits of metabolic syndrome patients in a community clinic for underserved population made in the one year period starting September 01, 2007.

1. How many average visits have adult patients with metabolic syndrome made in the one year period starting September 01, 2007 at the community clinic?

In order to answer the first question descriptive statistics of mean and standard deviation were used. Results indicate that these 44 adult patients made a total of 164 visits and averaged 3.73 visits with standard deviation of 1.02 in this one year period starting Sept 01, 2007 (Table 1).

2. Do adult patients with metabolic syndrome seen at the clinic in this period attain ADA's

national standards for blood pressure, blood glucose, and total cholesterol?

To answer second question four separate one-sample t-tests were conducted. Subjects meeting the national standards were compared with the subjects not meeting the ADA's national standards for blood pressure (systolic and diastolic), blood glucose (fasting, non-fasting and hemoglobin) and total cholesterol at each visit made during the one year period. First, systolic BP scores were evaluated to identify if the means at each of the five visits were significantly different from 130, the accepted value for Systolic BP as identified by ADA's national standards. Results indicate that the sample means at visit 2 (140.14, SD = 24.64) and visit 4 (137.67, SD = 18.55) were significantly different from 130, $t(43) = 2.73$, $p < .05$ and $t(26) = 2.15$, $p < .05$, respectively. The effect size d of .41 for visit 2 and 4 indicates a medium effect. The one-sample t-test results for visits 1, 3 and 5 were non-significant.

Second, diastolic BPs were evaluated to identify if the mean at each of the five visits significantly differed from 80, the accepted value for Diastolic BP as identified by ADA's national standards. Results indicate that the sample mean at visit 2 (84.20, SD = 11.21) was significantly different from 80, $t(43) = 2.49$, $p < .05$. The effect size d of .37 for visit 2 indicates medium effect. The one sample t-test results for visits 1, 3, 4 and 5 were non-significant. Third, hemoglobin A1C scores were evaluated to identify if means at each of the five visits were significantly different from 7, the accepted value for hemoglobin A1C as identified by ADA's national standards. Results indicate that sample means at visit 2 (8.84, SD= 2.07), visit 3 (9.14, SD=2.24) visit 4 (8.53, SD=2.31) and visit 5 (8.55, SD 2.15) were significantly different then 7, $p < .05$. Fourth, total cholesterol scores were evaluated to identify if the mean at each of the five visits were significantly different then 200, and lower than the accepted value for total cholesterol as identified by ADA's national standards. Results indicate that the sample means for total cholesterol at visit 2 (186.6, SD = 33.29), visit 3 (182, SD=60.73) visit 4 (177.9, SD 43.36) and visit 5 (210.5, SD 47.47) were significantly different then 200, $p < .05$). See Table 2 for the t test results.

3. What percent of the patients with metabolic syndrome improved in blood pressure, blood glucose and total cholesterol during this period?

To answer the third question a t-test was conducted. The results revealed that 63.6% (n=28) of 44 patients with metabolic syndrome improved on at least systolic or diastolic blood pressure, Hgb A1C or cholesterol level. The remaining 36.4% of the patients with metabolic syndrome either did not improve in any MS component (systolic blood pressure, diastolic blood pressure or blood glucose or cholesterol) or the data needed to make the determination were missing from the record (see Figure 2).

4. How many follow up visits did these patients have during this time period?

For the fourth question the number of visits made were evaluated. Then the mean number of the visits for patients with metabolic syndrome that improved on at least one component of MS (systolic blood pressure or diastolic blood pressure or hemoglobin A1C or total cholesterol) was evaluated. Results indicate that the mean number of visits (3.96, SD = 1.01) for patients (N=28) who improved in systolic blood pressure or diastolic blood pressure, blood glucose or total cholesterol was significantly different $t(42) = -2.12, p < .05$ from the mean number of visits (3.31, SD = .96) made by patients (N=16) who did not improve.

5. What are the characteristics of patients with metabolic syndrome who showed the greatest improvement in blood pressure, blood glucose and total cholesterol during this period?

To answer the fifth question an independent samples t-test was conducted to evaluate differences in patients' age and the results showed that the mean (56.50, SD 8.84) age for patients who improved systolic blood pressure or diastolic blood pressure, blood sugar or cholesterol was not significantly different $t(44) = -.215, p > .05$ than the mean (55.87, SD = 9.93) age of patients who did not improve $t(44) = -.207, p > .05$. Chi Square tests were conducted to evaluate differences in gender, English and ethnicity of the patients with metabolic syndrome

improved in systolic blood pressure or diastolic blood pressure or blood sugar or cholesterol. The results indicated no statistically significant differences in gender [57.1% (n= 16) were female, 42.9% (n = 12) were male], language spoken [61.5% (n = 15) were English speaking, 38.5% (n=10) non English speaking] or ethnicity , 64.3% (n=28) were white, 3.5% (n=1) were black, 10.7% (n=3) were Hispanic, and 21.4% (n = 6) were others (Asians). See Table 4.

The macro and micro financial considerations

The costs and the results of this project cannot be compared with the costs and results from other clinics because the community clinic is funded by major donors not by government agencies. The macro and micro financial considerations relevant to the clinical inquiry project could include direct costs as salaries, payroll taxes, benefits of NPs, RNs, Medical Assistants (MA), expenses with training and education (hours of specialist training), travel expenses, medical supplies and pharmacy supplies, purchased services (labs and wireless internet) needed for the program evaluation. Indirect costs include building and space, utilities, housekeeping, repairs and maintenance, business license and fire insurance, and administrative costs. The community clinic was subsidized by a community hospital specifically to serve the uninsured. All the health care professionals donated their time and the supplies were provided by the DNP student.

Situation analysis

The DNP developed this project to evaluate the effectiveness and the benefits of follow up visits for this vulnerable population and to improve practice for patients with MS in this community setting. The study was facilitated by the Clinic Supervisor making all the charts available and with a great support from the Director of the clinic including the providers and other stakeholders interested in the results of follow up visits at this clinic. Both the Director of the Clinic and the Clinic Supervisor were enthusiastic about this project and interested in using the data and plan to make changes in managing patients with MS based on the results. The DNP student used her leadership skills in coordinating the study and collaborating with other providers in the clinic in an ethical and professional manner to accomplish the evaluation project

with minimum cost.

This project also yielded valuable information on risk factors and development of hypotheses for future studies. Ideally patients should come for follow up visits every three months with the data recorded electronically for further research. Ultimately, the goal was to improve the quality of care for this underserved patient population with multiple chronic conditions despite limited access to the health care system.

Outcomes

Based on this retrospective analysis of the program, the following outcomes were obtained. The adult patients with MS had an average of 3.73 visits (SD, 1.02) in the one year period starting Sept 01, 2007 (Table 1). Of the total 44 patients included in the evaluation, 13.8% of patients had 2 follow up visits, 27.3% had 3 visits, 31.1% had 4 visits and 27.3% had 5 visits. The data revealed the percentage of metabolic syndrome patients' meeting ADA national standards at follow up visits for SBP < 130 was 40.9% of patients (n=18), for DBP < 80, 38.6% (n=17), for Hgb A1C <7 13.6% (n=6) and for TC < 200 6.8% (n=3). Results indicated that at visit 2 the average for systolic blood pressure (SBP) was 140, at visit 3 SBP was 137.44, visit 4 SBP was 137.67 and at visit 5 was 136.46. The average diastolic blood pressure (DBP) at visit 2 was 84.2, visit 3 was 81.81, visit 4 was 80.93 and visit 5 was 81.38. The average hemoglobin A1C at visit 2 was 9.1, visit 3 was 8.0, at visit 4 was 8.53 and at visit 5 was 8.55. Results indicate that at visit 2 total cholesterol (TC) was 186.6, at visit 3 TC was 182, at visit 4 TC was 177.9 and visit 5 TC was 210.5. The results revealed that 63.6% (n=28) of 44 patients with metabolic syndrome improved on at least component of the syndrome—either systolic or diastolic blood pressure or Hgb A1C or cholesterol level.

Discussion

Executive summary

The untreated metabolic syndrome (high glucose levels, and high triglycerides and high blood pressure) is the major cause of morbidity and mortality in the US when uninsured patients fail to use the medications as prescribed and do not return to a primary care provider for follow

up care. Many of these patients lack access to the health care system and wait until complications arise from their untreated chronic illnesses and then go to Emergency Department (ED) to receive care. Using the ED is a more expensive option and most of these patients need follow-up care for interventions and treatment to manage their diseases to prevent complications from the metabolic syndrome. Furthermore, the delay in care increases the complexity and severity of their health care needs increasing the health care cost. The skyrocketing costs of health care are a burden for patients, providers, payers and society.

The program for follow up care in treating the metabolic syndrome in underserved patients at the clinic provides science-based interventions to prevent complications from the metabolic syndrome and premature death. First, the follow up visits (FUVs) were effective for treating metabolic syndrome in some of the patients. Progress in control of these chronic illnesses requires change in lifestyle. Further integration lifestyle changes with a more aggressive therapeutic approach to simultaneously treat high blood sugar, high blood pressure, obesity, and lipid disorders to prevent complications may be needed in this underserved population. Second, FUVs have the potential to increase adherence to medication use, self-care behaviors and decrease symptoms. One of the results of this study was the development of a flow sheet to record the content of visits and areas of counseling that can be used by providers to improve documentation of interventions at each visit.

The goals of FUVs included: (1) patients' use of the medications as prescribed and return to the clinic for follow up care, (2) patients' reduced blood pressure, reduced total cholesterol (TC), reduced fasting blood glucose and reduced Hg A1C. Over time the patients with improved control of MS are expected to have fewer signs and symptoms (shortness of breath, chest pain, headache, neuropathy, skin infections, exercise intolerance, fatigue, and edema) from untreated hypertension, diabetes, and dyslipidemia and fewer complications. The follow up visits may reduce the ED visits leading to decreased costs in the health care. However, it was not possible to document accurately the total number of ED visits made by patients during the year as they may

have visited several EDs.

The results of this project underscore the need for care of uninsured persons with MS. The recommendations for the program to promote follow up visits are based on the scientific evidence that these visits lower risk of chronic disease and promote health. FUVs provide more efficient intervention in management of chronic illness and save millions of dollars spent in emergency care and in restoration of health affected by preventable complications. In conclusion, outcomes of FUVs support the need for policy development designed to increase access to care for underinsured and uninsured population. The policy goal is to reduce cost and improve the quality of care that people receive which will ultimately improve their quality of life. Policy makers, health care providers and the general public need to be made aware of the costs of untreated metabolic syndrome in the uninsured population.

The clinic can use the data to increase the number of staff providing care to this underserved population. The data can be used to motivate donors to increase funds to hire an RN to contact all patients to remind them about the importance for FUVs and reinforce patients' education about medication use, healthy diet, regular exercise, and smoking cessation. The data can also be used to develop group visits for multidisciplinary team interventions in the future to increase the efficiency and effectiveness of services provided to the underserved population and to improve patients' outcomes.

Context

The project was conducted in a clinic for underserved patients from various minority groups with incomes 200% below the poverty line, where all the health care providers are volunteers, and where there is no electronic health record. These factors provided significant challenges to documentation of follow up visits and completion of the project. Many patients did not return for follow up visits and did not proceed with the labs for fasting glucose, Hgb A1C

and cholesterol. The critical challenge was the amount of missing data. Lab results for blood glucose and total cholesterol were missing. Also, documentation of patient education for regular exercise, healthy diet, smoking cessation and referrals to nutritionists, ophthalmologists and podiatrists was incomplete. It is important to examine each of the major risk factors and then use a comprehensive intervention program to reduce them simultaneously (Grundy, 2008).

The DNP student examined effectiveness of follow up visits to reduce high risk of mortality and complications among patients with MS. Data from the clinical inquiry project may influence development of policies in the agency and at the state and national level to address health promotion and include intervention programs for disease prevention (Heisler, Vijan, Anderson, Ubel, Bernstein & Hofer, 2003). The DNP student personally and by working with other providers in the clinic influenced patients to change their behavior at follow up visits (Bissell, May & Noyce, 2004). Mortality is higher among patients with both elevated fasting blood sugar and hypertension compared to those with neither condition (Guize, Thomas, Pannier, Bean, Jago & Benetos, 2007). Metabolic syndrome has atherogenic and myocardial effect. Insulin resistance affects left ventricular remodeling, diastolic dysfunction, and left ventricular systolic (Ingelsson, Arnlov, Lind & Sundstrom, 2006).

Patients with MS need follow up visits to receive appropriate care including patients' education for lifestyle change. Modification of lifestyle risk factors associated with the syndrome is important for prevention and for reducing the risks of CVD in this population. Lifestyle intervention is the initial approach to prevent metabolic syndrome (Orchard, Temprosa, Goldberg, Haffner, Ratner & Marcovina et al, 2005). Lifestyle management should include exercise, proper diet, avoidance of alcohol, no smoking, and stress management (Guize, Thomas, Pannier, Bean, Jago & Benetos, 2007). The beneficial effect of lifestyle intervention on the

metabolic syndrome provides important evidence in reducing blood pressure, weight, and lipids level in general (Orchard, Temprosa, Goldberg, Haffner, Ratner & Marcovina et al, 2005). The difficulty may be in getting the message clearly to the uninsured population that they can control many of these risk factors and attain better health outcomes. The follow up visits are needed for drug therapy if lifestyle changes are not sufficient. Concentrated preventive action should be targeted to control all the features of the metabolic disorder (Grundy, Cleeman, Daniels, Donato, Eckel, Franklin, et al., 2005). If atherosclerotic cardiovascular disease (ASCVD) or diabetes is present, then drug therapies for risk factors are required (Grundy, Cleeman, Daniels, Donato, Eckel & Franklin et al, 2005). An integrated therapeutic approach is required to simultaneously treat high blood sugar, high blood pressure, lipid disorders to fully protect cardiovascular, cerebrovascular and renal systems (Israili, Lyoussi, Hernandez & Velasco, 2007).

Interpretation

Of 44 patients with metabolic syndrome only 63.6% (n=28) improved on at least one component of MS (systolic or diastolic blood pressure, Hgb A1C or cholesterol level). These results were influenced by many factors. A lack of documentation of care provided in this busy clinic, lack of consistency in care providers seen by patients at each visit, transportation costs for the patients to come to the clinic, all may have contributed to the results. Other burdens experienced by patients included a lack of child care, feeling mistrust of providers who do not speak the same language, and fear of medicines. The role of the DNP student in the clinic was to integrate health promotion and disease prevention strategies including self-care behavior changes and develop an effective management program to prevent and reduce risk factors for MS. This project focused on outcomes of care at follow up visits provided by numerous volunteer

professionals. Since documentation was an issue with substantial missing data, a flow sheet was proposed that in one page documents with check off boxes when someone was counseled about smoking, alcohol use, Aspirin use, or referred to others such as nutritionist, etc. The DNP student recognized a need for an integrated a lifestyle change management program with a more aggressive therapeutic approach to treat high blood sugar, high blood pressure, and lipid disorders simultaneously to prevent or postpone the complications of coronary artery disease, cerebrovascular accidents, myocardial infarctions, infections, limb amputations, blindness and kidney failure in this vulnerable uninsured population.

Limitations

The limitations acknowledged in this project included missing data due to lack of documentation blood sugar measurements at the time of each visit. For example, capillary blood test procedures were done without documentation of the patient's last meal. Another limitation was that the documentation did not include everything that was done at the time of visit such as patients' education about using daily Aspirin, eating a healthy diet, regular exercise, smoking cessation, referrals to a nutritionist, an ophthalmologist, a podiatrist, or a dentist. The lack of documentation may be due to the number of patients seen and the providers' busy schedules. At other times, the hand written charting was illegible and data could not be extracted accurately from the charts. Many patients did not fill out completely the intake sheet which included their level of education, their ethnicity and language. Language barriers in treating the underserved population were considerable because of the time and effort needed to convey information to patients in understandable ways. There were also ethical issues. The majority of patients represented minorities from different cultures using different languages and the clinic lacks qualified translators for patients who do not speak English. It is extremely difficult to fully inform the patients about treatment and get a true consent without proper translation.

Conclusions

The purpose of this project was to describe the primary care delivered and evaluate

outcomes of this care against American Diabetes Association national standards for these adult patients with high blood pressure, high cholesterol and elevated blood glucose levels over a one year period. This goal was to improve the future management programs for an underserved population receiving care at a community clinic in order to reduce mortality and decrease morbidity from MS. The results of this project will guide changes in the practice at the clinic to help more patients meet the national care standards. By meeting these standards, the risk factors for heart disease, MI, CVA, and kidney failure can be reduced. Patients with follow up care will experience fewer complications in the future. Furthermore, reducing the ED visits and hospitalizations will further reduce the cost of care.

Patients with MS who return for follow up care receive appropriate treatment in order to meet those goals and reduce complications. By implementing the FUVs program in other clinics in the long term the numbers of ER visits will be reduced and hospitalizations will be decreased due to fewer complications from untreated metabolic syndrome. The hospital will be able to use the empty beds for other patients with private insurance to generate more revenue. Although there is still a cost for primary care and since visits are for long term follow up of chronic conditions, that cost must be weighed against the cost of catastrophic illnesses arising from the complications of untreated metabolic syndrome. The legislators will need to allocate money for these clinics and the savings from reduced health care costs can be reallocated to fund organizations to improve the education system, transportation system, recreational parks, food programs, etc. that benefit the quality of life for everyone.

References

- Bissell, P., May, C.R., Noyce, P.R. (2004). From compliance to concordance: barriers to accomplishing a re-framed model of health care interactions. *Social Science & Medicine*. 58, 851–62.
- Fappa, E., Yannakoulia, M., Pitsavos, C., Skoumas, I., Valourdou, S., Stefanadis, C. (2008). Lifestyle intervention in the management of metabolic syndrome: could we improve adherence issues? *Nutrition*. 24, 286-91.
- Grundy, S.M. (2008). A changing paradigm for prevention of cardiovascular disease: emergence of the metabolic syndrome as a multiplex risk factor. *European Heart Journal*. 10. 16-B23.
- Grundy, S.M., Cleeman, J.I., Daniels, S.R., Donato, K.A., Eckel, R.H. & Franklin, B.A., (2005). American Heart Association, National Heart, Lung, Blood Institute. Diagnosis and management of the metabolic syndrome: An American Heart Association/National Heart, Lung, and Blood Institute Scientific Statement. *Circulation*. 112, 2735–2752.
- Heisler, M., Vijan, S., Anderson, R.M., Ubel, P.A., Bernstein, S.J., Hofer, T.P. (2003). When do patients and their physicians agree on diabetes treatment goals and strategies, and what differences does it make? *Journal of General Internal Medicine*. 18, 893–902.
- Ingelsson, E., Arnlov, J., Lind, L., Sundstrom, J. (2006). Metabolic syndrome and risk for heart failure in middle-aged men. *Heart*. 92, 1409-13.
- Israili, Z.H., Lyoussi, B., Hernandez-Hernandez, R., Velasco, M. (2007). Metabolic syndrome: treatment of hypertensive patients. *American Journal of Therapeutics*. 14, 386-402.
- Orchard, T.J., Temprosa, M., Goldberg, R., Haffner, S., Ratner, R., & Marcovina, S., (2005). The effect of metformin and intensive lifestyle intervention on the metabolic syndrome: The Diabetes Prevention Program Randomized Trial. *Annals of Internal Medicine*. 142, 611-9.

Acknowledgements: This project received support from the Oregon Health & Sciences University, Portland Adventist Medical Center clinic and my family. The author will like to thank Dr. K. Crabtree, my advisor for the sustained support throughout the DNP program, Dr. D. Messecar, Dr. M. Leo, Dr. A. Rosenfeld, Dr. M. Pate, Dr. E. Siegel and all the DNP students for their review of this project. I like to thank Dr. Gingrich, Director of the clinic and Mrs. Barbara Maddox, Clinic Supervisor at Portland Adventist Medical Center clinic for their support and encouragement. Lastly I want to thank my husband Stely, daughter Andreea and sister in law Lacra for their patience and for allowing me to spend so much time to finish the project.



**Follow Up Visits for Metabolic Syndrome in a
Clinic for an Underserved Patient Population.**

Rodica Malos, RN, ANP, GNP
DNP Candidate, May 18, 2009

BACKGROUND

- Patients with Metabolic Syndrome (hypertension, diabetes, dyslipidemia) often fail to return to clinic for follow up care.
- The delay in care results in complications from the metabolic disorder.
- The complications increase the complexity and severity of their health care needs, result in higher rates of mortality and morbidity, and increase health costs.

Purposes

- To describe primary care of adult patients with Metabolic Syndrome seen between Sept. 1, 2007- Aug. 31, 2008 at a community clinic for the uninsured and
- To evaluate their health outcomes against American Diabetes Association national standards for:
 - Type 2 Diabetes mellitus
 - Hypertension and
 - Hyperlipidemia

Setting

- Community Clinic - a non profit organization, safety net clinic
- Five Medical Doctors (MDs) and three Nurse Practitioners (NPs) volunteer their time to provide care. A maximum of 1-2 providers are available in the clinic at one time for 4 or more hours per day.
- Medically underserved patients served.
- Patients with MS are referred from Emergency Department (ED).
- Patients come to this clinic because the free access and the visits, labs and procedures are free.
- Patients apply for the indigent medication programs to get free prescriptions or at a lower price
- Low cost referrals are limited

IRB Approval

- IRB Approval was obtained for this project.
- A retrospective analysis of a sample of 60 patients' health outcomes after receiving care for Metabolic Syndrome (MS) in a community clinic serving the uninsured.
- Chart audits of outcomes for patients with hypertension, diabetes and dyslipidemia
- Receiving two or more follow up visits at the clinic
- Between Sept. 1, 2007 and Aug. 31, 2008 were conducted.

Eligibility Criteria

- Age >18 years
- Attend community clinic serving patients with income < 200% below poverty line
- Two – five follow up visits made during the year Sept.01, 2007-Aug.31, 2008
- Have three conditions defined as MS
 - Type 2 diabetes
 - Hypertension
 - Dyslipidemia

Exclusion Criteria

- severe threatening illness not related to metabolic syndrome,
- major psychiatric or
- substance abuse morbidity,
- dementia, or
- severe cardiac disease with poor prognosis.

Characteristic of the Patients

- Age between 18-79
- Male and female
- English and Non English speaking
- Income less then 200% BPL
- Ethnicity
 - - White
 - - African-Americans
 - - Hispanics
 - - Others

DATA COLLECTION PROCEDURE

- Developed tool for data collection
 - flow sheets to retrieve documented care for each component of MS
- Data collected through a retrospective chart audit.

Analyses

- Descriptive statistics were used to describe and summarize the data about the number of follow up visits, blood pressure control, blood sugar control, and total cholesterol control.
- Independent t test was used to respond to questions:
 - How many met the national standards?
 - Did characteristics of those meeting the national standards differ from those who not meet the national standards?

Set p- value (significance if $p \leq .05$)

Percentages of patients who meet national standards for blood pressure, blood sugar, and total cholesterol



Five Questions Addressed

1. How many visits did adult patients with Metabolic Syndrome clinic make in the one year period starting September 01, 2007?
 - the 44 patients with MS had a total of 164 follow up visits in one year period
 - the average number of follow visits was 3.73; 13.8% of the 44 patients had 2 follow up visits, 27.3% had 3 visits, 31.1% had 4 visits and 27.3% had 5 visits

Table 1
 Metabolic Syndrome Patient Visits September 01,
 2007 to August 31, 2008.

Number of Visits	Number of Patients	Percent	Mean	Standard Deviation
2.00	6	13.8		
3.00	12	27.3		
4.00	14	31.8		
5.00	12	27.3		
Total	44	100.0	3.72	1.02

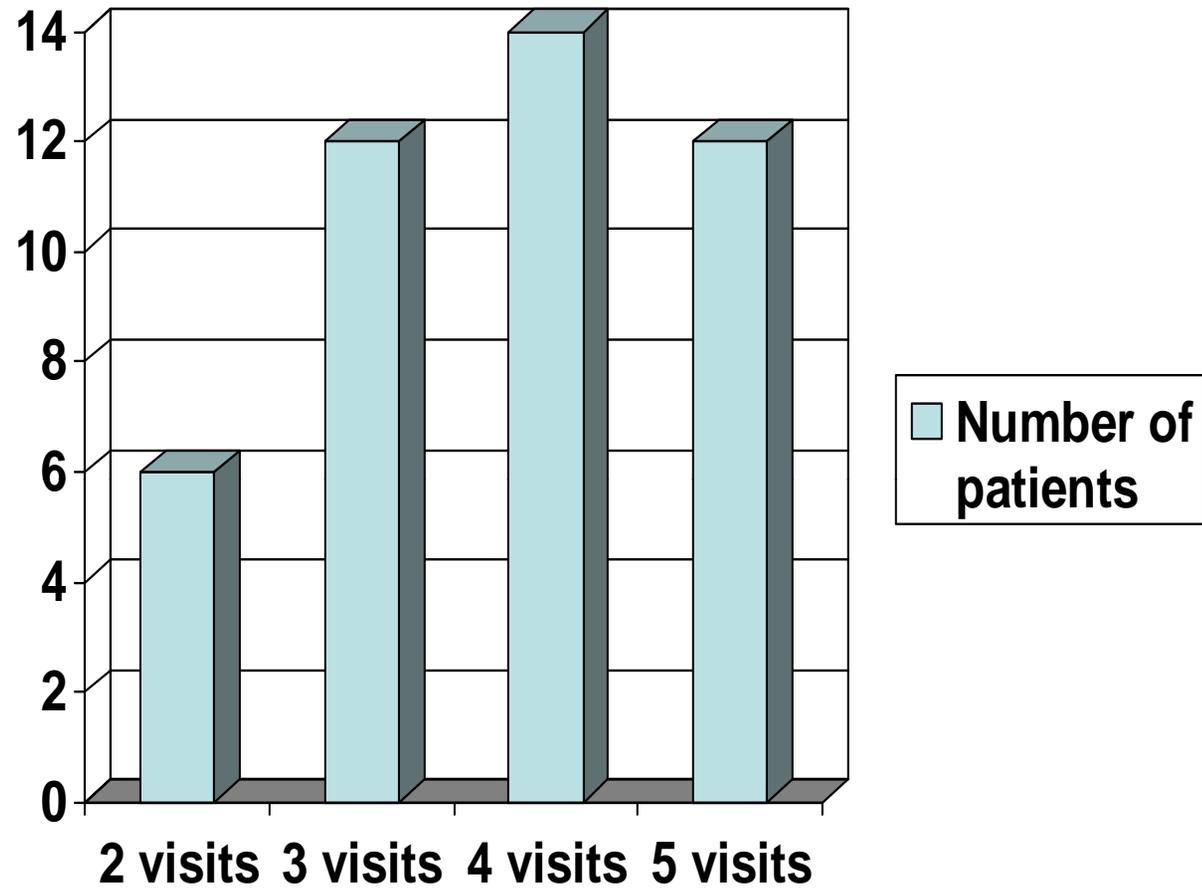


Figure 1. Number of Visits Made by Patients with MS in 1 year

Questions Cont'd

2. Did adult patients with Metabolic Syndrome seen between Sept. 1, 2007 and Aug. 31, 2008 attained ADA's national standards for blood pressure, blood glucose, and total cholesterol?

Table 2. Comparison of Metabolic Syndrome Patients' Outcomes with ADA National Standards of Follow Up Visits

Patient Outcomes	National ADA Standards	Visit 2				Visit 3				Visit 4				Visit 5			
		n	%	Mean	SD	n	%	Mean	SD	n	%	Mean	SD	n	%	Mean	SD
SBP	≤ 130.0	44	100	140.1	24.8	37	84	133.70	29.13	27	61	137.66	18.55	13	29	136.46	17.25
DBP	≤ 80.0	44	100	84.2	16.3	37	84	79.57	17.36	27	61	80.93	10.25	13	29	81.38	10.78
HgbAC	≤ 7.0	19	43	9.1	2.2	12	27	8.00	1.57	15	34	8.5	2.31	6	13	8.5	2.15
TotalChl	≤ 200.0	10	23	186.6	33.3	4	9	182.75	60.74	10	23	177.90	43.37	7	15	201.57	47.47

Systolic and diastolic BP met the standards at visits 3 and 5.

Blood glucose levels measured on follow up visits did not meet the national standards.

Total cholesterol measured at visits 2, 3, and 4 did meet the national standards

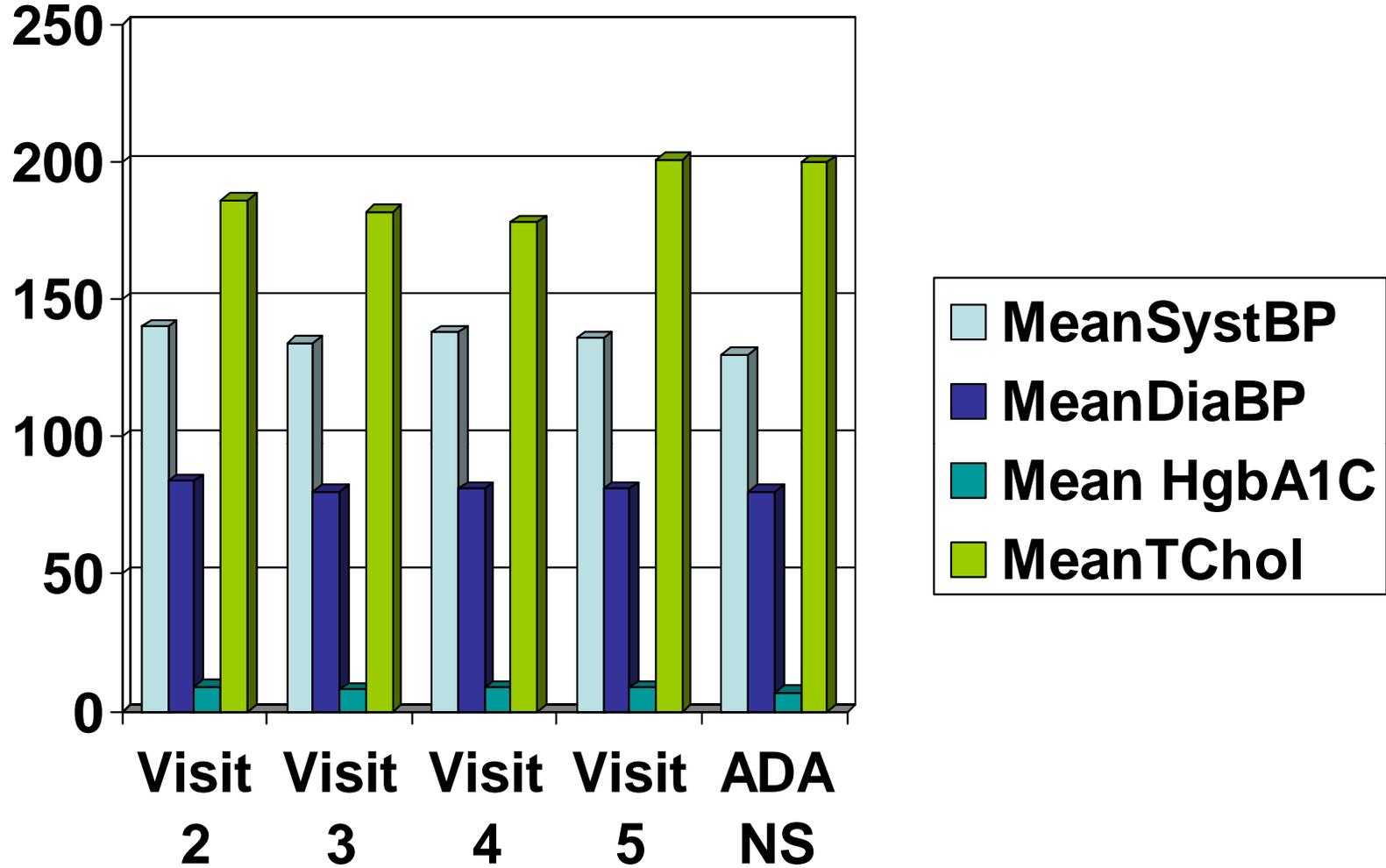


Figure 2
 Comparison of Metabolic Syndrome Patients Outcomes with ADA
 National Standards

Questions Cont'd

3. What percent of the patients with Metabolic Syndrome improved in any one component of MS: Systolic or diastolic blood pressure, blood glucose and total cholesterol during this period?

Only 63.6% of patients (n=28) improved on at least one component of MS (systolic or diastolic blood pressure, Hgb A1C or cholesterol level)

The remaining 36.4% of the patients with metabolic syndrome either did not improve in any MS component or insufficient data were available to make that determination

Table 3.
 Metabolic Syndrome Patients' Meeting ADA National Standards
 of Follow Up Visits For SBP, DBP, HgbA1C and TC.

Patient Outcomes	National ADA Standards	Patients meeting National ADA Standards		Patients not meeting National ADA Standards		df	p
		n	%	n	%		
SBP	≤130	18	40.9	26	59.1	2.121	.606
DBP	≤80	17	38.6	27	61.4		
HgbA1C	≤7.0	6	13.6	38	86.4		
TC	≤200	3	6.8	41	93.2		

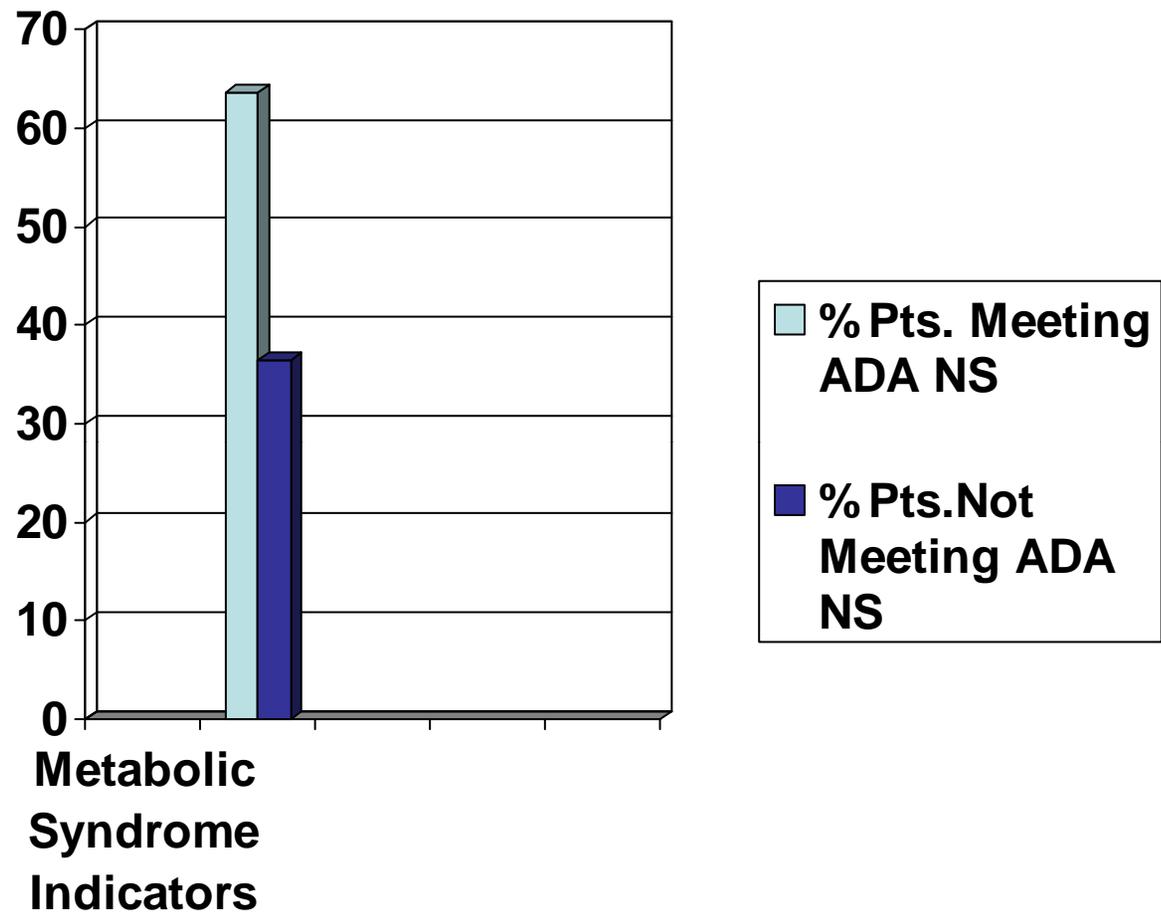


Figure 3. Percent of Patients Meeting ADA National Standards in One of the MS Indicators.

Questions Cont'd

4. What was the average number of visits made by those patients improved in any component of the MS?

Mean number of visits for those improved was 3.96 and differed statistically from the mean number of visits (3.31) made by patients who did not improve based on $t = -2.12, p < .05$

Questions Cont'd.

5. How did the characteristics of patients with Metabolic Syndrome who showed improvement in one or more component of MS differ from those who did not improve?

There were no statistically significant differences in the descriptive characteristics of patients who improved versus those who did not improve using t-test for age and Chi square analyses for gender [57.1% (n= 16) were female, 42.9% (n = 12) were male], language spoken [61.5% (n = 15) were English speaking, 38.5% (n=10) non English speaking] or ethnicity , 64.3% (n=28) were white, 3.5% (n=1) were black, 10.7% (n=3) were Hispanic, and 21.4% (n = 6) were others (Asians).

Table 4.
 Comparison of Adults with Metabolic Syndrome Who Improved and Who Did Not Improve
 with Minimum of Two Follow Up Visits in One Year Using Independent t test (N=44)

Sample Characteristics	p value	Total (N=44)		Improved on at Least One Metabolic Syndrome Indicator		Not Improved on Any of the Metabolic Syndrome Indicators	
		n	%	n	%	n	%
Total	.675	43	97.7	28	65.11	15	34.88
Gender	.239						
Female		27	61.4	16	57.1	11	73.3
Male		16	36.4	12	42.9	4	26.7
English Speaking	.167						
Non English Speaking		26	59.1	16	61.5	10	83.3
		12	27.3	10	38.5	2	16.7
Ethnicity	.193						
White		28	63.6	18	68.3	10	76.9
African-Amer*		2	4.5	1	3.6	1	7.7
Hispanic		5	11.4	3	10.7	2	15.4
Others		6	13.6	6	21.4	0	

* Too few patients of this ethnicity to test

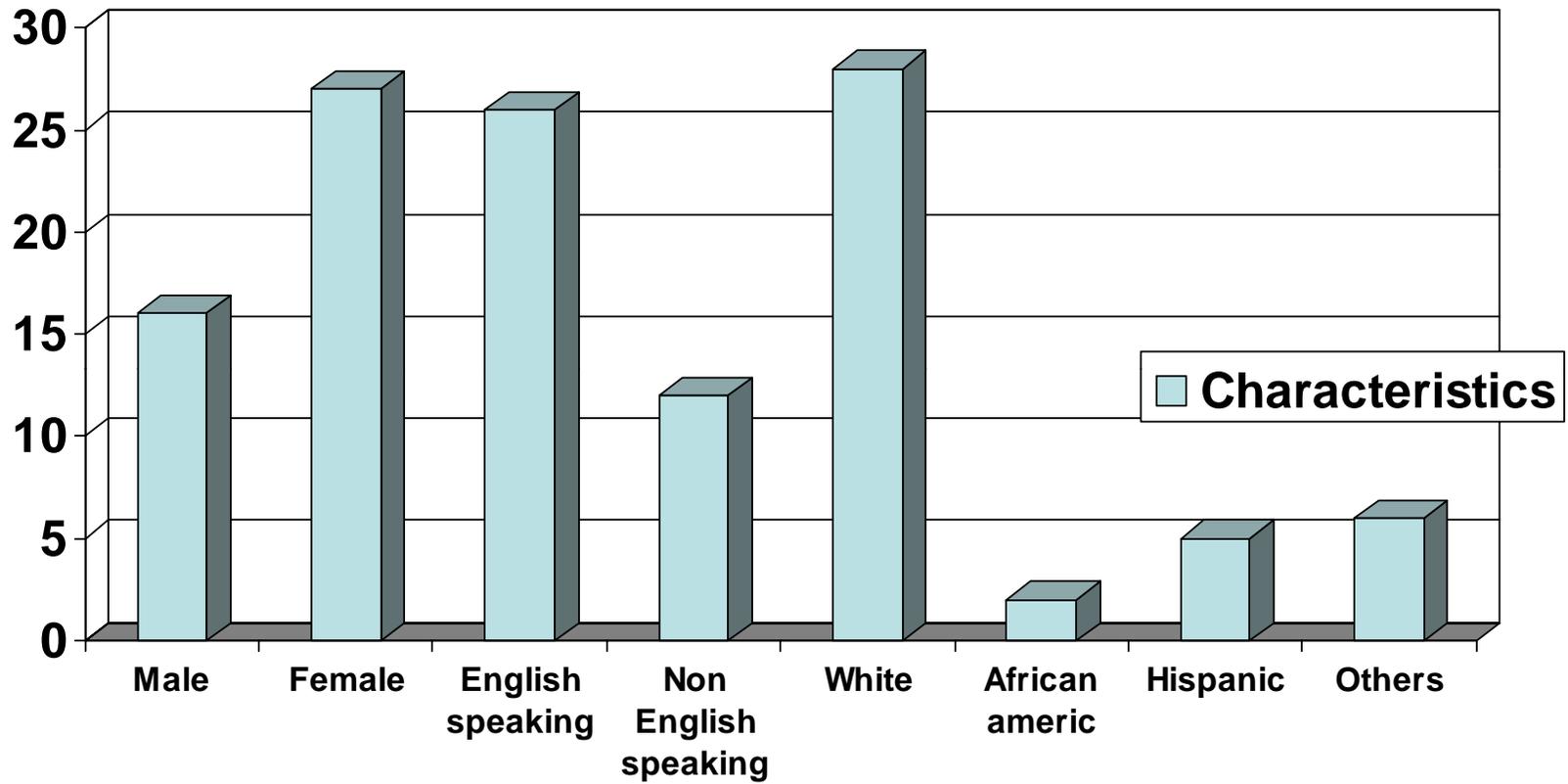


Figure 4. Characteristics of patients meeting ADA National Standards in at least one of metabolic syndrome indicators

Limitations

- Missing data (inconsistent labs due to timing of visits)
- Volunteer providers
- Lack of documentation
- Hand written charting (sometimes illegible)
- Language barriers
- Lacks qualified translators for patients who do not speak English.

Conclusions

- Primary care delivered and outcomes of this care evaluated against American Diabetes Association national standards
 - BP and cholesterol met national standards
 - Blood Glucose did not meet national standards
- The results of this project will guide changes in the practice at the clinic to help more patients meet the national care standards.

Conclusion Cont.

- The legislators will need to allocate money for uninsured patient clinics
- The savings from reduced health care costs can be reallocated
- Reduce morbidity and mortality while benefit the quality of life

Recommendations

- Electronic Health record
- RN
- Translator
- Volunteer providers
- Group interventions to encourage consistent follow up
- Document and monitor outcomes of visits using flow sheets

Outcomes

- Hire an RN to improve follow up visits
- Advocate for improved access and resources for meeting the needs of the uninsured
- Work with policymakers to change health care policy for underserved patient population in community, state, country.

Dissemination to Stakeholders

- Clinic providers
- Clinic manager
- Major donors
- Primary care providers in the community
- Specialists serving this community
- Community leaders

Appendix A

Data Collection Form 1

SUBJECT NUMBER _____

SUBJECT'S CHARACTERISTICS					
Age (Birth date)					
Gender: M or F					
Education: Years completed					
Income: 100% below poverty level 200% below of poverty level					
English speaking					
Ethnicity					
VARIABLES	Date Visit: 1	Date Visit: 2	Date Visit: 3	Date Visit: 4	Date Visit: 5
Blood pressure:					
a. Systolic					
b. Diastolic					
Blood glucose: CBG					
a. Fasting					
b. Nonfasting					
c. Hg A1C					
Total Cholesterol					

DATA COLLECTION FORM 2.
 FLOW SHEET FOR TARGETED SERVICES AND REFERRALS
 SUBJECT _____

	Date Visit:1	Date Visit:2	Date Visit:3	Date Visit:4	Date Visit:5
CHARACTERISTICS					
Age					
Gender					
Education					
Income					
English					
Ethnicity					
VARIABLES					
PATIENT EDUCATION					
Consult Medication use Daily Aspirin					
Healthy Diet					
Regular Exercise					
Smoke Cessation					
REFERRALS					
Nutritionist					
Smoking Cessation Program					
Ophthalmologist					
Podiatrist					

Table 1.

Metabolic Syndrome Patient Visits September 01, 2007 to August 31, 2008.

Number of Visits/Pt	Number of Patients	Percent	Mean Visits Made	Standard Deviation
2	6	13.8		
3	12	27.3		
4	14	31.8		
5	12	27.3		
Total visits made=194	44	100.0	3.72	1.02

Table 2.

Comparison of Metabolic Syndrome Patients' Outcomes with ADA National Standards of Follow Up Visits

Patient Outcomes	National ADA Standards	Visit 2				Visit 3				Visit 4				Visit 5			
		n	%	Mean	SD	n	%	Mean	SD	n	%	Mean	SD	n	%	Mean	SD
SBP	≤ 130.0	44	100	140.1	24.8	37	84	133.70	29.13	27	61	137.66	18.55	13	29	136.46	17.25
DBP	≤ 80.0	44	100	84.2	16.3	37	84	79.57	17.36	27	61	80.93	10.25	13	29	81.38	10.78
HgbA1C	≤ 7.0	19	43	9.1	2.2	12	27	8.00	1.57	15	34	8.5	2.31	6	13	8.5	2.15
TotChol	≤ 200.0	10	23	186.6	33.3	4	9	182.75	60.74	10	23	177.90	43.37	7	15	201.57	47.47

Table 3.

Metabolic Syndrome Patients' Meeting ADA National Standards of Follow Up Visits

Patient Outcomes	National ADA Standards	Patients meeting National ADA Standards		Patients not meeting National ADA Standards		df	p
		n	%	n	%		
SBP	≤130	18	40.9	26	59.1	2.121	.606
DBP	≤80	17	38.6	27	61.4		
HgbA1C	≤7.0	6	13.6	38	86.4		
TC	≤200.0	3	6.8	41	93.2		

Table 4.

Comparison of Adults with Metabolic Syndrome Who Improved and Who Did Not Improve with Minimum of Two Follow Up Visits in One Year Using Independent t test and Chi Square

Patient Characteristics	P*	Total sample (N=44)		Improved on at Least One Metabolic Syndrome Indicator		Not Improved on Any of the Metabolic Syndrome Indicators	
		n	%	n	%	n	%
Age (in years)	.675	43	97.7	28	65.11	15	34.88
Gender	.239						
Female		27	61.4	16	57.1	11	73.3
Male		16	36.4	12	42.9	4	26.7
English Speaking	.167	26	59.1	16	61.5	10	83.3
Non English Speaking		12	27.3	10	38.5	2	16.7
Ethnicity	.193						
White		28	63.6	18	68.3	10	76.9
African-Amer**		2	4.5	1	3.6	1	7.7
Hispanic		5	11.4	3	10.7	2	15.4
Others		6	13.6	6	21.4	0	

p* is reported for t- test for age and p values for Chi Square tests for other characteristics (gender, language spoken, ethnicity)

** Too few patients of this ethnicity to test

Table 5.

Education Provided for Patients with Metabolic Syndrome Attending Community Clinic for Underserved Population

Education Provided	n	%
Medication Consultation	44	100.0
Daily Aspirin	14	31.82
Nutrition	15	34.09
Exercise	15	34.09
Smoking	2	4.55

Table 6.

Referrals received by Metabolic Syndrome Patients attending Community Clinic for Underserved Population

Types of Referrals	n	%
Nutritionist	2	4.55
Smoking Cessation Program	1	2.27
Ophthalmologist	2	4.55
Dentist	0	0.00
Podiatrist	1	2.27

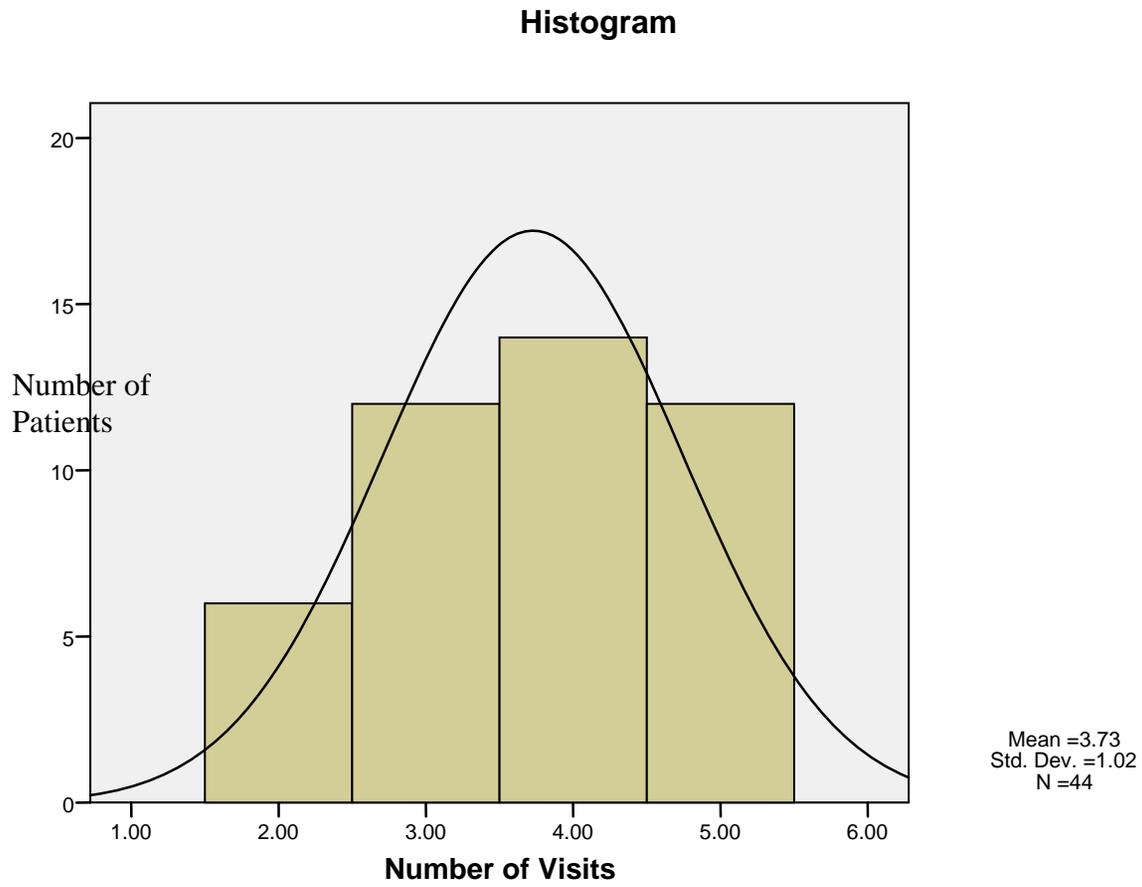


Figure 1.
Number of Visits of Metabolic Syndrome Patients in One Year Period in a Community Clinic.

Improved on at least one Metabolic Syndrome Indicator

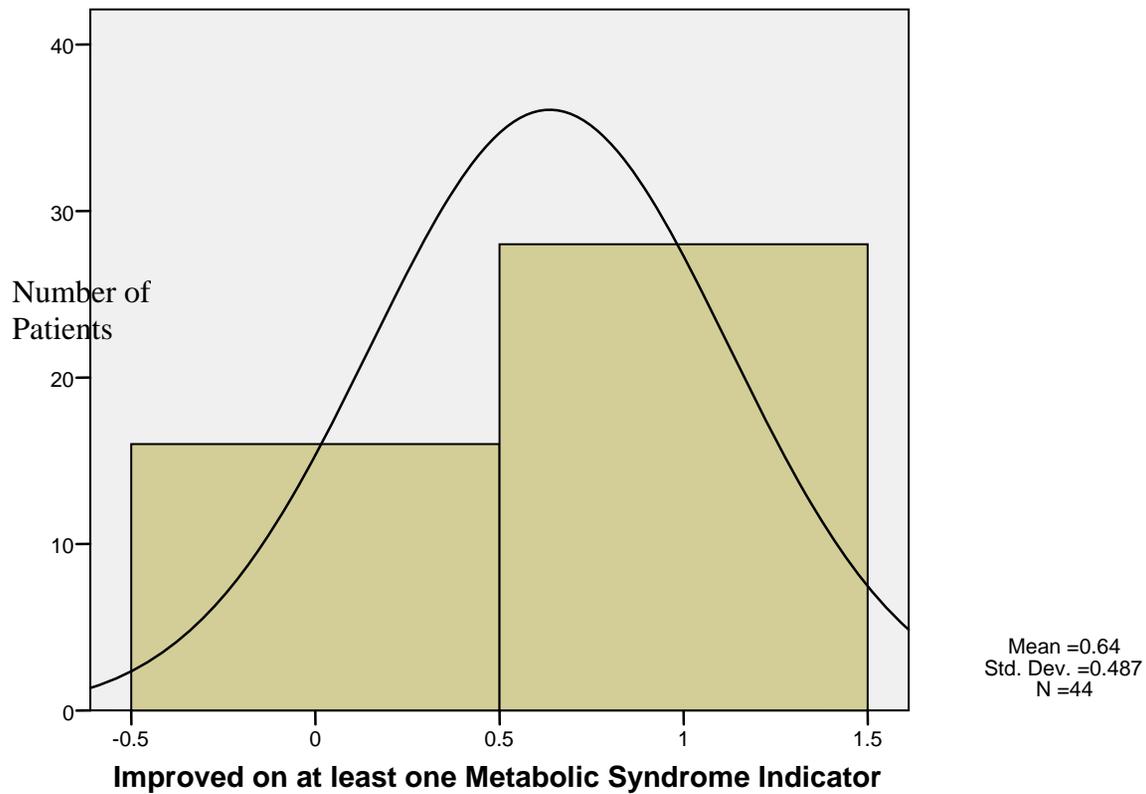


Figure 2.
Number of Patients Who Improved in at Least One Metabolic Syndrome Indicator

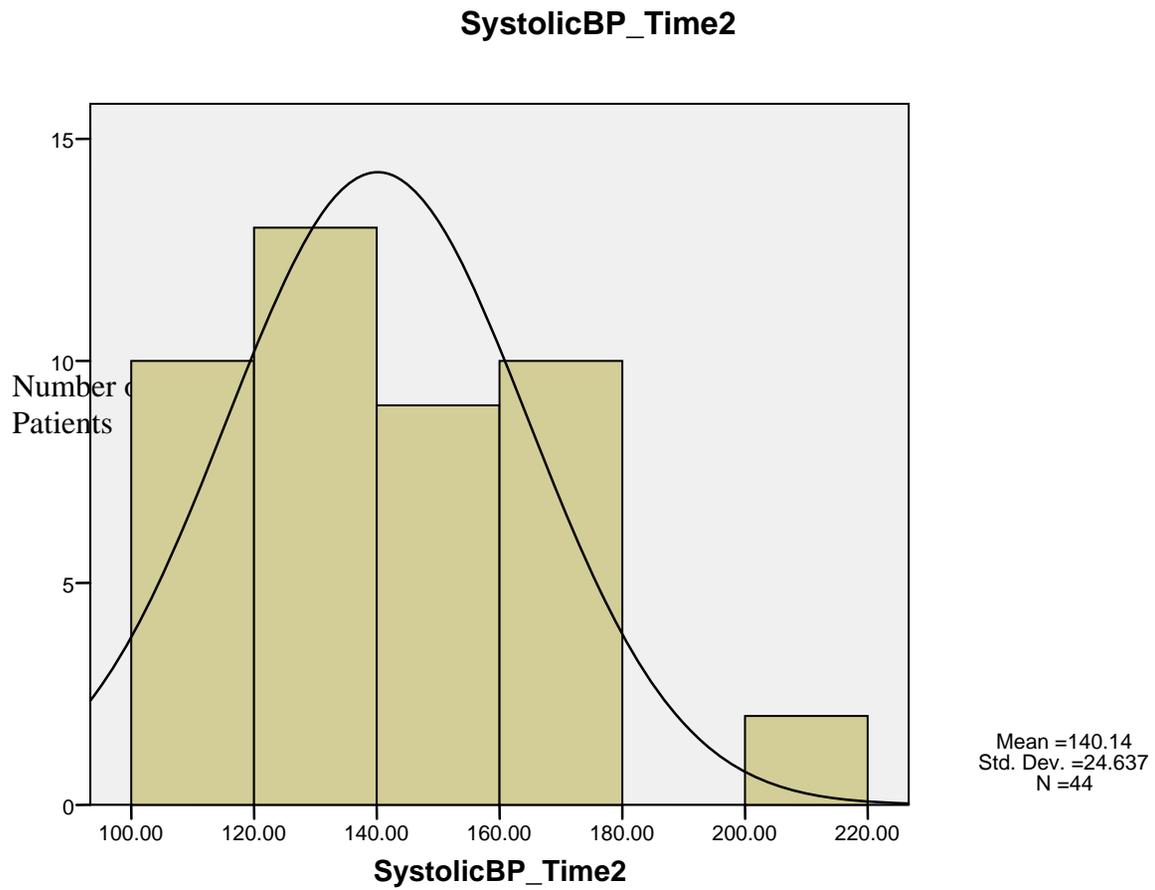


Figure 3.
Example of Improvement in Systolic Blood Pressure at Visit 2 comparing with visit 3.

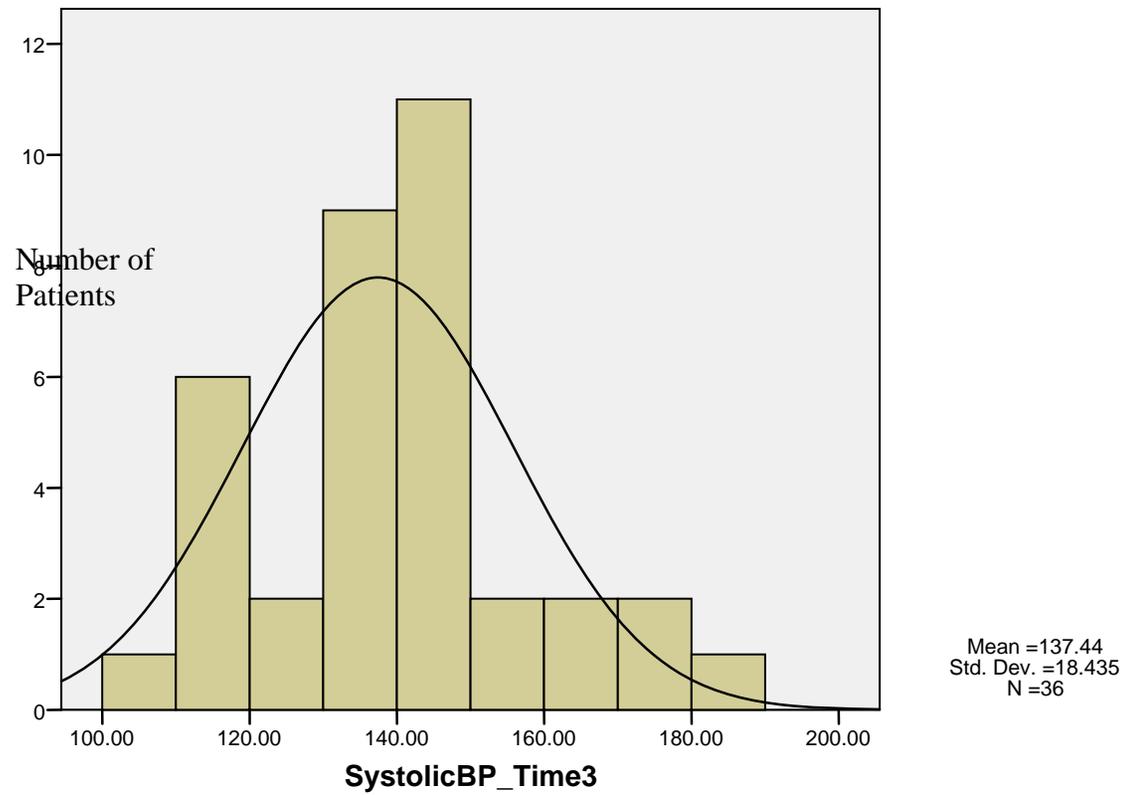


Figure 4
Example of Improvement in Systolic Blood Pressure at Visit 2 comparing with visit 3.

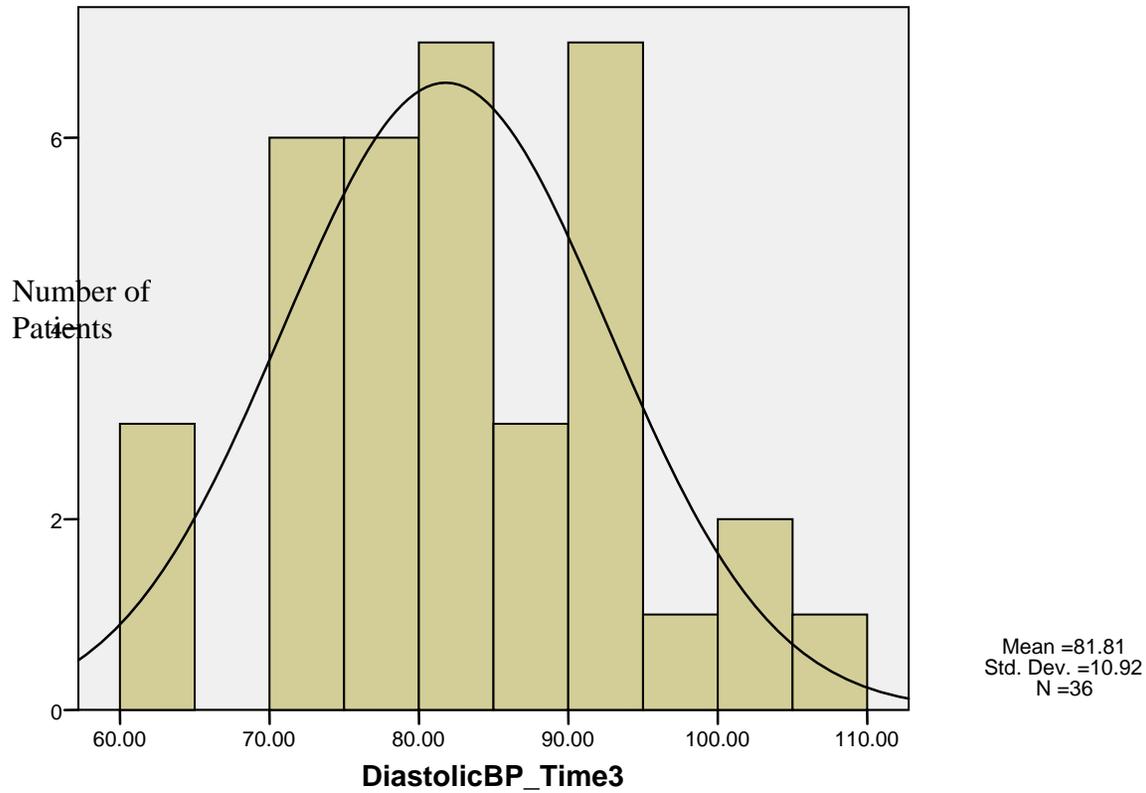


Figure 5
Example of Improvement in Diastolic Blood Pressure at Visit 3 in Comparison With Visit 4

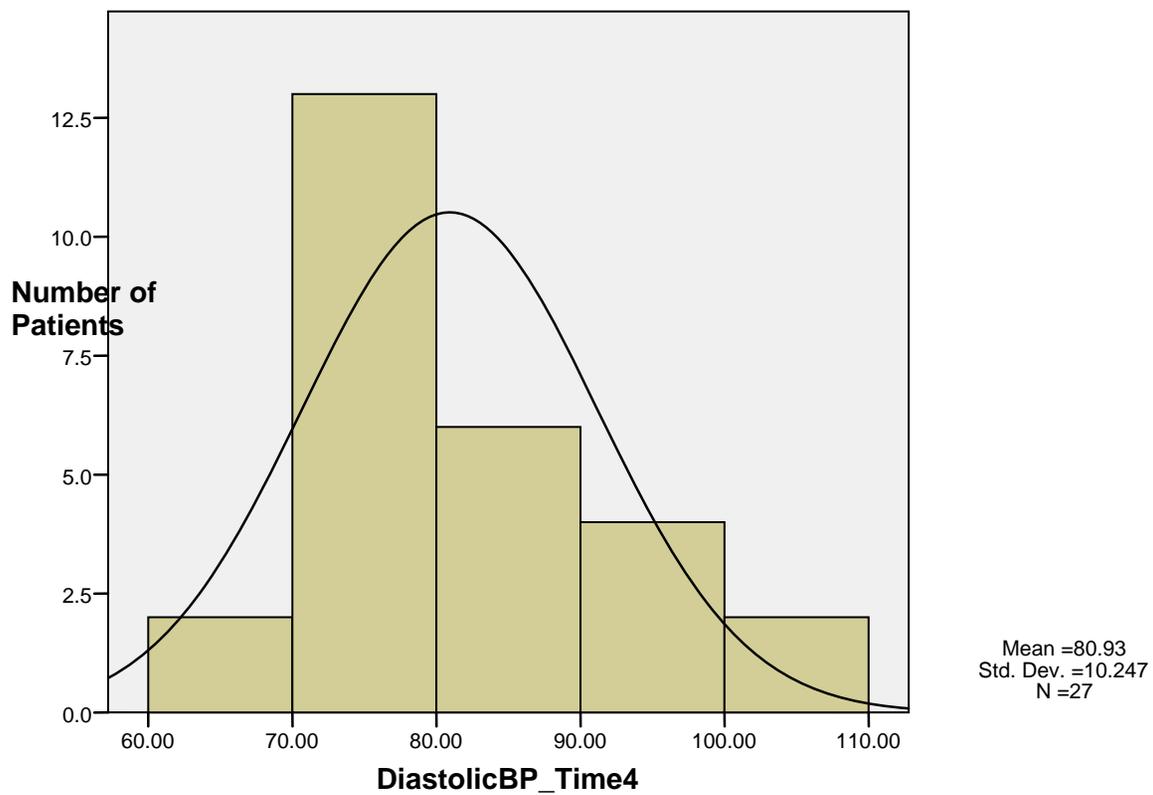


Figure 6
Example of Improvement in Diastolic Blood Pressure at Visit 3 in Comparison With Visit 4

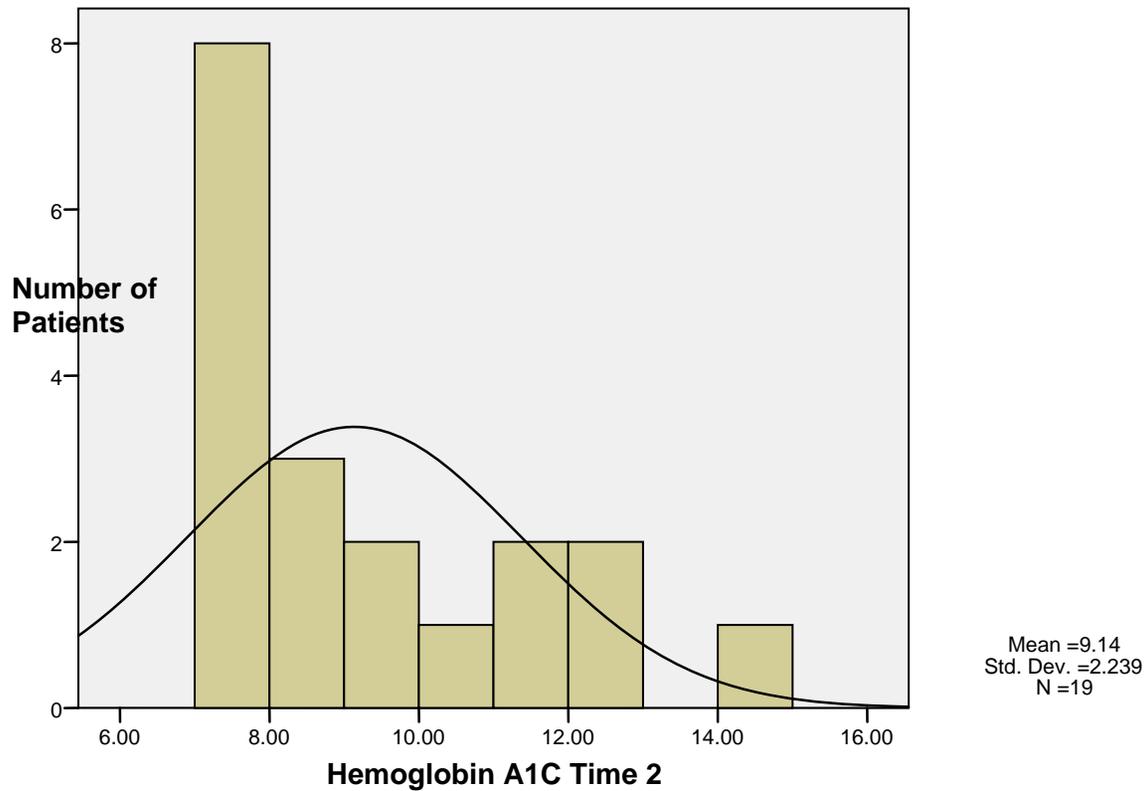


Figure 7.
Example of Improvement in Hemoglobin A1C at Visit 2 in Comparison With Visit 3

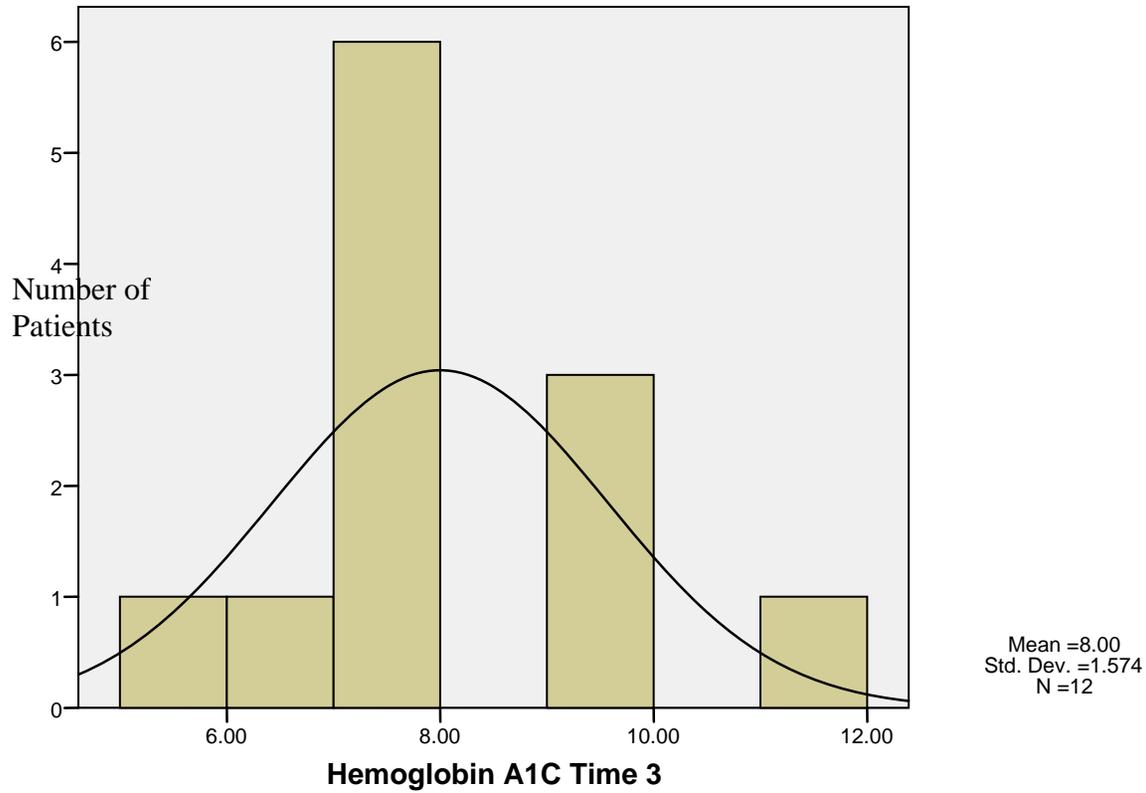


Figure 8
Example of Improvement in Hemoglobin A1C at Visit 2 in Comparison With Visit 3

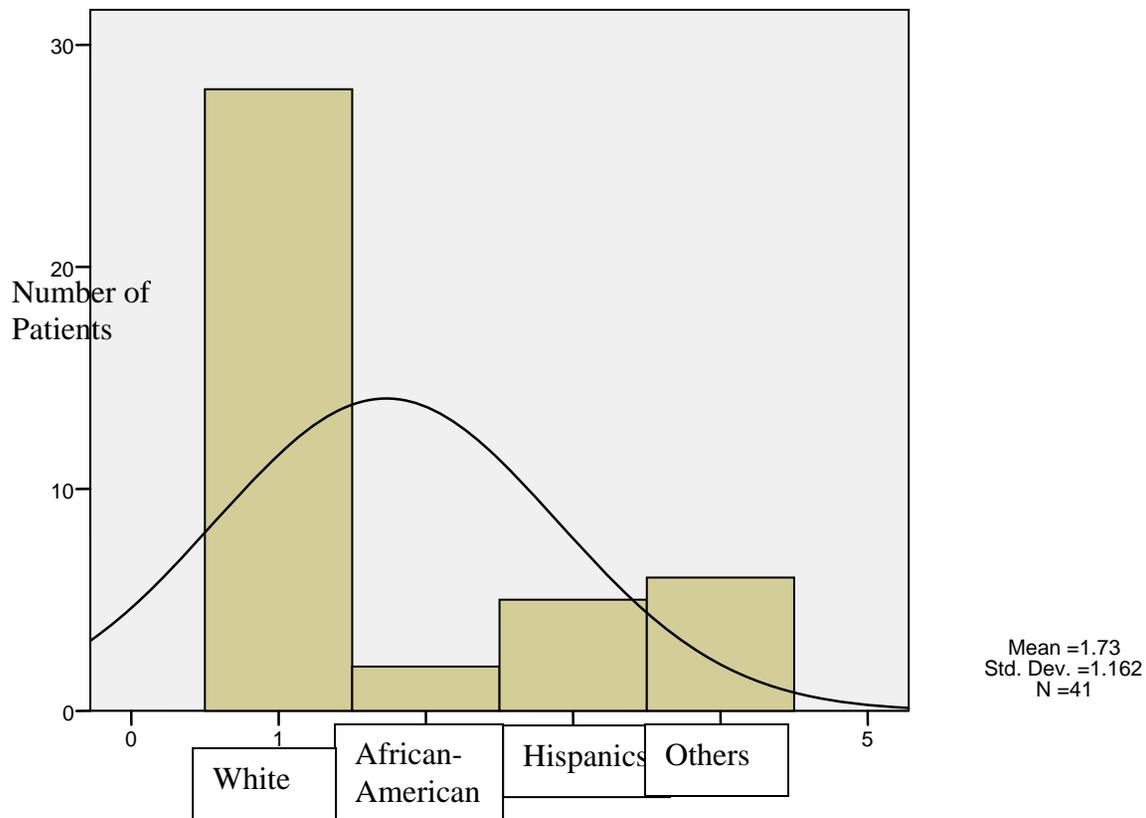


Figure 9
Example of Ethnicity Groups Who Improved in One or More of the Metabolic Syndrome Indicators

Not sure what this is ????

Running head: MEDICARE FOR ALL

Policy Analysis: Medicare for All

Rodica Malos

Oregon Health & Science University

Introduction

Nearly 46 million persons in the United States (US) did not have health insurance in 2004 and more than 31 million of America's workers were underinsured. Lack of health insurance coverage not only affects the financial well-being of individuals and families, but also the health care delivery system. The health care system is very fragile. The inefficiency of health care and the skyrocketing costs hurt everyone. The primary roadblock to major health care reform is financing concerns such as how much government, business, and the individual can afford to pay, who should bear the costs, and how health care costs can be controlled. US health care costs have been at crisis level for roughly 40 years, and they remain high for several reasons, including administrative overhead, high payments to providers, and the practice of defensive medicine (Brown, 2008).

The Context

Health insurance status is influenced by the political cultures, ethnic diversity, and economic development. The United States' public health system is characterized by quality problems, disparities across racial and socioeconomic groups, unclear accountability within a fragmented authority structure, the immense power of the insurance and pharmaceutical industries, the political fragmentation and ambivalence of the medical profession, the intimidation of politicians, and the erroneous media images of unsatisfied patients in universal systems (Kuttner, 2008). Health insurance status and socio-economic status are clearly related. Low-income Americans are at increased risk and many employed individuals also lack insurance coverage. Lower educational achievement is associated with lower income and employment without health benefits.

America's racial and ethnic minority populations are disproportionately without health insurance. For example those who self-identified as Spanish, Hispanic or Latino are twice as likely to be uninsured (34.2%) as the general population. In the US problems were confined to the lower class strata, a group that is not well supported in the political system. Family and age conditions have significant effect on medical service utilization. Geographic variables play a significant role in hospital service utilization. Both geographic and income variables also have significant impact on out-of-pocket expenses (Ruiz, 2007). Changing demographics and medical technology pose a cost challenge for every nation's system. America's medical culture has constructed a style of relying on specialized services and technology both increasing the health care cost (Brown, 2008). It is estimated that the millions of people without insurance in the United States cost an annual total of \$65 billion to \$130 billion. Relentless medical inflation has been attributed to many factors such as the aging population, the proliferation of new technologies, poor diet and lack of exercise, the tendency of supply of hospitals, tests, pharmaceuticals, medical devices, and novel treatments to generate its own demand, excessive litigation and defensive medicine, and tax favored insurance coverage (Kuttner, 2008). In the US the dominance of for-profit insurance and pharmaceutical companies, a new wave of investor-owned specialty hospitals, and profit-maximizing behavior even by nonprofit players raise costs and distort resource allocation. (Kuttner, 2008). New threats, including bioterrorism, have brought attention to weaknesses in the public health infrastructure and the need to reconsider how public health services are delivered (Gardner, 2006).

The United States is the only modern, industrialized country without some form of universal health care coverage (Blankenau, 2001). It did not develop national health

insurance in the first half of the 20th century when most industrialized countries adopted some form of universal health care. The US has flirted with the national health insurance several times in the first half of the century. The opponents attached the label of socialized medicine to national health insurance and conveyed negative perceptions (Blankenau, 2001). However, comprehensive reform is being debated again as we move toward the 2008 presidential election. The combined pressure of several stressors such as the increasing numbers of uninsured and underinsured, the resulting strain on the health care system, the business sector's dissatisfaction with the costs and quality of health care, and the budget pressures facing Medicaid and Medicare lead to prompt meaningful change.

At the state level, pressure to broaden coverage continues to build, with a few states following Massachusetts's lead and at least proposing universal coverage. Even more states are trying to expand health care coverage to all children. At the federal level, Congress continues to weigh alternative approaches while also struggling with the large deficit and calls to cut government spending. Underlying factors such as institutions, interest groups ideology, and class structure that drive the policy process cannot be ignored (Blankenau, 2001).

Problem Statement

In the US the uninsured population continues to grow and puts a strain on the health care system that ultimately results in increased health care costs for everyone. According to Frostin (2007) the percentage of the non elderly population (under age 65) with health insurance coverage continues to decline such that the uninsured population was 46.5 million in 2006. Being uninsured translates into serious health consequences, including a

higher risk of death. Increasing number of uninsured and underinsured patients postpone seeking medical treatment until their situation is emergent and whose care is therefore more expensive. Due to the absence of universal health insurance coverage the US substantially underperforms other countries on measures of access to care and equity in health care between populations with above average and below average incomes. Health care costs are high and continue to rise. Unaffordable health care jeopardizes Americans' health status and the nation's economic future. The growing numbers of uninsured, rising health care costs and concerns about the quality of health care focus the public's attention on reforming the health care system (Thompson, 2007).

Searching for Evidence

The remedy for the high medical costs and reduced access is health care reform. A wide range of physicians' organizations have been active in discussing the problems of the health care system and proposing solutions for "universal coverage" (Huebner et al, 2006). Many Americans lack both access to care and to information about costs and quality standards. The uninsured are less likely to get routine care and more likely to delay treatment, resulting in serious and costly conditions. All Americans pay for system inefficiencies and services for the uninsured. Their medical bills and insurance premiums are higher and they pay higher taxes. Providers treat uninsured patients, providing care for which they are not paid. Providers must increase costs to insured patients through higher charges to insurers to recoup their costs. The higher costs affect us all if one of us loses coverage, gets ill, or needs expensive treatment (Thompson, 2007).

Other nations ensure the accessibility of care through universal health insurance systems and through better ties between patients and the physician practices. Information

systems in countries like Germany, New Zealand, and the U.K. enhance the ability of physicians to monitor chronic conditions and medication use. The US can learn from what these physicians and patients have to say about practices that can lead to better management of chronic conditions and better coordination of care. For example in Taiwan, after the introduction of the national health insurance, life expectancy was increased even in health class groups that had higher mortality rates. The health disparity narrowed, reversing an earlier trend toward widening disparity. The national health insurance contributed to larger reductions in death from cardiovascular diseases, infectious diseases, and accidents in the lower health class groups. Universal national health insurance, financed by payroll taxes, subsidies, and individual premiums, commenced in Taiwan in 1995. Coverage expanded from 57% of the population before the introduction of national health insurance to 98% (Ven, Tsai, & Chung, 2008).

These countries also routinely employ non-physician clinicians such as nurses to assist with managing patients with chronic diseases. Those countries spend considerably less on health care per person and as a percent of gross domestic product than does the United States. These findings indicate that, from the perspectives of both physicians and patients, the US health care system could do much better in achieving better value for the nation's substantial investment in health (Davis et al, 2007).

If we don't treat and prevent illness, our whole community is going to suffer.

Okie (2007) stated that media reports regularly blame illegal immigrants for the worsening problems of the state's health care system although immigrants make up a minority of the uninsured. Katz (2008) mentioned that many counties across the United States are seeking their own solutions to the health care crisis due to lack of progress at

federal and state levels in reducing the number of uninsured Americans. The local efforts to achieve universal coverage often encounter substantial obstacles, including the loss of federal and state revenues that benefit the uninsured, limited authority to mandate insurance coverage, and the high cost of insurance plans. Addressing these problems may include instituting an “everybody pays” program, reducing or eliminating unnecessary services and improving access to care for the uninsured. Legislation in Massachusetts that passed in 2006 is a good example of the blend of strategies necessary to generate political consensus for large scale change. The Massachusetts’ plan is designed to achieve nearly universal coverage of state residents by requiring everyone to have health insurance and subsidizing it for those with a low income and requiring employers with more than 10 employees to either offer health benefits or pay a fee to the state for each worker.

Understanding how a particular reform will affect an already complex financing system is difficult to evaluate, even for health policy experts (Hoffman & Rowland, 2007). In the policy stream the debate is whether the reform should focus on cutting costs and consequently increase access or should access be the most important priority with cost being reduced by increased access. The US health insurance system during World War II, was founded on employer sponsored coverage, financed in part by large federal tax subsidies. The need for health care security for those outside of the labor force, particularly retirees, forged the political consensus needed to create the Medicare and Medicaid programs in 1965 (Hoffman & Rowland, 2007).

Policy Alternatives

Universal health insurance is considered the first alternative as the number of Americans without health insurance has grown substantially. The primary source of

health insurance for US workers and their families is through employers. Due to the significant decline in employer sponsored insurance many employees lost the health insurance. The February 2001 Population Survey indicates that nearly two thirds of employed persons who are uninsured work for an employer that does not offer health insurance. In 1993 President Bill Clinton proposed reform of the health care system, which would have created a system of universal health insurance (Oberlander, 2004). The majority of US physicians supported governmental legislation to establish national health insurance. In a survey of Massachusetts physicians, almost two-thirds (63.5%) of respondents indicated that a single-payer system would provide the best care for the most people for a fixed amount of money (Huebner, et al., 2006).

The second alternative is to provide direct financial assistance to employers or workers for purchasing more affordable insurance. According to Garson and Blumenthal (2007) the major stumbling block to providing insurance through small business is lack of resources. The government must develop a plan to provide direct financial assistance to employers or workers for purchasing insurance to make insurance more affordable to employers and workers and to increase coverage. Small businesses have less administrative infrastructure to manage insurance and have a high proportion of low-wage employees. The solution requires state subsidy for individuals or businesses desiring to purchase more affordable insurance available through pools. The plan would allow small businesses with 50 or fewer workers that do not offer health insurance today to choose from the same health plans offered to federal employees and receive a refundable 50 percent tax credit. Larger employers could also participate in the Congressional Health Plan. In addition, the federal government would pay 25 percent of

the premiums for uninsured persons between 55 and 64 years of age and 75 percent for the unemployed. The families of most of the uninsured have low-to-moderate incomes; nearly two thirds of these families make less than 200 percent of the federal poverty level. The plan to provide financial assistance includes a refundable tax credit of up to \$1,000 for a single person and \$3,000 for a family of four for the purchase of health insurance. (Thorpe, 2004). Strategies include providing new federal tax credits to small businesses to encourage them to offer health benefits and offering less costly state-sponsored health plans to small employers. Expanding purchasing options for small businesses includes allowing them to cover employees in a new large-group plan, a small-group purchasing pool, provide public funds for low-income workers to help them purchase employer-sponsored health benefits, and mandating that some or all employers offer health benefits to their employees (Hoffman & Rowland, 2007)

The third alternative is the redistribution of coverage through the expansion of Medicaid or the State Children's Health Insurance Program. The government can extend the coverage by Medicaid and the State Children's Health Insurance Program (SCHIP) to people who are currently ineligible for such coverage as single adults and childless couples living below the poverty line and parents with incomes of less than 200 percent of the poverty line. Extending public coverage to all low-income children and adults who earn less than 200% of the poverty level could cover nearly 30 million (64%) of the uninsured. Full federal funding is likely to result in higher rates of program enrollment. Congress will need to authorize grants to individual states, groups of states, or even portions of states to carry out any of a broad range of strategies to increase healthcare coverage (Price, 2007). Strategies include expanding Medicaid and SCHIP to cover more

of the low-income uninsured by raising the income eligibility levels and including adults who do not have children, expanding Medicare to cover some of the uninsured, such as those as young as age 55 or more of those who are disabled, or expanding Medicare to cover all of the uninsured. Expanding either Medicare or Medicaid would be relatively easy administratively, given its existing structure and demonstrated cost-efficiency compared to the private sector. Expanding public programs would also distribute public dollars more fairly by covering those not connected to the workforce (Hoffman & Rowland, 2007).

Medicare, Medicaid, and SCHIP already have mechanisms in place to enroll beneficiaries and pay providers, and could provide benefits to many more without incurring the start-up costs of a new program. For example, after SCHIP instituted new recruitment and retention strategies based on Medicaid's experience, enrollment improved in both programs. Strategies include expanding Medicaid and SCHIP to cover more of the low-income uninsured by raising the income eligibility levels and including adults who do not have children, expanding Medicare to cover some of the uninsured, such as those as young as age 55 or more of those who are disabled, or expanding Medicare to cover all of the uninsured.

Projected Outcomes

The outcomes of the universal health insurance include access to health insurance coverage or care for all, encouragement of initiatives to improve cost effectiveness as well as access, delivery system improvement to optimize patient-centered health, encouragement of efforts to improve quality of care, support for development of health information infrastructure as electronic health records, transparent data on cost and

quality, and secure exchange of health data among providers. The universal insurance coverage will support practices that can lead to better management of chronic conditions and better coordination of care and the provision of care that is safe and coordinated, as well as accessible, efficient, and equitable. It will need a phased approach, including short-term actions as well as plans to address more complex issues in the medium and long term. It will stop the loss of protection to qualifying families whose income suddenly declined by 20 percent or more, or whose out-of-pocket health costs in one year increased to 20 percent or more of their combined income for that year (Hacker, 2006)

The outcomes of providing direct financial assistance to employers or workers for purchasing insurance include making insurance more affordable to employers and workers thereby increasing coverage. This will promote the principle of shared responsibility among stakeholder to improve the health care system including personal accountability and a requirement for everyone to have health insurance. Employer-based insurance for small employers provide direction for more detailed health care reform planning. It also includes the role of employers in providing benefits and contributing to premiums and the role of insurance exchange and purchasing pool. It will make private coverage more affordable. The gaps will be eliminated by enabling more people to afford insurance in either the non-group or individual market or new group plans because workers change employers several times over the course of their lives, creating gaps in job-based coverage. Shifting the current tax advantages granted to businesses to individuals in the form of federal tax credits and deductions will also be helpful. A refundable tax credit applied toward the cost of premiums would help a greater number of people. If non-group coverage becomes more affordable, fewer employers may offer

health benefits, and the number of uninsured could increase. These proposals improve the portability of insurance, ensuring continuous coverage regardless of work situation, and they improve tax equity by shifting the tax benefits from businesses to individuals. Tax-advantaged health savings accounts might increase consumer choice because enrollees could choose any provider or health service when they use their own out-of-pocket dollars (Hoffman & Rowland, 2007). The success of this approach hinges not only on how generous the tax subsidy is, but also on the affordability of health plans.

The outcomes of the redistribution of coverage through the expansion of Medicaid or the State Children's Health Insurance Program include support for healthy kids as a "building block" for improved access. This alternative will assure expansion of eligibility for Medicaid and public subsidies for other low-income people in order to improve coverage. It will increase the importance of the use of realigned incentives to improve cost effectiveness and quality. Public program expansion helps expanding public coverage. Extending public coverage to all low-income children and adults could cover nearly 30 million (64%) of the uninsured. Given its existing structure and demonstrated cost-efficiency compared to the private sector, expanding either Medicare or Medicaid would be relatively easy administratively. Through this alternative the current inequity between poor parents and poor childless adults will be eliminated. Equity increases as more groups are included tying Medicaid eligibility requirements to income level alone, without regard to family status. Expanding public programs would also distribute public dollars more fairly by covering those not connected to the workforce. The degree of choice in providers could be directly or indirectly regulated and could be constrained as needed for cost containment (Hoffman & Rowland, 2007).

Evaluative Criteria

According to Collins (2005) relevance, progress, efficiency, effectiveness and impact can be applied as evaluative criteria to policy alternatives. The universal insurance coverage is relevant because it addresses the needs of all uninsured population, the rights and enumeration of the services accessible to all, and the consistency and continuity of services across the healthcare. It has a clear delineation of the quality expectations for services provided and freedom of choice with regard to healthcare providers and practitioners .

Universal insurance coverage has an impact on the standardization of health administration, documentation, reporting, and information management. It will eliminate the disparities in access to a common set of services and has a focus on public health, prevention, and early intervention. The universal insurance coverage has adequate and broad distribution of a variety of prepared qualified healthcare practitioners and providers. It has evidence-based and safe foundations for clinical practice and patient care (Porter, 2006). It would insure against major economic shocks stemming from unemployment, ill health, disability, and the death of a family breadwinner, and its benefits would be generous enough to help families truly get back on their feet (Hacker, 2006).

The second alternative of providing direct financial assistance to employers or workers for purchasing insurance addresses the needs of the individual and the family. These approaches could lower premiums and increase health plan choices by allowing small employers to band together. Some would allow insurance to be sold across state lines by overriding state insurance regulations. Costs would be borne largely by

employers or shifted to employees in the form of greater health care cost sharing, lower wages, or smaller workforces. The necessary government subsidies would be paid with public tax dollars. Tax subsidies for employer-sponsored coverage would favor those who work full-time in a business while providing little help to the self-employed and those not in the workforce, such as adult students, housewives, disabled persons, and early retirees. Choices among health plans, providers, and benefits would continue to vary by what employers can and choose to offer relative to costs.

The third alternative involves redistribution of coverage through the expansion of Medicaid or the State Children's Health Insurance Program and would be available to the majority of American families. It would build on, rather than supplant, existing social insurance programs and provide a flexible new platform for enhancing economic security in a world of rapidly changing risks. Although most families would be eligible, the program would be most generous for lower-income families, which have the fewest resources with which to weather economic shocks. Stop-loss insurance might also be used for coverage focused on particularly dramatic cases to minimize incentive problems and target those most in need.

Weighing the Outcomes.

Comparing the first alternative of universal health insurance with the second alternative to provide direct financial assistance to employers or workers for purchasing insurance the trades off will be between the outcomes of these two alternatives. The outcomes of the first alternative are access to health insurance coverage or care for all, improved cost effectiveness as well as access, optimized patient-centered health, improved quality of care, development of health information infrastructure as electronic

health records, transparent data on cost and quality, and secure exchange of health data among providers. The universal health insurance will create ways to support practices that can lead to better management of chronic conditions, better coordination of care, and the provision of care that is safe and coordinated, as well as accessible, efficient, and equitable. It also will provide short-term coverage and protection to qualifying families whose income suddenly declined by 20 percent or more. The second alternative's outcomes are promotion of the principle of shared responsibility including personal accountability, requirements for everyone to have health insurance, and shared responsibility among all stakeholders to improve the health care system. This second alternative will leverage available federal funds, support the importance of raising federal-level issues such as tax exemptions for employer-sponsored, and improve benefits to be provided to individuals, and realign incentives to improve cost effectiveness and quality. This alternative will lead to shifting the current tax advantages granted to businesses to individuals in the form of federal tax credits and deductions. The success of this approach hinges not only on how generous the tax subsidy is, but also on the affordability of health plans. Since 2000, for example, the proportion of employers offering health coverage to their workers has fallen by nearly 10% and the proportion that finance the full cost of coverage has declined, from 29% to 17% for individual health insurance, and from 11% to 6% for family health coverage. Even well-educated workers face a heightened risk of being displaced from employment without prospects for rapid reemployment at comparable levels of earnings. In addition, women are much more likely to be breadwinners than to stay home to care for children. Universal insurance

would not eliminate these growing gaps, but it would provide a crucial support where existing policies are most dramatically failing (Hacker, 2006).

Comparing the outcomes of the third alternative, the redistribution of coverage through the expansion of Medicaid or the State Children's Health Insurance Program shows that the eligibility for Medicaid and public subsidies for other low-income people to improve coverage will need to be expanded. The incentives will be realigned to improve cost effectiveness and quality. Public program expansion helps expanding public coverage. Extending public coverage to all low-income children and adults could cover nearly 30 million (64%) of the uninsured. Given its existing structure and demonstrated cost-efficiency compared to the private sector, expanding either Medicare or Medicaid would be relatively easy administratively. This alternative also eliminates the current inequity between poor parents and poor childless adults (Hoffman & Rowland, 2007).

Make the Decision

Due to higher prices, a higher demand for care and an aging population, the Centers for Medicare and Medicaid Services (CMS) has projected that health care costs will increase to more than \$4 trillion per year by 2017. Health care spending will increase by 6.7% a year, which is about three times the rate of inflation. Currently, the total health care expenditures exceeded \$2.1 trillions, or more than \$7,000 for every American man, woman, and child according to the Centers for Medicare and Medicaid Service (Kuttner, 2008). Medicare costs jumped a record 18.7%, driven by the new privatized drug benefit. Profits, billing, marketing, and the gratuitous costs of private bureaucracies accounted for \$400 billion to \$500 billion of the \$2.1 trillion. The more serious is the set of incentives produced by commercial dominance of the system. Total health care spending, now

amounting to 16% of the gross domestic product, is projected to reach 20% in just seven years (Kuttner, 2008). Gardner (2006) reports that Americans spend \$5,267 per capita on health care every year, almost two and half times the industrialized world's median of \$2,193. The extra spending comes to hundreds of billions of dollars a year. However, Americans have fewer doctors per capita than most Western countries and go to the doctor less than people in other Western countries. Americans get admitted to the hospital less frequently than people in other Western countries and are less satisfied with the health care than in other countries. American life expectancy is lower than the Western average. Childhood-immunization rates in the United States are lower than average. The underinsured postpone going to the doctor because they cannot afford it, and put off filling prescriptions. They have to raid their retirement accounts, run up credit-card balances, and borrow from friends and family to pay their medical bills. They are still in debt to doctors and hospitals, and medical bills force them to declare bankruptcy (McCanne, 2007).

Based on the outcomes from the first alternative, the universal insurance coverage policy will solve the uninsured problems. The proper term for this is "single-payer insurance" considered in Americans terms "Medicare for all". The universal insurance coverage policy will create access to health insurance coverage, will improve cost effectiveness as well as access to care, will promote delivery system improvement to optimize patient-centered health, and improve quality of care. The universal insurance coverage will provide support for the development of health information infrastructure as electronic health records and will lead to better management of chronic conditions and better coordination of care and the provision of care that is safe and coordinated, as well

as accessible, efficient, and equitable. Instead of dealing with 150 insurers, health care practitioners will deal with one insurer allowing them to spend more time with their patients. The universal insurance coverage would provide protection to qualifying families whose income suddenly declined by 20 percent or more (Hacker, 2006). The insurer is accountable to the legislature and the voters if the quality of coverage slides. Care is seldom denied because everybody knows the rules (Robinson, 2008). The government's role in the operation of the system would shift to ensuring information availability and transparency in payment. The simplified system would eliminate unnecessary and redundant administration. The government would maintain current employment-based subsidies and implement income-based redistribution for individuals with low incomes. A collective risk pool would reallocate funds so all can access appropriate care regardless of their individual health status. The carriers would facilitate payment, provide information, and respond to patient preferences. Patients and clinicians will make informed decisions about the care needed to achieve high-quality outcomes due to appropriate incentives (Luft, 2007).

The universal insurance coverage will allow equal access to health services for poor populations which is a comprehensive objective of any health reform. This health reform is possible through a segmented progressive social health insurance approach to assure universal coverage by expanding the population covered through payroll linked insurance and implementing a subsidized insurance program for the poorest populations—those who are not affiliated through formal employment. Universal insurance would cover only a limited, yet still meaningful, fraction of the losses suffered when families are hit with covered economic shocks, and it would aim to fill the gaps left by existing social

insurance programs, rather than to substitute for those programs. Universal insurance would thus be similar to private stop-loss insurance purchase by corporations to limit their exposure to catastrophic economic risks. Like Social Security and other social insurance programs, the subsidized health insurance improves health service utilization and reduces the financial burden for the poorest. Congress could resolve many of the issues confronting the health-care delivery system in the United States by providing universal insurance coverage "Medicare for all Americans." The Medicare for All Act (HR 2034 and S 1218) would provide universal health-care coverage to everyone within 5 years. Currently, Medicare successfully provides health insurance to 44.6 million aged and disabled beneficiaries. The administrative costs of the original Medicare program amount to less than 2% of total Medicare expenditures (Hacker, 2006). Universal coverage would be provided in an efficient manner and will save huge sums that our system wastes on administration, billing, marketing, profit, executive compensation, and risk selection (Kuttner, 2008). This is much more efficient than most private health insurance plans. Also, enrolling all Americans in Medicare ensures timely appointments with doctors since 97% of physicians accept Medicare patients. Coverage for preventive care will be included in this plan and could save the government millions of dollars. The use of more preventive services will allow patients to get care earlier when their health conditions are less advanced and less costly. It would be more costly not to provide health insurance to seniors and the disabled since they would join many of uninsured Americans by showing up in hospital emergency rooms, which everyone agrees is the most costly means of providing health care. The goal of this policy is to reduce costs and improve the quality of care that people receive. The policy also gives people the option to

choose between a private health insurance and the insurance that federal employees receive (Becerra, 2008).

There are several ways for Congress to ensure that Medicare is a more efficient program that provides quality health care and ultimately improved value. This improvement in value will help to slow the rapid escalation in Medicare spending. If physicians improve value for patients, they will be able to credibly engage with Medicare and health plans with contracting and reimbursement practices that reward such value. Improving value for patients is clearly the only valid goal for ethical reasons. It is also the only goal that aligns the interests of patients, physicians, health plans, employers, and government. Also, negotiating Medicare drug prices would greatly reduce the cost of prescription drugs in the Medicare program. Success could cement a new understanding of government's role not as a guarantor of easy living irrespective of striving but as an insurer of basic decency when self-reliance fails (Bloche, 2007).

Despite our crisis of escalating costs, dwindling insurance coverage, and deteriorating conditions of medical practice, true national health insurance that would not rely on private insurer remains at the fringes of the national debate. With the 2008 elections, the topic of health care in America has already emerged as a top political platform issue. It is critical that we take action now, with an estimated 47 million uninsured people in the United States, and overwhelming evidence that the uninsured have less access to care and poorer health outcomes than the insured.

References

- Becerra, X. (2008). Health care reform: an interview with Congressman Xavier Becerra. *Journal of the American Dietetic Association*. 108(1):31-2.
- Blankenau, J. (2001). The Fate of National Health Insurance in Canada and the United States: A Multiple Streams Explanation. *Policy Studies Journal*. 29(1):38-55.
- Bloche, M. G. (2007). Health care for all?. *New England Journal of Medicine*. 357(12):1173-5.
- Brown, L. D. (2008). The amazing non-collapsing U.S. health care system--is reform finally at hand?. *New England Journal of Medicine*. 358(4):325-7.
- Collins, T. (2005). Health policy analysis: a simple tool for policy makers. *Public Health*. 119;192-196.
- Comparison of Oregon Health Care Proposals Included in SB 329A and SB 27A
 Accessed from http://www.census.gov/hhes/www/cpstc/cps_table_creator.html
 <Feb. 15, 2006>.
- Davis, K.C., Schoen, S. C., Schoenbaum, M. M., Doty, A. L., Holmgren, J. L., Kriss, and Shea, K. K. (2007). Mirror, Mirror on the Wall: An International Update on the Comparative Performance of American Health Care. *The Commonwealth Fund*. Retrieved February 09 available at http://www.commonwealthfund.org/publications/publications_show.htm?doc_id=482678
- Fronstin, P. (2007). Sources of health insurance and characteristics of the uninsured: analysis of the March 2007 Current Population Survey. *EBRI Issue Brief*. (310):1-33.
- Garson, A. Jr., & Blumenthal, D. (2007). State-federal partnerships for access to care: An end and a means. *JAMA*. 297(10):1112-5.

- Hacker, J. S. (2006). Universal Insurance: Enhancing Economic Security to Promote Opportunity. Retrieved February 29, 2008. Available online at http://www.brookings.edu/papers/2006/09useconomics_hacker.aspx
- Hadley, J., & Holahan, J. (2004). The Cost of Care for the Uninsured: What Do We Spend, Who Pays, and What Would Full Coverage Add to Medical Spending? *An Issue Update, Kaiser Commission on Medicaid and the Uninsured*.
- Hoffman, C., & Rowland, D. (2007). Covering America's uninsured. *American Journal of Nursing*. 107(4):75-9.
http://www.oregon.gov/OHPPR/HPC/docs/2007/OHPR_leg_presentations.pdf
- Huebner, J., Agrawal, J.R., Sehgal, A.R., Jung, P., Hedgecock, J., Simon, S.R. (2006). Universal health care and reform of the health care system: views of medical students in the United States. *Academic Medicine*. 81(8):721-7.
- Kaiser Commission on Medicaid and the Uninsured, Key Facts, *The Uninsured and Their Access to Health Care, January 2003*.
- Katz, M. H. (2008). Golden gate to health care for all? San Francisco's new universal-access program. *New England Journal of Medicine*. 358(4):327-9.
- Kuttner, R. (2008). Market-based failure - a second opinion on U.S. health care costs. *New England Journal of Medicine*. 358(6):549-51.
- Luft, H. S. (2007). Universal health care coverage: a potential hybrid solution. *JAMA*. 297(10):1115-8.
- McCanne, D. (2007). Consumer reports on the uninsured. Are you really covered? Why 4 in 10 Americans can't depend on their health insurance. Retrieved February 28, 2008 available at http://www.pnhp.org/news/2007/august/consumer_reports_on_.php

- McGinnis, J., Williams-Russo, P., Knickman, J. (2002). The Case for More Active Policy Attention to Health Promotion. *Health Affairs* 21(2):78-93.
- Oberlander, J. (2004). Tilting at windmills: health reform and the 2004 US presidential election. *Canadian Medical Association Journal*. 171(9):1035-6.
- Okie, S. (2007). Immigrants and health care—at the intersection of two broken systems. *New England Journal of Medicine*. 357(6):525-9.
- Porter, M. E., Teisberg, E. O. (2007). How physicians can change the future of health care. *JAMA*. 297(10):1103-11.
- Porter, T. (2006). Can American healthcare coverage catch up?. *Nursing Management*. 37(9):64.
- Price, T. (2007). A new solution may modify healthcare. *Medical Laboratory Observer*. 39(3):68.
- Reischauer, R. D. (2007). Benefits with risks--Bush's tax-based health care proposals. *New England Journal of Medicine*. 356(14):1393-5.
- Ruiz, F., Amaya, L., Venegas, S. (2007). Progressive segmented health insurance: Colombian health reform and access to health services. *Health Economics*. 16(1):3-18.
- Robinson, S. (2008). 10 Myths About Canadian Health Care, Busted. Accessed from http://www.pnhp.org/news/2008/february/10_myths_about_canad.php
- Summary of Findings from the 2004 Oregon Population Survey. Accessed from <http://www.oregon.gov/OHPPR/RSCH/docs/2004HealthInsuranceReportFinalWeb.pdf>
- Thompson, J.A., Lee, V. (2007). The effect of health insurance disparities on the health care system. *AORN Journal*. 86(5):745-56.
- Thorpe, K. E. (2004). Protecting the uninsured. *New England Journal of Medicine*. 351(15):1479-81.
- Wen, C.P., Tsai, S.P., Chung, W.S. (2008). A 10-year experience with universal health

insurance in Taiwan: measuring changes in health and health disparity. *Annals of Internal Medicine*. 148(4):258-67.

Running head: INDEPENDENT CASE REPORT

INDEPENDENT CASE REPORT

RODICA MALOS

OREGON HEALTH & SCIENCE UNIVERSITY

Description of the problem

Two-third of the patient population, seeking care at Portland Adventist Community Service (PACS) suffers from uncontrolled metabolic syndrome but it is unknown how many of these patients make the recommended changes in their lifestyle and how many adhere to their prescribed treatment and follow-up visits for their syndrome. Patients fail to use the medicine as prescribed and to return to the clinic for follow up care after the care is initiated by the practitioners. Unfortunately the delay in care results in complications from the metabolic disorder which increases the complexity and severity of their health care needs.

Description of the population affected by the problem

Underserved patient population with uncontrolled diabetes, hypertension, and dyslipidemia who do not receive care for their health conditions due to their lack of access to the health care system wait until they get complications from their untreated chronic illnesses and go to Emergency Department (ED) to receive care. After discharge, the Hospital refers them to PACS Clinic hoping to break the cycle of using the ED a more expensive option. Most of these patients need follow-up visits for interventions and treatment to manage their diseases to prevent complications from the syndrome and premature death.

Epidemiology of the problem.

It is estimated that 47 million Americans have metabolic syndrome with risk factors for cardiovascular (CV) disease, stroke, chronic kidney disease, and type 2 diabetes. The prevalence rate increases with age, degree of obesity, level of hyperglycemia, and the presence of hypertension, high Low Density Lipoprotein (LDL), low High Density Lipoprotein (HDL), high triglycerides (Israili, Lyoussi, Hernandez-Hernandez & Velasco, 2007). Individuals with the metabolic syndrome have significantly higher risk for heart disease (2- to 3-fold), stroke (2-fold), and diabetes (5-fold) as well as all-cause mortality (Israili, et al., 2007).

Portland Adventist Community Service Organization.

PACS is a private, not-for-profit service organization that started in 1934 during the depression days for the nation and addresses the needs of below poverty level and desperate

families and individuals in community. Every year between 1,500- 2,000 uninsured patients seek care at this clinic. The primary objective for PACS clinic is to provide open, accessible private care at the community level for those who have slipped through the cracks in governmental programs. All laboratory, radiology, and emergency services are facilitated by Adventist Medical Center, Portland. The Family Health Center works closely with Adventist Medical Center, Oregon Health & Sciences University and other specialists willing to provide free primary medical care to persons of restricted income with no access to health care.

The leadership role of DNP student

The role of the DNP student is to develop a conceptual framework and integrate theories that predict behavior changes and develop effective intervention program to prevent and reduce risk factors for metabolic syndrome in patient population suffering from the syndrome. The DNP student integrates lifestyle changes intervention program with a more aggressive therapeutic approach to simultaneously treat high blood sugar, high blood pressure, obesity, and lipid disorders to prevent the complications from the metabolic syndrome.

Outcomes

The desired outcomes for this project are to reduce the risk factors of the metabolic syndrome by obtaining the following laboratory results: fasting plasma glucose < 110 mg/dL; HgA1C < 7 mmol/L; triglycerides < 150 mg/dL; low high-density lipoprotein cholesterol (HDL-C) > 40 mg/dL; TC < 200 mg/dl; LDL-C < 100 mg/dl; blood pressure < 130/80 mmHg.

The purpose of this project is to determine the effect of the intervention program for medicine use and follow up visits in treating the metabolic syndrome in underserved patients at PACS clinic. The clinical inquiry question is “ What is the effect of the 12 weeks intervention

program for medicine use and follow-up care in patients from PACS clinic who suffer from metabolic syndrome (hypertension, hyperglycemia, dyslipidemia) comparing with the patients who do not participate in a 12 weeks intervention program for medicine use and follow up visits for care for their metabolic syndrome?''.

Conceptual framework

A Conceptual Framework (CF) is used for developing behavioral interventions to reduce the risk factors in patients with metabolic syndrome. The Self Efficacy Theory (SET) model is used to translate research into practice to direct care motivating individuals to participate in diseases management activities such as medicine use and follow up visits focusing on behavior change. Self-efficacy is the belief that one can carry out a behavior necessary to reach a desired goal and achieve an expected outcome. SET is a middle range theory developed by Bandura, Adams, and Beyer in 1977 and derived from social cognitive theory. Social cognitive theory is based on the relationships between a triad of behavior, cognitive and environmental influences (Peterson & Bredow, 2009).

The CF is used to define the concepts as metabolic syndrome and the risk factors that exacerbate the syndrome, the components used for the intervention program based on SET model, and the proposed outcomes. Metabolic syndrome is conceptually defined as a cluster of metabolic risk factors for atherosclerotic cardiovascular disease (ASCVD). The most widely recognized of the metabolic risk factors are atherogenic dyslipidemia, elevated blood pressure, and elevated plasma glucose (Grundy, Cleeman, Daniels, Donato, Eckel, Franklin, Gordon, Krauss, Savage, Smith, Spertus, Costa, 2005). The atherogenic dyslipidemia consists of elevations of serum total apolipoprotein B (apoB), triglycerides, small particles in low density lipoprotein (LDL) and low levels of high density lipoproteins (HDL). An elevated glucose can be

in the range of impaired fasting glucose (IFG), which is called prediabetes, or at the level of diabetes. Other risk factors are physical inactivity, advancing age, endocrine dysfunction, hormonal imbalance, smoking, high level of stress, alcohol intake, and genetic or ethnic predisposition. Operationally, the risk factors that exacerbate the metabolic syndrome are increased serum triglyceride > 150 mg/dl, reduced HDL cholesterol (HDL-C < 40 mg/dl), elevated blood pressure $> 130/85$, and elevated glucose > 110 mg/dl, a prothrombotic state characterized by elevations of plasminogen activator inhibitor-1 and fibrinogen, and a proinflammatory state (Grundy, 2008).

Components of SE Intervention and Outcomes

Interventions to reduce the risk factors for the metabolic syndrome are based on the four information sources of the SET model: 1) Enactive attainment- actual performance- the most influential on self-efficacy and ability to perform.; 2) Vicarious experience- watching someone similar perform the target behavior; 3) Verbal persuasion- verbally encouraging the individual by telling them they are capable; 4) Physiological feedback or level of arousal when performing a behavior. Increasing self efficacy influences behavior change and will impact participation in intervention program as measured by the outcomes variables of medicine use and follow up visits. Increased self-efficacy will increase adherence to medicine use, self-care behaviors and will decreased physical and psychological symptoms. In order to modify medicine use in the context of behavioral interventions goal setting, self-monitoring, stimulus control, problem solving, management of high-risk situations, and relapse prevention are used. The intervention program based on SET model is presented in figure 1. After 12 weeks of the intervention program patients are expected to have reduced blood pressure, reduced total cholesterol (TC), reduced LDL-C and triglycerides, increased HDL-C, reduced fasting blood glucose and reduced

Hg A1C. Over time the patients, also, expect to have less signs and symptoms from untreated hypertension, diabetes, and dyslipidemia as shortness of breath, chest pain, headache, neuropathy, skin infections, exercise intolerance, fatigue, and edema.

Review of the literature

The metabolic syndrome is defined by the presence of high glucose levels, and high triglycerides and high blood pressure and is significantly associated with a high risk of all-cause mortality, regardless of the other additional metabolic syndrome component involved (Guize, Thomas, Pannier, Bean, Jago & Benetos, (2007). The results from a study showed that those with metabolic syndrome had a 22 percent higher risk of dying compared to those without metabolic syndrome. Mortality is 82 percent higher among patients with both elevated fasting blood sugar and hypertension compared to those with neither condition (Guize, Thomas, Pannier, Bean, Jago & Benetos, 2007).

Metabolic syndrome, also, was a significant predictor of Heart Failure (HF), independent of established risk factors for HF including myocardial infarction. This implies that metabolic syndrome provides important risk information beyond that of established risk factors for HF. HF is a major cause of morbidity and mortality. The predominant causes of HF are hypertension and coronary heart disease. Metabolic syndrome have direct myocardial effects in addition to their atherogenic effects, as insulin resistance has been related to both left ventricular systolic and diastolic dysfunction, as well as left ventricular remodeling (Ingelsson, Arnlov, Lind & Sundstrom, 2006)

The lifestyle changes will produce a reduction in all of the metabolic risk factors simultaneously. If lifestyle changes are not sufficient, then drug therapies for abnormalities in the individual risk factors are indicated. Concentrated preventive action should be targeted to control

all the features of the metabolic disorder (Grundy, Cleeman, Daniels, Donato, Eckel, Franklin, Gordon, Krauss, Savage, Smith, Spertus & Costa, 2005).

Integrated therapeutic approach is required to simultaneously treat high blood sugar, high blood pressure, obesity, lipid disorders to fully protect cardiovascular, cerebrovascular and renal systems (Israili et al 2007). Goldstein et al (2006) stated that the management of individual components of the metabolic syndrome, including lifestyle measures and pharmacotherapy are recommended in the National Cholesterol Education Program ATP III and the JNC 7. Lifestyle management should include exercise, appropriate weight loss, and proper diet, no alcohol, no smoking, regular exercise daily, and stress management. The major lifestyle interventions include increased physical activity, modification of an atherogenic diet, and weight loss in overweight or obese subjects (Guize, Thomas, Pannier, Bean, Jago & Benetos, 2007).

Identification and modification of lifestyle risk factors associated with the syndrome is important for its effective prevention and for reducing the risks of CVD and diabetes mellitus in this population. Proper use and adherence to pharmacologic treatment is necessary to meet the goals for blood glucose, lipid, and blood pressure control, thus reducing the risk of future adult cardiovascular complications in patients with metabolic syndrome (Sanders, Lubsch & West, 2006). The results of a recent intervention trial in a predominantly middle-aged population has shown that lifestyle intervention, focusing on physical activity and weight reduction, can reduce the development of the metabolic syndrome in subjects with impaired glucose intolerance (Wannamethee, Shaper & Whincup, 2006).

Hypertriglyceridemia represents the component of the metabolic syndrome most strongly associated with a history of myocardial infarction and stroke. Fenofibrate therapy results in significant reductions in fasting triglyceride concentrations and has been shown to reduce

fibrinogen and C-reactive protein in inflammatory mediators and reduction of cardiovascular events (Rosenson, Wolff, Huskin, Helenowski, Rademaker & Fenofibrate, 2007).

Metformin therapy reduced the development of the syndrome and the lifestyle intervention as the initial approach to prevent metabolic syndrome. The beneficial effect of lifestyle intervention on the metabolic syndrome components provides important evidence of the value of this approach to those with blood pressure, weight, and lipid disturbances in general (Orchard, Temprosa, Goldberg, Haffner, Ratner, Marcovina & Fowler, 2005).

The treatment of elevated blood pressure substantially improves long-term morbidity and mortality. Hypertension is known as a major determinant of micro- and macrovascular disease in type 2 diabetes (Monami, Lambertucci, Ungar, Pieri, Masotti, Marchionni & Mannucci, 2006). Atorvastatin therapy reduced the risks of cardiovascular, coronary and cerebrovascular events, and the risk of congestive heart failure requiring hospitalization. A broad range of clinical trial data confirm the important degree of cardiovascular risk reduction attained with atorvastatin therapy in patients with diabetes and/or metabolic syndrome (Arca, 2007).

For treatment of hypertensive patients, the Angiotensin Converting Enzyme (ACE) inhibitors or Angiotensin Receptor Blockers (ARBs) are the drugs of choice, unless contraindicated. Diuretics (at low dose) and calcium channel blockers have been used effectively. The [beta]-blockers can be used in certain cases. For LDL-C reduction, the standard LDL-lowering drugs are statins, ezetimibe, and bile acid sequestrants. Other drugs that can produce moderate reductions of LDL-C are nicotinic acid and fibrates. If diabetes develops the oral agents or insulin are used to treat hyperglycemia. Most individuals with the metabolic syndrome exhibit a prothrombotic state characterized by elevations of plasminogen activator inhibitor-1 and fibrinogen. The use of low-dose aspirin or clopidogrel is recommended for

patients with the metabolic syndrome and anti-inflammatory drugs for the proinflammatory state.

The effectiveness of behavioral interventions to reduce the risk factors of metabolic syndrome may be mediated by increasing participants' adherence to the medicine use and follow up visits guidelines. However it was found in a study that follow-up was not effective for long-lasting changes, even though patients participated in an short-term intervention program. Although most of life style change intervention were found effective in achieving short-term adherence the evidence is limited regarding specific strategies that are most helpful for the long-term maintenance of lifestyle changes (Fappa, Yannakoulia, Pitsavos, Skoumas, Valourdou & Stefanadis, 2008).

Studies showed the lack of understanding of the genetic and metabolic contributions to the causation of the syndrome stands in the way of developing new therapeutic approaches. Further clinical researches are needed to better understand pathophysiology from the standpoint of genetics, molecular biology, and cellular signaling. There is a need for significant improvement in developing tools to assess short-term risk for ASCVD and diabetes in patients with the metabolic syndrome. Attention must be given to the metabolic risk factors, beyond lifestyle therapies directed toward underlying risk factors,. If ASCVD or diabetes is present, then drug therapies for risk factors is required (Grundy, Cleeman, Daniels, Donato, Eckel, Franklin, Gordon , Krauss, Savage, Smith, Spertus, Costa, American Heart Association, National Heart, Lung, Blood Institute, 2005).

Gaps and critique

Low adherence to prescribed medical interventions is an ever present and complex problem, especially for patients with a chronic illness. In complex treatment plans, as is the case in metabolic syndrome, a possible way of helping people being adherent is helping them making more explicit their own priorities. It is an important to explore the patient's expectations towards the disease and its treatment and translating these individual expectations to realizable and realistic objectives for the patient (Wens, Vermeire, Royen, Sabbe & Denekens, 2005). Further

research is needed to evaluate a range of communication strategies between health professionals and patients in the context of structured, tailored metabolic syndrome interventions for translating recommendations to everyday behavior modification program (Fappa et al, 2008).

The evidence, however, is limited and it lacks the respective attention to specific behavioral or motivational factors in helping patients to adhere to the multifaceted lifestyle changes. The intervention program and follow up care to manage their health conditions is very difficult for underserved patient population due to the absence of health insurance coverage. The underserved population does not have access to care. Health care costs are high and continue to rise. Unaffordable health care jeopardizes patients' health status (Tompson, 2007). More high quality studies are needed to assess these aspects and systematic reviews/meta-analyses are required to study the effects of adherence in enhancing the effects of interventions for underserved patient population. Follow-up in a multidisciplinary team might help to influence behavior changes to increase adherence to medicine use and self management of chronic diseases as metabolic syndrome.

In improving behavior changes and adherence for individual patients, electronic monitoring systems can be useful. Similar electronic monitoring systems for insulin administration could help healthcare providers determine patients needing additional support (Cramer, 2004). The patients' own knowledge, ideas and experiences, as well as those of family members and friends, have also been shown to correlate with behavior changes in medicine use and follow up care for diseases management. Although we know that people do not take their medications consistently, we do not know specifically why they have done so. To better understand medication-taking behavior, researchers need to examine the patient's perspective. Consequently, future research needs to investigate a patient's decision-making process and the

reasons for those decisions (Morris & Schulz, 1992).

Summary

It has been demonstrated that the modification of several risk factors of metabolic syndrome will reduce the risk for ASCVD and all-cause mortality. The critical challenge is how the risk factors can be modified at both clinical and public health levels. It is difficult to place prevention on political agendas because of the chronicity of the syndrome. It is important to examine each of the major risk factors and use intervention program to reduce them simultaneously (Grundy, 2008).

The DNPs must develop theories using conceptual framework that address the adherence to the program intervention and self management of patients' chronic illnesses. The DNPs need to influence the policymakers in developing policies that will address health promotion and include intervention programs for diseases prevention in order to enhance the effects of interventions (Heisler, Vijan, Anderson, Ubel, Bernstein & Hofer, 2003). The Self Efficacy Theory must be used in combination with other theories to influence patients to change their behavior. As a framework for organizing health care interactions, the patients' agenda is the fundamental aspect of health care (Bissell, May & Noyce, 2004).

Other resources of evidence showed that the adherence to the intervention programs must be reconceptualized and its research reoriented to study medication usage and related health behaviors outside the clinic (Trostle, 1988). Interventions outcomes, treatment goals and strategies are associated with higher patients' self-efficacy and assessments of their self-management leads to improved patient outcomes (Heisler, Vijan, Anderson, Ubel, Bernstein & Hofer, 2003).

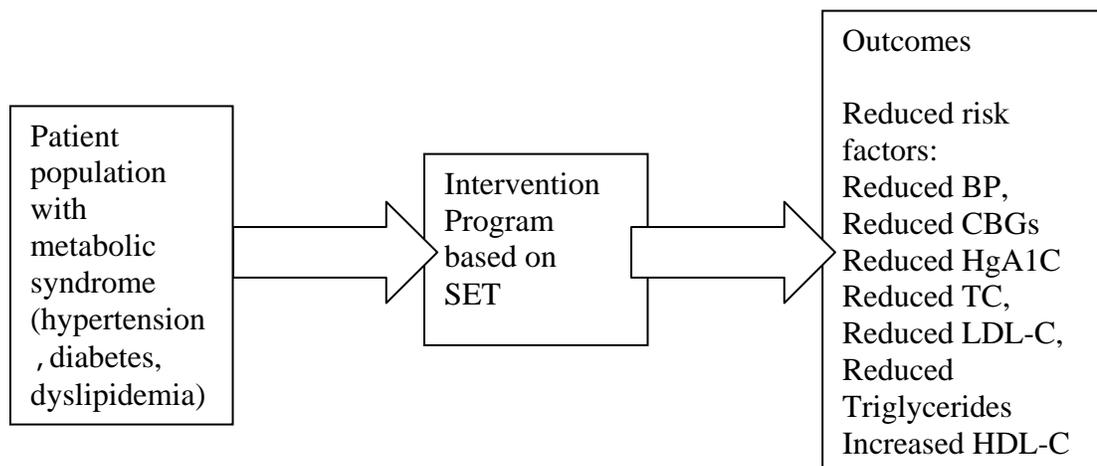
References

- Arca, M. (2007). Atorvastatin efficacy in the prevention of cardiovascular events in patients with diabetes mellitus and/or metabolic syndrome. *Drugs*. 67 (1): 43-54.
- Bissell, P., May, C.R., Noyce, P.R. (2004). From compliance to concordance: barriers to accomplishing a re-framed model of health care interactions. *Social Science & Medicine*. 58:851–62.
- Cramer, J.A. (2004). A systematic review of adherence with medications for diabetes. *Diabetes Care*. 27:1218–1224.
- Fappa, E., Yannakoulia, M., Pitsavos, C., Skoumas, I., Valourdou, S., Stefanadis, C. (2008). Lifestyle intervention in the management of metabolic syndrome: could we improve adherence issues?. *Nutrition*. 24(3):286-91 .
- Goldstein, L.B., Adams, R., Alberts, M.J., Appel, L.J., Brass, L.M., Bushnell, C.D., Culebras, A., DeGraba, T.J., Gorelick, P.B., Guyton, J.R., Hart, R.G., Howard, G., Kelly-Hayes, M., Nixon, J.V., Sacco, R.L. (2006). American Heart Association. American Stroke Association Stroke Council. Primary prevention of ischemic stroke: a guideline from the American Heart Association/American Stroke Association Stroke Council: cosponsored by the Atherosclerotic Peripheral Vascular Disease Interdisciplinary Working Group; Cardiovascular Nursing Council; Clinical Cardiology Council; Nutrition, Physical Activity, and Metabolism Council; and the Quality of Care and Outcomes Research Interdisciplinary Working Group. *Circulation*. 113(24):e873-923.
- Griffith, S.(1990). A review of the factors associated with compliance and the taking of prescribed medicines. *British Journal of General Practice*. 40:114–116.
- Grundy, S.M. (2008). A changing paradigm for prevention of cardiovascular disease: emergence of the metabolic syndrome as a multiplex risk factor. *European Heart Journal*. 10:B16-B23 .

- Grundy, S.M., Cleeman, J.I., Daniels, S.R., Donato, K.A., Eckel, R.H., Franklin, B.A., Gordon, D.J., Krauss, R.M., Savage, P.J., Smith, S.C. Jr., Spertus, J.A., Costa, F., American Heart Association, National Heart, Lung, Blood Institute. (2005). Diagnosis and management of the metabolic syndrome: An American Heart Association/National Heart, Lung, and Blood Institute Scientific Statement. *Circulation*. 112:2735–2752.
- Heisler, M., Vijan, S., Anderson, R.M., Ubel, P.A., Bernstein, S.J., Hofer, T.P. (2003). When do patients and their physicians agree on diabetes treatment goals and strategies, and what differences does it make? *Journal of General Internal Medicine*. 18:893–902.
- Hunt, L.M., Arar, N.H. (2001). An analytical framework for contrasting patient and provider views of the process of chronic disease management. *Med Anthropol Q*. 15:347–67.
- Ingelsson, E., Arnlov, J., Lind, L., Sundstrom, J. (2006). Metabolic syndrome and risk for heart failure in middle-aged men. *Heart*. 92(10): 1409-13.
- Israili, Z.H., Lyoussi, B., Hernandez-Hernandez, R., Velasco, M. (2007). Metabolic syndrome: treatment of hypertensive patients. *American Journal of Therapeutics*. 14(4):386-402.
- Monami, M., Lambertucci, L., Ungar, A., Pieri, M., Masotti, G., Marchionni, N., Mannucci, E. (2006). Is the third component of metabolic syndrome really predictive of outcomes in type 2 diabetic patients?. *Diabetes Care*. 29(11): 2515-7.
- Morris, L.S., Schulz, R.M. (1992). Patient compliance: an overview. *J Clin Pharm Ther*. 17: 283–295.
- Orchard, T.J., Temprosa, M., Goldberg, R., Haffner, S., Ratner, R., Marcovina, S., Fowler, S. (2005). The effect of metformin and intensive lifestyle intervention on the metabolic syndrome: The Diabetes Prevention Program Randomized Trial. *Annals of Internal Medicine*. 142(8): 611-9.
- Rosenson, R.S., Wolff, D.A., Huskin, A.L., Helenowski, I.B., Rademaker, A.W. (2007). Fenofibrate therapy ameliorates fasting and postprandial lipoproteinemia, oxidative stress, and the inflammatory response in subjects with hypertriglyceridemia and the metabolic syndrome. *Diabetes Care*. 30(8): 1945-51.

- Sanders, B.H., Lubsch, L.M., West, D.S. (2006). Prevalence and treatment of metabolic syndrome in adolescents with type 2 diabetes. *Annals of Pharmacotherapy*. 40(9): 1517-21.
- Thompson, J.A., Lee, V. (2007). The effect of health insurance disparities on the health care system. *AORN Journal*. 86(5):745-56.
- Trostle, J.A. (1988). Medical compliance as an ideology. *Soc Sci Med*. 27:1299–308.
- Wannamethee, S.G., Shaper, A.G., Whincup, P.H. (2006). Modifiable lifestyle factors and the metabolic syndrome in older men: effects of lifestyles changes. *Journal of the American Geriatrics Society*. 54(12): 1909-14.
- Wens, J., Vermeire, E., Royen, P.V., Sabbe, B., Denekens, J. (2005). GPs' perspectives of type 2 diabetes patients' adherence to treatment: A qualitative analysis of barriers and solutions. *BMC Family Practice*. 6(1):20 retrieved on May 17 from <http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=1589007>

Figure 1. Interventions Program using SET in patients with metabolic syndrome



UNSAFE SMOKING PRACTICE AT TABOR CREST RCF 1

Running head: UNSAFE SMOKING PRACTICE AT TABOR CREST RCF

UNSAFE SMOKING PRACTICE AT TABOR CREST RCF

RODICA MALOS

OREGON HEALTH & SCIENCE UNIVERSITY

The Organizational-change Case Study

Introduction.

The problem addressed by the organizational change effort.

Untrained caregivers at Tabor Crest Residential Care Facility (RCF) led to unsafe smoking practice inside the facility which created unsafe environment for all residents and related complications. The facility did not have a policy for caregivers' training procedure at work site for a safe smoking practice for the residents and the employees. The residents were smoking in their rooms with oxygen in use, in the hallways, and in many places around nonsmoking residents in the facility.

The significance of the problem and the literature.

The secondhand smoke contains hundreds of chemicals known to be toxic or carcinogenic, including formaldehyde, benzene, vinyl chloride, arsenic, ammonia, and hydrogen cyanide (Kegler et al (2007)). The Surgeon General (2006) stated that the secondhand smoke has been designated as a cancer-causing agent by the U.S. Environmental Protection Agency, The National Toxicology Program and the International Agency for Research on Cancer (IARC). Liu et. al, (1998) emphasized that many studies show that about half of all persistent cigarette smokers are eventually killed by tobacco.

According to Kegler et al (2007) among adults, exposure to secondhand smoke increases risk of lung cancer and coronary heart disease, exacerbates asthma, and is associated with breast

cancer in women. Several studies have documented that smoking restrictions inside the living places are associated with less exposure to secondhand among adult nonsmokers. Peto et al (2000) mentioned that the mortality in the near future and throughout the first half of the 21st century could be substantially reduced by current smokers giving up the habit. Lawton et al (2007) emphasized that we must move beyond cognition in developing interventions that target risky smoking behavior. It is crucial to offer help, not just advice patients to do something which they have tried to do many times.

Aveyard & West (2007) demonstrated that to help smokers to change their behavior a simpler and more patient centered approach is to ask the patient about their smoking, acknowledging that they may have tried to stop many times in the past, and discuss the options that exist to support a quit attempt. According to Narayan (2007) a policy "push" occurs at the early stage of implementation of the change in bad behavior and increases the chance of the success. External political mandates "must dos" increase the motivation for the organization to start the changing process.

The change process and outcomes

Tabor Crest RCF developed new policy and protocols that included the training for all caregivers addressing the implementation of a safe smoking practice in a supervised designated area outside the facility to provide a smoke free environment for all residents and employees in the facility.

After the new policy has been developed, all the employees were trained to provide a smoking free environment in the facility so none of the residents smoked in their rooms, hallways and around the facility. The number of residents who quit smoking increased. The signs and symptoms of shortness of breath, dyspnea, hypoxia, dizziness and weakness in patients with smoking history decreased. The admission in the hospital due to lung infection, exacerbated asthma secondary to smoking habits decreased. There were no deficiencies at the last surveyors' inspection to renew the license showing increased residents' satisfactions and increased quality of life of the residents living at Tabor Crest RCF.

Systems- level analysis of the problem at Tabor Crest RCF

An ecological environmental perspective.

At the macrosystem level in the social cultural context, older adults and seniors living at Tabor Crest RCF are frail older persons who lost their function abilities and need assistance with all activities of daily living. They lost their health, income, and they can no longer participate in community activities.

In the exosystem the Oregon Department of Human Services (ODHS), Senior and People with Disability (SPD) regulate the operation of the Tabor Crest RCF. The Oregon Health Care Association (OHCA) provides training for the administrators and other staff including caregivers to provide quality care to persons with acute disabilities. Fire Marshal and Ombusman involved in the safety of the residents and health care

institutions participating in the care of the resident living at Tabor Crest RCF.

In the mesosystem environment, the Administrative, Nursing, Education, Finance, and the Maintenance Departments contribute to the activities that take place in the life of the residents.

In the microsystem the administrator, medical director, registered nurses, resident assistants, activities director, kitchen personnel, medication aides, bookkeeper, housekeepers, maintenance personnel assist the residents with their function abilities in this organization. In the internal system people who come in direct contact with the residents are family members, friends, primary care providers and many other professionals from different agencies, caregivers and staff from Tabor Crest RCF.

Systems-level inputs outputs, facilitators, barriers.

At the organizational level new smoking policy for the smokers needed to be developed due to the Senior and People with Disabilities (SPD)'s Administrative Rules and Regulation for a safe environment for the residents. Fire Marshal required at the annual inspections a smoke free environment for the safety of the residents in the RCF. The senior manager of the organization assessed the need for training for the caregivers about the safe smoking practices. The administrator developed smoking schedule for all the smokers in this organization. The senior manager and the staff from the maintenance department created space in a designated area for the smokers outside the

facility.

Root cause analysis of the underlying problem

The underlying problem was detected by the Geriatric Nurse Practitioner (GNP) who was visiting the residents at Tabor Crest RCF. The GNP observed the residents walking in the hallways smoking around nonsmoking residents and in their rooms with oxygen in use. The residents were carrying the cigarettes in their packets smoking in many places inside the facility and around the facility.

To determine the causal factors for the unsafe smoking practice of the residents at Tabor Crest Residential Care a step from the Adaptive Design method was used (Braaten & Bellhouse, 2007). The root cause identification started with data collection by asking Why?: The residents are smoking in their rooms with oxygen in use, in the hallways around nonsmoking residents and outside in undesignated smoking area; Why?: The caregivers did not promote a safe smoking practice for the residents at Tabor Crest RCF; Why?: The continue education and the in-service classes through out the year did not address the smoking issues in the facility; Why?: The policy and protocols did not specify the training modalities for employees, orientation package for the employees, facility's smoking practice, chartings with incident reports; Why?: The surveyors' reports did not include the citations and the plan for corrections about unsafe smoking practice; Why?: The Fire Marshal's annual inspection reports did not address smoking

issues in the facility. Asking the 6 "whys" led to identify why particular casual factors occurred. This method in the Adaptive Design helped to discover the gaps and deficiencies and to organize and analyze the information.

The Administrative Rules and Regulation for the RCF has been reviewed regarding staff training requirements for the residents' safe smoking practice focusing on the systems contributing to the problem not on the individuals (Boyers, 2001). The facility did not have a policy for caregivers' training during the pre-orientation and orientation at work site and a smoking policy in place for the residents. The caregivers did not get the training to direct residents to smoke in designated area and did not create a schedule for the smokers to be supervised when smoking in designated area. The Oregon Health Care Association (OHCA) sent information about a training program for the staff but the staff did not attend the classes and there was no follow up for the training procedure for the employees about smoking practice in a RCF.

The surveyors from the Oregon Department of Human Services (ODHS), Senior and People with Disability (SPD) at the time of inspection for license's renewal failed to find the smoking issue as a deficiency to address the safety of the residents showing lack of enforcement for safety environment for the residents. The Fire Marshal inspected the facility annually and did not address the smoking problem showing no enforcement for the safety rules. The Long Term Ombusman Program failed to

observe during the routine visit in the facility the unsafe smoking practice in the facility. The health care professionals from different clinics, hospitals, pharmacies and other organizations involved in the residents' care failed to address the caregivers' lack of training to provide a smoke free environment.

The lack of an institutional policy that does not allow smoking in the facility was the strongest barrier to train the caregivers. The stakeholders considered that smoking was a pleasurable activity for residents and that the residents have the right to smoke where they like and want. Therefore the caregivers couldn't give advice to the residents do not smoke in the facility. The primary care providers did not address the smoking issues with an order in the residents' file to schedule smoking so the caregivers did not have support from the providers to get the training and to implement a safe environment.

There were no support groups to encourage caregivers to obtain the necessary training so the employees had the beliefs that advising is the responsibility of the physician and not the staff. The caregivers' role was altered and there was no clarification and the empowerment of staff's positions for the implementation of smoking policies that could be concretely translated into advising behaviors. The untrained employees were uncertain about whether they had the skills necessary for intervention.

The organization's readiness for this change.

In the beginning institutional resources were not ready and the training effectiveness was reduced. The organization did not have physical space available for training for the caregivers and space to designate for the smoking area. Lack of financial resources in the beginning decreased the number of caregivers available to do the work.

There was no budget to allow caregivers to attend professional conferences. The caregivers did not have access to the computer. The caregivers would be very resistant to training and unmotivated to learn new rules and regulations and to implement the smoking policy. They felt the stress from new mission, new policy, and new assignments. They had more responsibilities and experienced disruptions in their daily routine. Some caregivers' motivation for change was affected by their perception and attitude toward smoking from their life experience as smokers. Resistance has been met at the management level because the administrator was smoking with the residents in the facility and did not perceive the smoking as an unsafe practice.

The stakeholders realized that the untrained caregiver will lead further to an unsafe smoking practice which will lead to a loss of nonsmoking residents who will leave the facility because the unsafe smoking practices of the smoking residents and the secondhand smoke complications and the number of vacancies will increase and the income will decrease. That will lead to fire a

few caregivers, the productivity will be reduced and the business will decline more. At this point the management team needed to be changed. The organization allocated more funds for the human resources to hire a new administrator and an RN to train the caregivers. More caregivers have been hired to cover the shifts during the training and to motivate the caregivers to participate in training.

The resistance has been reduced by hiring a new administrator who developed new mission statement for the organization, a new smoking policy, rules and regulations about training procedures for all caregivers. The flexible organizational structure as departments and teams supported the development of the rules and regulations to train the caregivers to implement the smoking policy.

Register Nurse (RN) trained the caregivers about the importance of a smoke free environment. The caregivers' age, educations and gender affected the readiness to change. Caregivers who had the abilities, desire, and enthusiasm to attend the training obtained more knowledge, skills, and behavior to practice a safe smoking practice in facility. Other professionals from different organizations were contacted to provide support to maintain the success of the change efforts.

Conclusion, Discussion, Recommendations

To solve the problem that existed at Tabor Crest RCF, the management team composed by the Geriatric Nurse Practitioner,

UNSAFE SMOKING PRACTICE AT TABOR CREST RCF 11

the Registered Nurse and the Administrator developed a program for training for the caregivers at the pre-orientation and orientation sessions to implement the smoking policy in the facility. The safety issues about smoking were addressed at the monthly in-service training that was mandatory for all the employees. The employees performed fire drills each time a resident smoked in undesignated area and reinforced the need for a safe environment for all residents. A new Fire Marshal was involved in inspecting the building and performed a demonstration of emergency situation related to fire from smoking to train the caregivers about safety issues with smoking. Physicians and nurse practitioners provided insight into the residents' attitudes and beliefs by giving advice to the residents about their smoking habits and safety issues motivating the caregivers to learn new skills to prevent smoking in the facility. All departments showed support in providing staff education as a part of continuing education and initial education efforts. The Administrator gave clarification of administrative policies to change the smoking habits and enabled the staff to provide consistent advice and support to the smoking residents.

It is recommended that the efforts to be continued by staff in day-to-day interactions with residents and the authority to be used to motivate residents to stick with a schedule to smoke under caregivers' supervision in designated area outside the facility. The development of the training program for the

UNSAFE SMOKING PRACTICE AT TABOR CREST RCF 12

caregivers and the development and implementation of the smoking policy must continue to help Tabor Crest (RCF) to maintain a smoke free environment and improvement of the health, quality of life and well being of all the residents in the future.

A sustained effort and commitment to train the staff is recommended to continue and to maintain the realization of the outcomes

References

- Aveyard P. West R. Managing smoking cessation. *BMJ*. 2007 Jul 7; 335(7609): 37-41. (44 ref)
- Peto R, Darby S, Deo H, Silcocks P, Whitley E, Doll R. Smoking, smoking cessation, and lung cancer in the UK since 1950: combination of national statistics with two case-control studies. *BMJ* 2000;321: 323-9.
- Baulcomb, J. (2003) Management of change through force field analysis. *Journal of Nursing Management*, 11(4), 275-280.
<http://www.surgeongeneral.gov/library/secondhandsmoke/factsheets/factsheet6.html>
- Kegler MC. Escoffery C. Groff A. Butler S. Foreman A. A qualitative study of how families decide to adopt household smoking restrictions. *Family & Community Health*. 30(4):328-41, 2007 Oct-Dec.
- Lawton R. Conner M. Parker D. Beyond cognition: predicting health risk behaviors from instrumental and affective beliefs. *Health Psychology*. 2007 May; 26(3): 259-67. (36 ref)
- Lehman, W., Greener, J., & Simpson, D. (2002) Assessing organizational readiness to change. *Journal of Substance Abuse Treatment*, 22, 197-209.

Liu B-Q, Peto R, Chen Z-M, Boreham J, Wu Y-P, Li J-Y, et al.

Emerging tobacco hazards in China: 1. Retrospective proportional mortality study of one million deaths. *BMJ* 1998;317: 1411-22.

Maxwell, P. (2005) Resistance to change and change management.

In Organizational Behavior in Health Care, Borkowski, N. Ed. Miami: Jones and Barlett. p. 379-411.

Narayan, A., Steele-Johnson, D., Delgado, K., & Cole, P. (2007) Differential effects of pretraining influences on readiness to change. *The Journal of Psychology*, 141(1), 47-60.

Tomey, A.M., Guide to Nursing Management and Leadership, 7th ed, Mosby; Organizational Culture and Change, 303-330.

U.S. Department of Health and Human Services. *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006.

UNSAFE SMOKING PRACTICE AT TABOR CREST RCF 15

If you need to type anything after the reference list
then start it on this page

Running head: CARDIOVASCULAR COMORBIDITY OF METABOLIC SYNDROME

Cardiovascular Comorbidities of Metabolic Syndrome: A Case Study.

Rodica Malos

Oregon Health & Science University

School of Nursing

02.06.2009

Cardiovascular Comorbidities of Metabolic Syndrome in literature.

Because the Metabolic Syndrome (MS) has become more prevalent worldwide and due to its association with an increased risk of cardiovascular disease (CVA) mortality, the syndrome is causing increasing a global disease burden. MS is a clustering of risk factors for CVA including hypertension, diabetes and dyslipidemia (Wong, 2007). CVD is the primary cause of death in people with MS. One-third of the adult population in the US has MS associated with an increased risk of CVD and in total mortality (Wong, 2007). Approximately two-thirds of patients with diabetes die from CVA or stroke (Reasner, 2008).

Alterations in glucose metabolism, dyslipidemia and hypertension are associated with an increased incidence of type 2 diabetes mellitus and CVA which leads to increased premature morbidity and mortality (Repas, 2007). Increased prevalence of sedentary lifestyles and dietary habits lead to the epidemic in diabetes affecting the younger population and is expected to increase the rate of CVD and future sequelae leading to a greater burden due to these diseases. Meta-analyses of cardiovascular deaths in patients with MS have demonstrated a significant association between MS and cardiovascular risk. A large longitudinal study presented current evidence demonstrating increased risk of cardiovascular comorbidity and death in patients with the MS (Gami, Witt, Howard, Erwin, Gami & Somers, et al 2007).

The most recognized risk factors of MS are atherogenic dyslipidemia, elevated blood pressure, and elevated plasma glucose which manifest a prothrombotic and pro-inflammatory state. Atherogenic dyslipidemia is caused by aggregation of lipoprotein abnormalities such as increased small LDL particles, elevated serum triglyceride and apolipoprotein B (apoB) and a reduced level of HDL cholesterol (HDL-C) causing elevated risk for ASCVD (Grundy, Cleeman & Daniels, et al , 2005). According to Alagona (2008) triglyceride laden adipocytes produce tumor necrotic factor alpha (the pro-inflammatory mediators) which lead to insulin resistance. The proinflammatory cytokines and TNF-alpha both cause endothelial and atherogenesis leading to vascular dysfunction (Alagona, 2008).

It has been demonstrated that insulin resistance affects the metabolism of lipids and

lipoproteins leading to atherogenic dyslipidemia in persons with type 2 diabetes a risk factor for macrovascular complications in the patient with diabetes (Reasner, 2008). In metabolic syndrome, fibrinolytic activity is impaired and is related to insulin resistance. Chronic hyperglycemia and glycation causes adverse effects on fibrin function producing a clot resistant to fibrinolysis, leading to atherosclerotic plaques (Franchini, Targher, Montagnana, Lippi, 2008). Interrelated risk factors of metabolic risk factors directly promote the development of atherosclerotic cardiovascular disease (ASCVD) (Grundy, 2005).

The DNP must participate in research focusing on the metabolic syndrome to develop better prevention strategies to decrease the risk of cardiovascular disease (Galassi, Reynolds, He, 2006).

Case Study.

HD is a 57 year old, Russian female who presents with complaints of intermittent chest pain for 3 months. She reports the onset of her chest pain was often at work where she spends 10 to 12 hours helping her husband repair cars in a small auto shop. Other times the chest pain starts early in the morning when still in bed. Pain is 7-8 on the 1-10 pain scale and lasts about 20-30 minutes each time. Pain radiates into her left neck and left arm. Associated symptoms are numbness in her left jaw, left hand and fingers. She gets relief from pain with Nitroglycerine 0.4 mg tablet prescribed a “few years ago” when diagnosed with unstable angina in her country of origin. Sometimes she needs to take 2-3 tablets of Nitroglycerine for the pain to cease after 20-30 minutes. But this morning the pain did not go away with nitroglycerine tablets. She reports severe chest pain with shortness of breath, diaphoresis, cool and clammy skin accompanied by nausea and vomiting. She felt like she was “going to die.” She denies dyspnea, palpitation, edema and paroxysmal nocturnal dyspnea. She denies other gastrointestinal or genitourinary complaints and the review of the systems is otherwise negative. She reports a smoking history of 10-12 cigarettes per day for 30 years and denies drug or alcohol use.

Past medical history reveals that she has been diagnosed with hypertension, diabetes, and dyslipidemia, coronary artery disease, and chronic neuropathy of feet. She underwent retinal

laser surgery 5 years ago. Currently she has been out of diabetes and hypertension medication for “a few years” due to lack of health insurance. HD stated that she is not able to pay from her own resources for her care needs. Her children are still in school and dependent financially. She, also, stated that “I thought I was healed because I felt good.” Her family history is significant for diabetes and heart disease. Her father died at 65 years old from myocardial infarction and her mother died at 70 years old from complications of diabetes. She and her husband have worked in the auto shop for about 30 years with four coworkers who are heavy smokers.

During the physical exam, HD is alert and oriented. Her blood pressure was 158/98; and her capillary blood glucose 437 mg/dl. Her head is normocephalic with no gross cranial nerve abnormalities. Eye exam reveals PERL. The sclerae are injected and conjunctivae pink. No intraoral infections are seen. The neck is supple with no masses. The trachea is midline. No carotid bruits are heard. There is no jugular venous distention. Her chest contour is normal, breath sounds are clear with no wheezes or rhonchi. Her heart sounds are regular with no murmur, rubs or gallops. The PMI is not displaced. Her abdomen is soft and nontender. No masses were detected. She is not obese (height of 5’4,” weight of 165 pounds). Bowel sounds are normal and present. The extremities are warm and well perfused. There are no gross venous varicosities. There is no ankle edema. The posterior tibial pulses are easily palpable bilaterally.

Lab results indicate a Hemoglobin A1C (Hgb A1C) of 12.4; her lipid profile includes total cholesterol of 273 mg/dl, triglycerides of 278, low density lipoproteins (LDL) of 178 mg/dl, high density lipoproteins (HDL) of 32 mg/dl. A chest X-ray and EKG have been ordered. The results of other labs were normal; however, the EKG revealed an abnormality. An angiography and echocardiogram were ordered and reports revealed several tight left anterior diagonal (LAD) stenoses. There is a moderate sized diagonal branch with significant proximal disease. Both branches of the left circumflex have significant disease. The report from the echocardiogram revealed moderate left ventricular hypertrophy, an ejection fraction of 55% to 60% (borderline normal), trace tricuspid regurgitation and diastolic dysfunction. HD has been referred to a cardiologist for further evaluation and interventions. After consultation with

cardiologist HD was told she needs urgent coronary bypass graft surgery. She refused the surgery due to a lack of health insurance resources to pay for her care. She wants to try home remedies first. Shortly after the visit she presented in ER with another severe chest pain episode.

Case study analysis.

HD's health condition presents a number of cardiometabolic risk factors. She has uncontrolled hypertension, uncontrolled diabetes and high triglycerides, high total cholesterol, high LDL and low HDL. She has unstable angina, multi-vessel coronary artery disease, peripheral neuropathy and diabetes retinopathy. She does not receive care from a primary care provider to manage her chronic diseases. She also, reports a high level of stress due to her lack of financial resources to pay the house bills. She is worried about her husband's health condition because he has been admitted in Emergency Room (ER) for panic attacks. Her life style and habits affect her health condition. She has a smoking history and has been exposed to a second hand smoke environment including smoke from co workers and carbon monoxide from cars for more then 30 years. She reports that she does not follow a diabetic diet or low cholesterol diet and does not follow a regular exercise program. She relies on cultural traditions from her country of origin and uses home remedies as a treatment for her heart condition. She, also, has the perception of being healed when she does not feel the signs and symptoms from the syndrome delaying treatment for the MS.

Interventions recommended

It has been demonstrated that hypertension, diabetes mellitus, dyslipidemia, cigarette smoking, alcohol use, and physical inactivity among others are modifiable risk factors that must be targeted to prevent cardiovascular morbidity (Rincon & Sacco, 2007). The DNP counseled HD on an appropriate diet, low in cholesterol and high in fiber. The DNP recommends HD to increase fruits and vegetable to 3-5 servings a day.

HD was advised to walk 45- 60 minutes daily 15 minutes at a time 3- 4 times a day and to quit smoking. According to current American Heart Association (AHA) guidelines clinical

assessment of risk for ASCVD events is needed for patients with recent acute coronary syndromes and recent revascularization before initiating a new exercise program. A detailed history of physical activity is needed and physical activity must be performed under medical supervision. The AHA guidelines recommend exercise testing in patients with cardiovascular disease and patients at high risk before embarking on an exercise program (Grundy, Cleeman, Daniels, et al., 2005). HD was advised to monitor her blood sugar level four times a day before every meal using the meter and to keep a log of all the readings, prior to the next 2 week appointment for a blood pressure check and follow up care. At the 2 week follow up visit, HD 's blood glucose level was 437 mg/dl and a subcutaneous injection of 10 units Regular Insulin was administered in the clinic after her physical exam. Her blood sugar dropped to 234mg/dl within 2 hours after receiving insulin. The following medication was ordered: Atenolol 25 mg twice a day, Lisinopril 5 mg daily, Metformin 250 mg three times a day, Lovastatin 10 mg daily, and Aspirin 81 mg daily. Fish oil 1000 mg three times a day was ordered and Nitroglycerine 0.4 mg sublingual for chest pain and she may repeat three times every 5 minutes. If the pain persists, the patient must call the provider at PACS clinic or to go to the emergency room for intervention. The DNP would investigate the patient's belief system and discuss danger in delaying seeking help with onset of symptoms because of damage to the heart. The need to follow up with the cardiologist for the urgent bypass graft was reinforced. The patient has a history for lack of follow up care, delaying treatment and noncompliance in appointments but agreed to enroll in a Diabetes class to meet with a nutritionist. She, also, was referred to an ophthalmologist for an annual exam at lower cost.

Evidence based strategies used by DNP.

Lifestyle change interventions.

The guidelines for the clinical management of MS released by the American Heart Association and US National Heart Lung and Blood Institute were used. These guidelines focus on clinical management of elevated BP, elevated glucose, atherogenic dyslipidemia,

prothrombotic state, lifestyle management for physical inactivity, healthy diet and smoke cessation (Wong, 2008).

The increased CVD risk attributable to MS provides a powerful argument for a more aggressive approach to risk assessment and preventative strategies in the population at risk. The results from these studies help clinicians educate patients about lifestyle interventions and consider research of health promotion and disease prevention in population at risk for MS. Aggressive intervention must be supported for these patients and clinicians must use the evidence to educate patients about cardiovascular comorbidity of MS (Gami, Witt, Howard, Erwin, Gami & Somers, et al 2007). The DNP includes family or other support system in recognition of symptoms and need to seek help early. The DNP establish criteria for warning signs and symptoms of MI, patient's goals may be to continue work or see grandchildren graduate from school, etc.

The DNP uses a team- based model of care to meet the challenges of quality improvement in metabolic syndrome management. The team approach includes using certified diabetes educators to educate patients to monitor and manage their care. Patients are provided tools to partner with the care team to manage their illnesses. The DNP initiates systems to improve patient education and follow up care such as group visits for diabetes, hypertension and hypercholesterolemia to improve patients' satisfaction, self management and quality of life

The DNP involves the patient in making decisions in self care by providing logs to record blood glucose test results, standing orders worksheets, and information handouts for patients. The DNP concentrates on aggressive management of underlying risk factors as diabetes, hypertension, dyslipidemia to optimize prevention of CVD and to develop algorithms for risk prediction. To manage the MS, the DNP focuses on reversing the root causes of atherogenic diet, sedentary lifestyle, smoking habits and stress management. It has been demonstrated that lifestyle change programs involving increasing fiber intake, reduction in weight and saturated fat intake and exercise reduced diabetes mellitus onset among 58% of the patients (Wong, 2008). Therapeutic lifestyle change is effective and leads to clinical improvements (Repas, 2007) but

may take multiple visits and reinforcement to accomplish.

The current guidelines focus on physical inactivity and dietary modifications as management of underlying risk factors of MS. Dietary recommendations for treatment of the MS is a total fat intake of 25–35% of calories, dietary cholesterol of <200 mg/day, intake of saturated fat of <7% of calories and increased intake of fruits, vegetables, and whole grains and reduced consumption of simple sugars (Wong, 2008).

It is recommended that 60 minutes of moderate-intensity brisk walking to be supplemented by other activities such as 10- to 15-minute walking breaks at work, or household work, gardening, treadmill use, swimming, jogging, biking, team sports, golfing and engaging in resistance training. Self-monitoring of physical activity is recommended to help to achieve adherence to an activity program (Grundy, Cleeman & Daniels, 2005 et al). The DNP makes efforts should be made to encourage smoking cessation in any cigarette smokers (Grundy, Cleeman & Daniels, 2005 et al).

Screening for cardiovascular risk factors

To refine CVD risks the DNP focuses on the importance of screening for risk factors such as subclinical atherosclerosis, ordering C-reactive protein, carotid ultrasound, computed tomography or evaluation of the peripheral circulation using the ankle-brachial index. The presence of subclinical atherosclerosis, elevated levels of C-reactive protein can modify recommended treatment for cardiovascular risk factors and goals for lipids. The DNP must work with subspecialty physicians to regularly assess for the presence of multiple risk factors of MS affecting a high proportion of the population. Identification of MS will assist physicians to treat multiple risk factors including hypertension diabetes and dyslipidemia simultaneously.

Pharmacological interventions

Pharmacologic therapies are needed by HD because of the stage of her disease although preventive measures are also encouraged. Pharmacological treatment becomes necessary when lifestyle change is challenging to implement (Repas, 2007). The management of the MS requires multiple medications, including antihypertensive agents, antidiabetes and lipid-lowering agents

and anti thrombolytics to manage all aspects of the pathology of the syndrome (Reasner, 2008). Treatment with statins, bile acid sequestrants, fibrates, niacin and omega -3 fatty acids are needed to achieve improvements in triglycerides and HDL-C level (Wong, 2008).

The goal of antihypertensive therapy in individuals with diabetes mellitus is a BP <130/80 mmHg. Patients with MS must supplement lifestyle modification with antihypertensive drug therapy when at least three of the following cardiovascular risk factors are present: family history of premature CVD, microalbuminuria, dyslipidemia, left ventricular hypertrophy, men >55 years of age, women >65 years of age, and smoking (Wong, 2008). The efficacy of the treatment with thiazide diuretics, angiotensin converting enzyme inhibitors (ACEI), angiotensin receptor blocking (ARB) agents, beta blocking drugs, calcium channel blockers (CCB), has been documented in patients with MS.

Treatment of type 2 diabetes must focus on metabolic control of hyperglycemia, hypertension, dyslipidemia in order to address the multiple risk factors that lead to the morbidity and mortality of this disease. Appropriate choice of an antidiabetic agent may be aimed at concurrent effects beyond glycemic control. For example antidiabetic drugs that act by reducing insulin resistance demonstrated beneficial effects on the lipid profile. Lipid-lowering agents, such as bile acid sequestrants, can improve glycemic control. (Reasner, 2008). A single agent has significant lipid- and glucose-lowering efficacy and provides the benefit of simplifying patients' treatment regimens by reducing the number of medications patients require and thus increasing the likelihood of compliance (Reasner, 2008).

Multidisciplinary team approach

A multidisciplinary team including internists, diabetologists, lipid experts, cardiologists, hypertension experts, exercise physiologists, nephrologists, nutritionists, and other health care professionals must coordinate care for MS in the underserved patient population. All health care professionals must work together to improve the assessment and management of CVD risk (Despres, Lemieux, Bergeron, Pibarot, Mathieu & Larose, 2008). The DNP plays a central role in coordinating multiple specialties and services for the underserved population by securing

services they can afford, improving access to services, changing health policy related to eligibility criteria for insurance, providing interpreters, working in the community to be visible advocate for quality health care that is accessible and affordable. Education of the community about the health care system and various common health problems such as MS and resources available to them to prevent as well as treat it are part of the responsibility of the primary care provider. Leadership in the community often entails that the DNP becomes an activist and energizes others when problems in policy need to be addressed to ensure care is available when needed.

Expected Health outcomes

Intensive treatment of hypertension, hyperglycemia, dyslipidemia in patients with type 2 diabetes can reduce the incidence of cardiovascular and microvascular events by 50 % (Reasner, 2008). In patients with type 2 diabetes, treatment targets blood pressure <130/80 mm Hg, glycosylated hemoglobin (A1C) <7.0%, LDL cholesterol (LDL-C) <100 mg/dL which reduced the incidence of coronary heart disease (Reasner, 2008). LDL-C recommended goal levels are <160 mg/dL for lower risk patients <130 mg/dL for moderate and moderately high-risk <100 mg/dL for high-risk patients. For patients with pre-existing CVD guidelines suggest goals for LDL-C of <70 mg/dL and HDL-C 40 mg/dL in men and 50 mg/dL in women. The goal for HD is to attain all those values to prevent cardiac events.

Outcomes attained

HD has been enrolled in a diabetes education class and stress management. She has been referred to a cardiologist for further investigation of her cardiovascular comorbidity from the MS, to ophthalmologist for eye exams, and to a neurologist for evaluation of neuropathy. She has been followed by a cardiologist at a different clinic and did not return back to the clinic for follow up care.

Implications for practice at the level of a DNP

Because a wide spectrum of risk factors is present in patients with MS, a careful assessment of cardiovascular risk is necessary. The DNP uses guidelines of the American

Diabetes Association, the International Diabetes Federation, the American Association of Clinical Endocrinologists which advocate for aggressive management of blood pressure, blood glucose, lipid profile (LDL-C, HDL-C and triglycerides), and to minimize complications in patients with type 2 diabetes (Reasner, 2008). The DNP works with other providers from appropriate specialties to address the burden of the cardiovascular comorbidity in patients with MS. The DNP translates research evidence into practice and applies scientific methods for clinical inquiry in MS management in underserved patients.

As a DNP student I developed expertise in managing health and illness in individuals and groups of patients with MS in the underserved population. I developed competencies in working with the interdisciplinary professional teams and obtained consultation collaboration skills to improve and optimize health and clinical outcomes for the underserved patients with MS. I grew in practice at all levels of health care delivery specific to diabetes management, cardiovascular interventions and lipids control in multiple systems of health care. As a DNP I developed skill sets that identify appropriate factors and stratify risk as a preventative strategy. I learned how to develop tools to better quantify individual risk related to hypertension, elevated cholesterol, hyperglycemia, cigarette smoking, and family history.

I learned to focus on prevention of CVD and clinical events in patients with MS by using risk assessment tools and aggressively treating the most common classic risks (such as hypertension, LDL, cholesterol and cigarettes smoking) in patients with multiple cardiovascular and metabolic factors. This will reduce the burden of cardiovascular disease at the community, city, state, and national level. I have gone beyond the clinical role of the advanced practice nurse and am able to critique clinical scientific findings in nursing research. I am more prepared to design programs of care delivery that are economically feasible, relevant and have significant impact on the health care outcomes of MS.

References

- Alagona, P., (2008). Cardiovascular comorbidities of Metabolic Syndrome and Diabetes Mellitus. *Counter Details*. 3, 1-15.
- Despres, J.P., Lemieux, I., Bergeron, J., Pibarot, P., Mathieu, P. & Larose, E., et al (2008). Abdominal obesity and the metabolic syndrome: contribution to global cardiometabolic risk. *Arteriosclerosis, Thrombosis & Vascular Biology*. 28, 1039-49.
- Franchini, M., Targher, G., Montagnana, M., Lippi, G., (2008). The metabolic syndrome and the risk of arterial and venous thrombosis. *Thrombosis Research*. 122, 727-35.
- Galassi, A, Reynolds, K, He, J., (2006). Metabolic syndrome and risk of cardiovascular disease: a meta-analysis. *American Journal of Medicine*. 119, 812–819.
- Gami, A.S., Witt, B.J., Howard, D.E., Erwin, P.J., Gami, L.A. & Somers, VK, et al (2007). Metabolic syndrome and risk of incident cardiovascular events and death: a systematic review and meta-analysis of longitudinal studies. *Journal American College of Cardiology*. 49, 403–414.
- Grundy, S.M., Cleeman, J.I., Daniels, S.R., (2005). Diagnosis and management of the metabolic syndrome: an American Heart Association/National Heart Lung and Blood Institute Scientific Statement. *Circulation*. 112, 2735-52.
- Reasner, C. A., (2008). Reducing cardiovascular complications of type 2 diabetes by targeting multiple risk factors. *Journal of Cardiovascular Pharmacology*. 52, 136-44.
- Repas, T. B., (2007). Challenges and strategies in managing cardiometabolic risk. *Journal of the American Osteopathic Association*. 107, 4-11.
- Rincon, F., Sacco, R.L., (2008). Secondary stroke prevention. *Journal of Cardiovascular Nursing*. 23, 34-41.

Wong, N. D., (2007). Metabolic syndrome: cardiovascular risk assessment and management. *American Journal of Cardiovascular Drugs*. 7, 259-72.

Depression Comorbidity of Metabolic Syndrome: A Case Study

Rodica Malos

Oregon Health & Science University

School of Nursing

03/13/09

Depression comorbidity of Metabolic Syndrome in literature

An increasing problem in the United States is depression linked to both diabetes mellitus and metabolic syndrome (MS). Depression is caused by uncontrolled chronic disorders but the underlying pathophysiological changes associated with the disorders of MS and diabetes may cause depression. MS is a clustering of disorders including high blood pressure (BP), high levels of fasting blood glucose (FBG), high triglyceride levels, low high density lipoprotein (HDL) cholesterol with a high risk of cardiovascular events and mortality. It is estimated that the prevalence of the MS is 42% in people aged 60 years and over (Vaccarino, McClure, Johnson, Sheps, Bittner, Rutledge et al., 2008). In coping process with the diagnosis of MS and its complications, the underserved population often develops symptoms of depression (Black, 1999). The prevalence of clinical depression is higher in persons with diabetes in comparison with the general population (Golden, Lazo, Carnethon, Bertoni, Schreiner & Roux, 2008).

Depression as a co-morbidity of MS is important because it subsequently impairs the patients' functional ability, adherence to medical treatment, glycemic control, increasing the risk of complications from diabetes and reducing the quality of life (Anderson, Freedland, Clouse & Lustman, 2001). It is well known that depressed individuals tend to follow unhealthy lifestyles including but not limited to sedentary behavior, unhealthy diet, and poor compliance with medical treatments, alcohol and tobacco abuse increasing the risk for poor health outcomes (Vaccarino, McClure, Johnson, Sheps, Bittner, Rutledge et al., 2008). Furthermore, inflammatory responses, increased catecholamines, cortisol, cytokines, activation of the neuroendocrine may induce insulin resistance leading to the development of type 2 diabetes (Blazer, Moody, Craft et al., 2002). The higher rate of depressive symptoms in patients with MS

Depression Comorbidity of Metabolic Syndrome: A Case Study 3
demonstrates that MS may be an important predisposing factor for the development of depression (Miettola, Niskanen, Viinamaki & Kumpusalo, 2008).

Depression comorbidity in MS causes anguish and loss of quality of life not only for patients, but also for family and friends, increasing the cost to the health care system. Depression may exacerbate existing medical diseases leading to excessive demands for medical access and utilization. The direct and indirect costs of depression are estimated to exceed 43 billion dollars per year (Feinman, Cardillo, Palmer & Mitchel, 2000).

Case data and its complexity that need expert care

LV is 60-year-old Caucasian female who presented at the clinic serving uninsured patient population, with a history of hypertension, diabetes and hypercholesterolemia for at least 15 years. She was diagnosed and treated for her condition by a primary care provider 10 years ago before losing her job and health care insurance. Subsequently, she was employed in temporary jobs with no health insurance. She denies seeing any primary care provider lately. She reports that she has been unable to afford to obtain medications for years for her health conditions. One month ago, she experienced palpitations, shortness of breath, headache, inability to concentrate, visual disturbances, frequent urination, and fever and went to the Emergency Room (ER) at Portland Adventist Medical Center (PAMC). She was discharged from the ER with an order to follow up with a primary care provider at the Free Clinic. LV does not take any medication at this time for her health conditions. She reports no allergies to medications and denies tobacco, alcohol or drug use.

Family history revealed that her father died at 72 years old with hypertension. Her mother died at 65 years old from complications of diabetes and heart disease. Two brothers, 58 and 60 years old, have medical problems. A paternal aunt died 15 years ago, at age 69 from complications from uncontrolled diabetes. LV does not follow a healthy diet and does not

Depression Comorbidity of Metabolic Syndrome: A Case Study 4
exercise regularly. She is not monitoring her blood sugar level because she does not have diabetes supplies. She reports a high level of stress regarding financial matters. She tries to help her daughter by caring for her grandchildren but feels unable to help because of fatigue.

A review of systems is positive for fatigue, headaches, unable to concentrate, sleep disturbance and nocturia. Psychiatric: positive for nervousness, depression, sleep disturbance at night waking up 2-3 per night and it takes long time to fall back to sleep each time she wakes up. She reports lack of interest in activities to go out shopping or to visit friends like she use to do in the past. Many mornings she feels that she doesn't even want to get up and to dress for the day. She also reports poor concentration to accomplish her daily tasks. She reports no other signs and symptoms for the other reviewed systems.

Physical examination reveals a well-developed, well-nourished female in no acute distress but anxious and concerned about her health condition and financial situation. Height: 68 inches, weight: 242 pounds, BMI = 36.2 kg/m^2 , waist circumference = 40 inches. BP readings: 210/108 mm Hg, heart rate is 82 beats per minute and regular. HEENT: The sclerae are white, and the conjunctivae clear, PERRL. The ears are without scars, lesions, or masses. She has bilateral earlobe creases which are associated with high cholesterol levels. Her hearing is grossly intact bilaterally. The pharynx is not swollen. Her neck is supple, without lymphadenopathy thyromegaly, or jugular venous distension. Her lungs are clear to auscultation and percussion bilaterally. Cardiovascular: Her heart rate and rhythm are regular, without extra sounds, murmurs, or rubs, no cyanosis, clubbing, or edema. All pulses are 2+ and equal. Her abdomen is nontender, without organomegaly, or bruits. Neurological: Cranial nerves II-XII are intact . Upper and lower extremities have 5/5 strength. Deep Tendons Reflexes: 2+ and symmetrical. Lab The results of lab tests upon discharge from the ER were as follows: glucose was 447 mg/dl,

creatinine 1.2, total cholesterol 288 mg/dl, low density lipoprotein was 256 mg/dl, triglycerides 352 mg/dl, Hg A1c 14.8%. Her remaining lab results were normal. She was advised to discuss the lab results with a primary care provider. The following medications were prescribed: Metformin 500 mg tablet by mouth three times a day, Glipiside 5 mg tablet by mouth daily, Hydrochlorothiazide 25 mg tablet daily, Lisinopril 10 mg tablet by mouth day, Lovastatin 10 mg tablet daily.

In depth analysis of the case, decisions and consequences

LV has longstanding uncontrolled hypertension, uncontrolled diabetes and dyslipidemia placing her at high risk for increased complications. She reported fatigue, headaches, inability to concentrate, sleep disturbance, nocturia. Hyperglycemia and insulin resistance increase the presence of advanced glycation end products, chronic hyperinsulinemia and insulin resistance, or reduced insulin effectiveness which exert a negative influence on memory. Type 2 diabetes mellitus has been associated with impairment of both operant learning and classic conditioning with verbal and visual memory. Acute and chronic hyperinsulinemia have negative effects on the neural substrates of memory (Craft & Watson, 2004). Insulin can cause chronic hypoperfusion of the brain and energy depletion. Prolonged hyperinsulinemia through the proinflammatory effects potentiates neurodegeneration with a negative consequence for optimal brain function (Craft & Watson, 2004).

LV was screened for depression with the Hamilton Depression Scale and the score of the 24/54 confirmed a diagnosis of moderate depression. Depression has an impact on hippocampal functioning. Many medical conditions in depressed patients are influenced by hypothalamic–pituitary–adrenal (HPA) axis abnormalities (Blazer, Moody-Ayers & Craft-Morgan, 2002). The HPA axis abnormalities are associated with cortisol elevations secondary to adrenocorticotrophic

Depression Comorbidity of Metabolic Syndrome: A Case Study 6
hormone including hypertension, elevated blood sugar and lipids and memory loss. It has been demonstrated that depressed patients have physical effects similar to those in patients with MS due to the role of cortisol excess, impairing glucose tolerance and insulin resistance increasing the risk of medical complications (Blazer, Moody & Craft, 2002).

Patients with depression have diminished attention and reduced comprehension compared with nondepressed diabetes patients (Schreiner, Roux, Lee & Lyketsos, 2008). Controlling LV's depression is important to reduce her risk for functional impairment (Kumar, Anstey, Cherbuin, Wen & Sachdev, 2008). Memory is affected by depression due to the changes of the electrical brain activity contributing to the poor performance of depressed patients. Depressed persons exhibit reduced activity in the anterior cingulate cortex and dorsolateral prefrontal cortex that play a critical role in working memory and attention (Pelosi, Slade, Blumhardt & Sharma, 2000).

LV went to the ER when her depression worsened and affected her functional ability. Uninsured patients with affected function ability increase health service use by accessing ER setting. This promotes higher cost of health care and a greater health burden. Depressive disorder alone has a lifetime prevalence of almost 20% and is associated with significant functional impairment and health care cost (Black, 1999).

Interventions and prevention strategies recommended.

Effective prevention and treatment of metabolic syndrome is very important for the prevention of depression as a comorbid condition (Miettola, Niskanen, Viinamaki & Kumpusalo, 2008). LV's comorbid depression and MS can worsen the course of these two conditions. All interventions are aimed at controlling LV's depression so she will be able to concentrate and take care of her MS (Schreiner, Roux, Lee & Lyketsos, 2008). Selective serotonin reuptake inhibitor drugs are more promising in treating depression. She was prescribed Fluoxetine 10 mg tablet by

Depression Comorbidity of Metabolic Syndrome: A Case Study 7
mouth every day and to continue with current medication as prescribed by the hospitalist one month ago.

Labs ordered for LV include a comprehensive metabolic panel, lipids panel, Hg A1c, TSH, CBC, UA. A follow up visit was scheduled in one week to evaluate for improvement of the signs and symptoms of depression including suicidal ideation or plans. Lab results at this time were fasting plasma glucose 187mg/dl, HgbA1c 9.8%, creatinine 1.1 total cholesterol 234 mg/dl, low density lipoprotein was 218 mg/dl, triglycerides 265 mg/dl. The remaining lab results for LV were normal.

She received prescriptions and instructions to increase Glipiside to 10 mg by mouth daily, start Lantus insulin 10 units injection subcutaneous at bedtime, increase Lisinopril to 10 mg twice a day, increase Lovastatin to 20 mg daily, start Zetia 10 mg daily, Aspirin 81 mg daily, Fish Oil 1000 mg by mouth three times a day, regular exercise 45-60 minutes daily, dietary increase of fiber, fruits and vegetable three to five servings daily, blood sugar test four times daily. Ophthalmologic exam, diabetes class, podiatrist referrals have been made. Cost and location for this care were explained to her and her husband. Information with free and low cost services and programs for all her conditions has been given at this visit. LV was instructed to call the clinic if signs and symptoms fail to improve or get worse. LV has been instructed to call the clinic or crisis line or to go to ER if she will have suicidal ideation or thoughts to harm herself or others.

Evidence based strategies and innovative approaches used by the DNP.

Recommendations for patients with DM or MS include early recognition and treatment of diabetes to protect the brain from atrophy and depression and associated poor motor function in patients with MS (Kumar, Anstey, Cherbuin, Wen & Sachdev, 2008).

The DNP teaches clinicians and epidemiologists to evaluate individuals with metabolic syndrome for depression. The DNP teaches primary care providers to recognize and treat depression in patients with metabolic syndrome to improve medical outcomes of these patients. Two of every three cases of depression remain untreated by primary care providers increasing the risk of further complications (Anderson, Freedland, Clouse & Lustman, 2000). The depression comorbidity of MS patients has important public health implications for prevention and treatments. The DNP coordinates screening of patient population with MS for depression with efforts for adequate treatment and follow-up to prevent complications from both conditions. Culture, ethnicity, socioeconomic status, level of patient's education and clinical care systems affect the screening for depression in patients with MS and limit diagnostic screening programs (Jarjoura, Polen, Baum, Kropp, Hetrick & Rutecki, 2004). The identification, specific treatment and referral in primary care are very important for patients who are distressed by mood, anxiety, sleep and stress-related symptoms. Diagnosis, affordability of treatment, timeliness of care delivery and time commitment for treatment play roles in reducing symptoms in patients with MS with depressed comorbidity (Alexander, Richardson, Grypma & Hunkeler, 2007). The DNP designs new studies to identify the behavioral and physiological mechanisms of depression comorbidity in patients with metabolic syndrome. The DNP addresses the question whether the metabolic syndrome, accounts for the association between depression and CVD (Vaccarino, McClure, Johnson, Sheps, Bittner & Rutledge, 2008).

Patients with MS and depression comorbidity are a challenging patient population. Treatment for depression with MS can be facilitated in a collaborative care program for depressed patients in primary care settings (Alexander, Richardson, Grypma & Hunkeler, 2007). Diabetes patients have a 42.9% positive screening rate (Feinman,Cardillo, Palmer & Mitchel, 2000). Relief from depression enables patients to adhere to treatment and follow up visits for

MS. This will reduce embarrassment, social stigma and decrease costs and impact of depression on the health care delivery system. The screening and treatment for LV's depression was integrated with the therapy for her MS. A referral to Mental Health Clinic specialist has been made for further evaluation and support.

Expected outcomes.

Expected outcomes are to meet the national guidelines. These guidelines recommend blood pressure less than 130/80, fasting plasma blood glucose between 70-110 mg/dl total cholesterol less than 200 mg/dl, low density lipoprotein between 70 - 100 , triglycerides less than 150, high density lipoprotein more than 50 mg/dl, hemoglobin A1c less than 7%, and Hamilton Depression Scale results less than 7/54. Treatment of depression will lead to improved concentration ability. Patient will be able to concentrate and function more normally engaging in regular exercise, life style change, and medication self management of blood glucose. Treatment adherence and will improve glucose control, blood pressure and cholesterol level, thus preventing complications from the syndrome, decreasing excessive ER visits and hospitalization, and reducing cost.

Health outcomes attained

LV improved signs and symptoms of depression and was able to concentrate on following her treatment plan. She also schedules her blood sugar monitoring every day before breakfast and one more time before dinner alternating with lunch and bed time. She expresses interest in starting walking daily and to cook healthy meals. Friends have started to visit her and invite her to accompany them on outings. Blood pressure is improved from 210/108 to 156/ 98, showing improvement but still not at goal. Her blood sugar is now between 80 to 120 before breakfast and between 140-180 2 hours postprandial. LV's depression severity ratings dropped dramatically from moderate-severe depression to mild depression and remission over 2-4 weeks.

Implications for practice at the level of a DNP.

The DNP examines to what extent the metabolic syndrome is associated with depression in patients with the syndrome. The DNP examines for complications to clarify if metabolic syndrome and its components are connected with depression, independent of lifestyle factors.

The DNP develops clinical guidelines on identifying depressed patients with MS and provides screening. The diagnosis, treatment, follow up visits and program improvement for depression care are necessary for primary care management of MS and DM. The DNP works to identify resources and collaborates with mental health professionals. The DNP develops therapeutic programs including follow up systems for visits, telephone appointments, evaluating resumption of activities and management of medications. The DNP develops programs for individuals and groups focusing on improvement of emotional and physical functioning that will improve their skills to manage their own health conditions.

The DNP develops algorithms for nonpharmacological therapy to supplement antidepressant medication in patients with MS. The DNP develops teams with interdisciplinary members and educates them about the course of depression, coping strategies and treatment approaches for patients with MS. Tools for tracking care can be developed such as screening logs with easy methods to chart progress in a consistent manner (Feinman, Cardillo, Palmer & Mitchel, 2000). The DNP seeks support from the key stakeholders in the care system and outside to allow changes in the care of patients with depression as a comorbidity of MS. The DNP uses consultation and collaborates with experts in designing and implementing programs developed with local and national experts. The DNP must be realistic of what can be accomplished in this health care milieu within local, national and worldwide socioeconomic systems.

Self-reflection on personal and professional skills needed to analyze the scenario

After reflecting on depression as a comorbidity of MS, I realize that patients with metabolic syndrome have significant psychosocial burden furthering their depression and risk for complications from the syndrome. I learned that MS plays a role in the increased CVD risk associated with depression and that the pathogenetic mechanisms of cognitive dysfunction in diabetes include chronic hypoglycemia, vascular disease, cumulative effect of hypoglycemic events, and possible direct effects of insulin on the brain.

I discovered that social stigma, physical limitations, emotional problems caused by obesity predispose to depression due to the excess cytokine production having a role in the etiology of depression (Brown, Varghese & McEwen, 2004). I realize that more studies are needed to understand the complex relationship of diabetes mellitus among depression, cognition, psychological functioning and functional brain substrates. As the DNP, I need to learn more about the importance of co-morbidity of mental disorders associated with metabolic syndrome in different age populations (Herva, Rasanen, Miettunen, Timonen, Lakso & Veijola, 2006). As DNP I need to grow and develop more skills in identifying chronic stress that causes more depression resulting in poor health habits leading to coronary heart disease. I have learned more about the medications used to treat hypertension, diabetes, and dyslipidemia that may increase the risk of depression comorbidity in patients with MS. The primary care providers must use screening tools to diagnose depression in the MS patient population. The resources of the primary care team must be increased to encourage screening of patients with MS when depression might be suspected (Feinman, Cardillo, Palmer & Mitchel, 2000).

References

- Alexander, J.L., Richardson, G., Grypma, L., Hunkeler, E.M., (2007). Collaborative depression care, screening, diagnosis and specificity of depression treatments in the primary care setting. *Expert Review of Neurotherapeutics*. 7, S59-80.
- Anderson, R. J., Freedland, K. E. Clouse, R. E, Lustman, P. J., (2001). The Prevalence of Comorbid Depression in Adults With Diabetes: A meta-analysis. *Diabetes Care*, 24, 1069 - 1078.
- Black, S., (1999). Increased health burden associated with comorbid depression in older diabetic Mexican Americans: results from the Hispanic Established Population for Epidemiologic Study of the Elderly Survey. *Diabetes Care* 22, 56–64.
- Blazer, D.G, Moody-Ayers, S., Craft-Morgan, J., (2002). Depression in diabetes and obesity racial/ethnic/gender issues in older adults. *Journal of Psychosomatic Research*. 53, 913–916
- Brown, E.S., Varghese, F.P., McEwen, B.S., (2004). Association of depression with medical illness: does cortisol play a role? *Biological Psychiatry*. 55, 1-9.
- Craft,S., Watson, S.G., (2004). Insulin and neurodegenerative disease: shared and specific mechanisms. *Lancet Neurology*. 3, 169–178
- Feinman, J.A., Cardillo, D., Palmer, J., Mitchel, M., (2000). Development of a model for the detection and treatment of depression in primary care. *Psychiatric Quarterly*. 71, 59-78.
- Ferreira, I., Henry, R.M.A., Twisk, J.W.R, et al. (2005). The metabolic syndrome, cardiopulmonary fitness, and subcutaneous trunk fat as independent determinants of arterial stiffness. *Archives of Internal Medicine*. 165, 875.
- Golden, S. H., Lazo, M., Carnethon, M., Bertoni, A. G., Schreiner, P. J., Roux, A. V. D., et al. (2008). Examining a Bidirectional Association Between Depressive Symptoms and Diabetes. *Journal of American Medicine Association*. 299, 2751 – 2759.

- Herva, A., Rasanen, P., Miettunen, J., Timonen, M., Lakso, K., Veijola, J., et al. (2006). Co-occurrence of metabolic syndrome with depression and anxiety in young adults: the Northern Finland 1966 Birth Cohort Study. *Psychosomatic Medicine*. 68:213–6.
- Jarjoura, D., Polen, A., Baum, E., Kropp, D., Hetrick, S., Rutecki, G., (2004). Effectiveness of screening and treatment for depression in ambulatory indigent patients. *Journal of General Internal Medicine*. 19, 78-84.
- Koponen, H., Jokelainen, J., Keinanen-Kiukaanniemi, S., Kumpusalo, E., Vanhala, M., (2008). Metabolic syndrome predisposes to depressive symptoms: a population-based 7-year follow-up study. *Journal of Clinical Psychiatry*. 69, 178-82.
- Kumar, R., Anstey, K.J., Cherbuin, N., Wen, W., Sachdev, P.S., (2008). Association of type 2 diabetes with depression, brain atrophy, and reduced fine motor speed in a 60- to 64-year-old community sample. *American Journal of Geriatric Psychiatry*. 16, 989-98.
- Miettola, J., Niskanen, L.K., Viinamaki, H., Kumpusalo, E., (2008). Metabolic syndrome is associated with self-perceived depression. *Scandinavian Journal of Primary Health Care*. 26, 203-10.
- Pelosi, L., Slade, T., Blumhardt, L.D., Sharma, V.K., (2000). Working memory dysfunction in major depression: An event-related potential study. *Clinic Neurophysiology* 111, 1531–1543.
- Vaccarino, V., McClure, C., Johnson, B.D., Sheps, D.S., Bittner, V., Rutledge, T., et al. (2008). Depression, the metabolic syndrome and cardiovascular risk. *Psychosomatic Medicine*. 70, 40-8.
- Valtonen, M., Laaksonen, D.E., Tolmunen, T., Nyyssonen, K., Viinamaki, H., Kauhanen, J., et al. (2008). Niskanen L. Hopelessness -- novel facet of the metabolic syndrome in men. *Scandinavian Journal of Public Health*. 36, 795-802.

Vogelzangs, N., Suthers, K., Ferrucci, L., Simonsick, E.M., Ble, A., Schragger, M., (2007).

Hypercortisolemic depression is associated with the metabolic syndrome in late-life.

Psychoneuroendocrinology. 32, 151-9.

Running head: DISPARITIES IN CERVICAL SCREENING AMONG MINORITY GROUPS.

Disparities in Cervical Cancer Screening among Minority Groups: A Case Study.

Rodica Malos

Oregon Health & Science University

12.23.08

Introduction

Disparities in health care are associated with race, ethnicity, culture and socioeconomic status (Seeff & McKenna, 2003). Disparities in cervical cancer screening exist among immigrant and ethnic minority communities despite programs developed at state and federal level specifically for breast and cervical cancer screening for underserved patient population (Johnson, Mues, Mayne & Kiblawi, 2006). The federal initiative is to screen for both breast and cervical cancer through the Breast and Cervical Cancer Program (BCCP) but the focus in this paper is on disparities in cervical cancer screening in minority groups.

Various socioeconomic and cultural factors contribute to the growing disparity in cervical cancer screening among underserved patients (Johnson, Mues, Mayne & Kiblawi, 2008). Low financial resources, lack of education about cervical cancer risk factors, cultural attitudes toward screening, and language barriers create obstacles in cervical cancer screening for immigrant women. These disparities in access, diagnosis and treatment increase the risk of not detecting cancer in its early stage leading to poor prognosis and premature death (Adler & Rehkopf, 2007). The disparity affects screening, early interventions, available treatments and decision making with regard to health promotion and disease prevention especially in cervical cancer in ethnic groups. Disparities in treatment practices in preventing cervical cancer and lack of follow-up visits for early interventions among minority populations lead to higher mortality rate and higher cost for care (Downs, Smith, Scarinci, Flowers & Parham, 2008).

Epidemiology

Cervical cancer cases have increased approximately 55% to 60% in women who were not screened due to the disparities in access to cervical cancer screening (Downs, Smith, Scarinci, Flowers & Parham, 2008). The disparities in health outcomes among impoverished ethnic

communities are influenced by differences in screening, treatment, lifestyle and behavioral risk factors, and follow-up rates for abnormal Pap smear results. Follow-up to receive colposcopy according to the national guidelines after an abnormal Pap test is low among minority groups. Minorities had a higher percentage of no follow-up for abnormal Pap smear compared with US born patients (Seeff & McKenna, 2003).

Social disadvantage in cancer screening creates chronic exposure to physiological and psychosocial stress which increases the risks of multiple illnesses. Health is worsening for persons with low socioeconomic status and fewer resources (Adler & Rehkopf, 2007). Lifestyle may play a role as well. For example, sexual activity at an early age and an increased number of sexual partners has been shown to increase risk for cervical cancer (Downs, Smith, Scarinci, Flowers & Parham, 2008).

Minority populations may face disparities because they may have cervical intra-epithelial neoplasia (CIN) previously undiagnosed prior to migration from the country of their origin. Then they delay screening after arrival in US and the cervical cancer remains undetected until they have the Pap smear test. In this condition minorities are at higher risk for cancer that will increased morbidity and mortality rates months or years after they arrive in the US.

Case Study

GF is a 48 year-old Hispanic woman who presents at Portland Adventist Community Service (PACS), a clinic for underserved patients with a complaint of vaginal discharge worsening the last few months. She denied headache, fever, chills, chest pain, abdominal pain or leg swelling. She does not remember when she had her last Pap smear done in her country of origin.

Her past medical history revealed Hepatitis C. She, also, was treated for Chlamydia at age 22. She reports using oral contraceptives for 7 years in her country. Personal and social history reveals that she used tobacco one pack per day for about 10 years. She quit smoking last

year. Alcohol intake is 1-2 beers, 2-3 nights per week. GF works as a part time housekeeper in private homes in Portland. She has no family here. She has few friends that associate with her.

She currently has a monogamous boyfriend for 8 months with whom she is sexually active. She does not use condoms or other protective methods to prevent sexually transmitted diseases. She had two sexual partners in the last two years and five more sexual partners since becoming sexually active at age 17. Her mother is alive and well at age 69 with no significant medical history. Her father is alive and well at age 72 with controlled hypertension. She has no siblings.

Physical exam reveals that GF is alert and oriented in no acute distress with stable vital signs as blood pressure is 105/78 mmHg, heart rate is 70 beats per minute, height is 64"; weight is 130 lbs, and BMI = 22.3. Head and neck exam findings include a normal ophthalmoscopic exam, her throat is clear without exudates, the tympanic membranes have good light reflex and the thyroid is normal to palpation. There is no lymphadenopathy. Her lungs are clear to auscultation. Breasts are symmetric, soft, non tender and without masses. There is no nipple discharge, no lesions or change in color. Heart rate and rhythm are regular without murmurs rubs or gallops on auscultation. Her abdomen is soft, non-tender and without organomegaly or masses. Pelvic exam reveals external genitalia without lesions. Cervical os is visible with no lesions; however, she experiences cervical motion tenderness during the bimanual pelvic exam. Adnexa are not palpable. Pap smear test, Chlamydia and Gonorrhea cultures have been sent to the laboratory. When the Pap smear result revealed abnormality with squamous cell carcinoma, GF was referred to Gynecologist for colposcopy and biopsy to confirm the diagnosis.

She refused in the beginning to follow up with the gynecologist and it took many attempts to convince GF about the severity of the abnormal Pap smear test. The relationship was strengthened as she came to understand that the clinic was concerned about her welfare and helping her to acquire the necessary care that would otherwise be inaccessible. She decided to schedule an appointment with the gynecologist for colposcopy and biopsy. Her cervical cancer was confirmed and she was referred to a surgeon to proceed with surgery and further

investigations for metastases. The surgeon donated his time to perform the surgery and Portland Adventist Hospital covered all other expenses including hospitalization, labs and procedures.

GF's delay in receiving Pap smear test and follow up visits with specialists was due to many factors. She was influenced by her cultural attitudes toward screening and her lack of knowledge about cervical cancer risk factors believing that a Pap smear is needed only if a person is ill. She spoke no English and one of her friends with limited language translated for her during the physical exam, the content of the lab results report and instructions given to follow up with the gynecologist and the surgeon. She was in denial about her health condition when she heard the diagnosis of cervical cancer. Then she was worried about her few resources to cover the expenses with hospitalization and procedures. She similarly refused to follow up with a specialist for colposcopy and biopsy because of worries about costs.

Cervical cancer screening disparities are caused by differences in income, in education, genetic susceptibility, and environmental exposure. Financially Latinos are poorer and live in poverty causing lower educational attainment than non-Hispanic whites (Shah NS, Carrasquillo O, 2006). Latinos have different a belief system toward health care leading to disparities in screening. Younger girls and their parents fear that Pap smears threaten one's virginity or that others will judge them as already having sex when they are not sexually active. Language barriers and low degrees of acculturation are highly associated with increased disparities in cancer screening for Hispanic women compared to American women (Downs, Smith, Scarinci, Flowers & Parham, 2008).

The immigrants' attitudes toward cancer contribute to their low rate of screening. In many cultures, women do not want to know if they have cancer. Personal barriers such as pain, embarrassment, discomfort during examinations with practitioner's touching what are considered private areas, and fear of finding cancer and other diseases contribute to the disparities in cervical cancer screening (Downs, Smith, Scarinci, Flowers & Parham, 2008).

DNP interventions

To eliminate disparities in cancer screening, the DNP focuses on community education about cancer screening and on implementation of proactive strategies that change the sociocultural perceptions, attitudes, and stigmatization regarding cervical cancer screening among minority groups (Johnson, Mues, Mayne, Kiblawi, 2006). The DNP initiates teaching campaigns about cervical cancer screening in minority groups' native languages and leads mobile clinics in the geographical communities where these ethnic groups live and work. The DNP develops educational programs for teaching teens about risk factors and methods to prevent cervical cancer. The DNP connects with churches in communities serving minorities and develop programs to teach women and young girls about available screening through the BCCP.

The DNP develops and implements programs to improve primary prevention strategies through human papillomavirus (HPV) testing. It has been suggested that HPV testing has higher sensitivity in detecting cervical intraepithelial neoplasia than Pap smear tests but is used less often because few studies have demonstrated its efficiency (Mayrand, Duarte-Franco, Rodrigues, Walter, Hanley & Ferenczy, A., et al., 2007).

The DNP establishes goals to identify research opportunities to reduce health disparities in cancer screening and develops screening strategies and programs that address sociocultural factors (Kressin, Raymond & Manze, 2008). The DNP examines and addresses the sociocultural beliefs of the minorities and influences women to accept new evidence based interventions such as the HPV vaccine. The DNP coordinates programs at state and federal level to launch HPV vaccination programs for uninsured children and adolescents. It has been demonstrated that vaccinating younger women before sexual debut has the potential to decrease cervical cancer incidence by 91%. HPV vaccines have demonstrated almost 90%-100% efficacy in preventing HPV infection and its sequelae of precancerous lesions and cervical cancer (Barnabas, Laukkanen, Koskela, Kontula, Lehtinen & Garnett, 2006). Women can be educated about the HPV immunization availability and that girls who become sexually active at an early age put themselves at higher risk for sexually transmitted diseases.

The DNP will develop programs to nurture cultural competencies in the nursing profession. The diversity of the US population necessitates an increase in diversity of the health profession workforce to reflect the same diversity and to understand the health care values and beliefs of all patients. This will help decrease biases in providing care to minorities. The DNP collaborates with other health professions to eliminate the healthcare disparities. Nurses from different cultures will be encouraged to work with minority groups to improve the health care outcomes in the underserved patients.

The DNP will include in her cultural competency care effective recruitment and retention of the underrepresented minority practitioners in clinical practices. Students from minority groups will be encouraged while in high school (some recommend middle school) to orient themselves toward nursing careers and continue their education in the graduate programs to become advanced practitioners and primary care providers. The nursing students will be placed in community clinics early to gain experience to provide care to underserved populations (Mitchell & Lassiter, 2006). Encouragement and support from their preceptors for underrepresented minorities in health care professions will assist them to develop responsibilities for their own group of people and provide quality care for minorities regardless of race or ethnicity. The health care workforce diversity can be achieved by incorporating cultural training and competency in the pre-doctoral and doctoral curriculum. It is essential to create a diverse workforce in the health care system to improve access to care for underserved minority populations. This will improve the communication between patients and practitioners and will increase the amount of care, the quality of care delivered and satisfaction with care received (Mitchell & Lassiter, 2006).

Expected outcomes

Reducing and eliminating disparities in cervical cancer screening in minority populations will improve their quality of life and will decrease the premature death and mortality rates. Early detection of cervical cancer will reduce Emergency Room visits by minorities who delay seeking

proper screening, treatment and interventions from a primary care provider. Waiting until experiencing signs and symptoms from a complicated condition raises the risk of untoward health outcomes and premature mortality. In order to achieve these outcomes, the interventions are threefold, to increase cancer knowledge and awareness of BCCP availability among minorities, to change their health behaviors, and to increase health care access for underserved patients for further interventions when abnormal pap smears are detected. All of these outcome factors are related to income, education and socioeconomic status and cultural beliefs and attitudes of ethnic groups. Reducing disparities in cancer screening may reduce health care cost with emergency visits and frequent hospitalizations in the long run by identifying and treating diseases in the early curable stage.

Advance Nursing Practice Implications

The goal of Advanced Nursing Practice (ANP) and public health practice is to eliminate health disparities. Significant cervical cancer prevention efforts are required to reduce and eliminate disparities in the growing minority population in the US. The 28.4 million people within the US population who were born outside of the US represent 10.4% percent of the U.S. population (Seeff & McKenna, 2003). Half of all immigrants have no usual source of care due to lack of insurance. Lack of health care insurance has been identified as a major barrier to accessing the health care system including patient education, screening, and follow-up care for early interventions among immigrant populations (Carrasquillo & Pati, 2004).

The DNP must identify and reduce barriers to cancer screening among minorities. Multifaceted interventions must be used by the practitioners providing care for racial or ethnic minority. The DNP must recognize the patients' fear of not receiving treatment due to their immigration status and must provide information and resources for cancer screening available for minorities. The DNP develops ways to inform the patient's significant other about a cancer diagnosis to decrease

the patient's anxiety. Many women are afraid that the surgery would cause the cancer to spread throughout her body. The DNP educates the minority patients to familiarize them with the use of traditional medicine and Western health practice while at the same time demonstrating their awareness of and sensitivity to the patient's culture and belief system (Johnson, Mues., Mayne & Kiblawi, 2006). The DNP learns about their patients' culture and beliefs to allay fears and encourages women from different cultures to seek care. Helping patients communicate about their beliefs and practices will clarify the provider's misconceptions about patients' beliefs.

Sex education programs must be developed including abstinence among teenager in minority groups. Abstinence from sexual activity among teenagers is one of the most important health promotion and diseases prevention measures in the younger population even though it is not discussed in literature and not implemented in the educational institutions in the US.

Health policy

Policy and future research must be focused and directed at reducing and eliminating disparities in cancer screening (Blasé, Polite, James, Dignam, Olufunmilayo & Olopade, 2006). The DNP will help other health care providers and policy makers to be aware of the various sociocultural factors influencing health care access for cancer screening in the ethnic minorities in the US. The policy makers must direct their efforts toward improving primary prevention strategies through community education about cervical cancer screening (Johnson, Mues., Mayne & Kiblawi, 2006). The policy makers must be encouraged to use justice in balancing the interests of different population groups.

The DNP also informs policymakers to understand the unintended implications of health policy and public health outcomes of HPV vaccination in these populations at high risk who are not screened due to language and access barriers, and low socioeconomic status. The public

policy makers should facilitate cost effectiveness and equity in accessing recommended health standards such as vaccination for HPV and cervical cancer screening (Shah & Carrasquillo, 2006).

One remedy for health care disparities is universal health insurance extended to minorities even during the economic crisis in the US (Adler NE, Newman K. 2002). The disparities among these groups can be reduced with technical advances in the ability to screen, manage, and prevent cervical cancer. It is important that underserved, poor, immigrant, and ethnic minority populations are screened in a timely manner to prevent cervical cancer (Johnson, Mues, Mayne & Kiblawi, 2006).

Research aimed toward reducing health care disparities in cancer screening should be a priority nationwide (Beach, Gary, Price, Robinson, Gozu & Palacio, 2006). Growing demands to provide care to the uninsured patients exacerbates the crises that already exist in the economic and healthcare systems. This leaves out disease prevention and health promotion including cervical cancer screening in minorities (Rutledge & McLaughlin, 2008).

Self reflection

This paper increased my awareness of the magnitude of the health care needs of minorities who work in small businesses with low wages, in agriculture and in service industries that traditionally do not provide health coverage for employees. Acquiring more knowledge about resources available for minorities to prevent and eliminate disparities in cancer screening was helpful and needs to be disseminated among ethnic communities, churches and social clubs. Updating knowledge about ethnic minorities and becoming familiar with effective policy development and intervention programs which address the root causes of disparities (Adler & Rehkopf , 2007) was useful and will require on-going attention to the literature. I grew in the area of initiating screening strategies at lower cost through the coalition clinics in communities with immigrants in time of economic crisis. Advocating fundamental steps in implementing public health programs to reduce disparities in screening and preventing cervical cancer by using HPV testing adjunct to cytology and therapeutic vaccines (Franco, Duarte-Franco & Ferenczy,

2001) has resulted in decreased number of cervical cancer cases in this clinic.

I learned that lack of diversity in the health care workforce creates cultural challenges in understanding beliefs and attitudes as well as language barriers which affect the relationship between the patients and the health care providers (Mitchell & Lassiter, 2006).

Increased diversity among the health care workforce facilitates access to care for minorities and the underserved population. I found in the literature that an obvious gap exists to address the potential contribution of provider behavior to disparities in medical care for underserved population (Kressin, Raymond & Manze, 2008). Providers can easily discriminate against patients from different ethnicities by making assumptions about the patients' abilities, intentions and motives, according to their ethnicity. Racism negatively affects the treatment of minority patients in many ways. Many health care providers may not give patients the full range of treatment options, because the provider may believe that patients are not able or willing to adhere to the prescribed therapies (Kressin, Raymond & Manze, 2008).

In conclusion, due to the economic crisis of the country, resources will be disappearing for health care for unemployed and illegal immigrant and ethnic minorities without health insurance coverage. During the economic crises as DNP I will continue efforts to disseminate evidence based information for best practices regarding health promotion and disease prevention including cervical cancer screening among minority groups. As DNP I need to improve skills to develop strategies to influence other health care providers to meet the needs for care of the underserved population through various means whether donating their time or resources. This action will prevent a greater economic crisis when these patients get sicker and will use more resources ruining further the nations' health care system. As a DNP I plan to develop and lead health clinic making quality care available at a lower cost and more affordable for minorities to keep them healthy and to prevent more health care crisis which has a negative effect on the American economy.

References

- Adler, N.E., Newman, K., (2002). Socioeconomic disparities in health: pathways and policies. *Health Affairs*. 21, 60–76.
- Barnabas R.V., Laukkanen P., Koskela P., Kontula O., Lehtinen M., Garnett, G.P. (2006). Epidemiology of HPV 16 and cervical cancer in Finland and the potential impact of vaccination: Mathematical modelling analyses ? *The Public Library of Science Medicine*. 3, 624-632.
- Beach, M.C., Gary, T.L., Price, E.G., Robinson, K. Gozu, A. & Palacio, A. et al (2006). Improving health care quality for racial/ethnic minorities: a systematic review of the best evidence regarding provider and organization interventions. *BMC Public Health*. 6, 104.
- Blasé, N., James, J., Olufunmilayo, I., Olopade, (2006). Colorectal Cancer Model of Health Disparities: Understanding Mortality Differences in Minority Populations. *Journal of Clinical Oncology* 24, 2179-2187.
- Carrasquillo, O., Pati, S., (2004). The role of health insurance on Pap smear and mammography utilization by immigrants living in the United States. *Preventive Medicine*. 39, 943-50.
- Downs, L.S., Smith, J.S., Scarinci, I., Flowers, L., Parham, G., (2008). The disparity of cervical cancer in diverse populations. *Gynecologic Oncology*. 109, 22-30.
- Franco, E.L., Duarte-Franco, E., Ferenczy, A., (2001). Cervical cancer: Epidemiology, prevention and the role of human papillomavirus infection. *Canadian Medical Association Journal*, 164, 1017-1025.
- Goldman, D.P., Smith, J.P., Soodm N., (2005). Legal status and health insurance among immigrants. *Health Aff*. 24, 1640–1653.
- Johnson, C.E., Mues, K.E., Mayne, S.L., Kiblawi, A.N. (2008). Cervical cancer screening among immigrants and ethnic minorities: a systematic review using the Health Belief Model. *Journal of Lower Genital Tract Disease*. 12, 232-41.

- Kressin, N.R., Raymond, K.L., Manze, M., (2008). Perceptions of race/ethnicity-based discrimination: a review of measures and evaluation of their usefulness for the health care setting. *Journal of Health Care for the Poor & Underserved*. 19, 697-730.
- Mayrand, M.-H., Duarte-Franco, E., Rodrigues, I., Walter, S.D., Hanley, J., Ferenczy, A., et al., (2007). Human papillomavirus DNA versus Papanicolaou screening tests for cervical cancer. *New England Journal of Medicine*. 357, 1579-1588.
- Mitchell, D.A., Lassiter, S.L., (2006). Addressing health care disparities and increasing workforce diversity: the next step for the dental, medical, and public health professions. *American Journal of Public Health*. 96, 2093-7.
- Rutledge, M.S., McLaughlin, C.G., (2008). Hispanics and health insurance coverage: the rising disparity. *Medical Care*. 46, 1086-92.

- Sarto, G. (2006). Of disparities and diversity: where are we?. *American Journal of Obstetrics & Gynecology*. 192(4):1188-95
- Toofany, S., (2006). Good health for all. *Nursing Management*. 13, 14-8.
- Seeff, L.C, McKenna, M.T., (2003). Cervical cancer mortality among foreign-born women living in the United States, 1985 to 1996. *Cancer Detect Prev*, 27, 203-8.
- Shah, N.S., Carrasquillo, O., (2006). Twelve-year trends in health insurance coverage among Latinos, by subgroup and immigration status. *Health Aff*. 25, 1612–1619.
- Taylor, S., Marandi, A., (2008). Social determinants of health and the design of health programs for the poor. *BMJ*. 337, 290.

If you need to type anything after the reference list then start it on this page

Helicobacter Pylori Infection. A Case Study. 1

Running head: HELICOBACTER PYLORI INFECTION. A CASE STUDY.

Helicobacter Pylori Infection in Minorities. A Case Study.

Rodica Malos

Oregon Health & Science University

12.01.08

Definition and description of the Helicobacter pylori infection

Helicobacter pylori (*H. pylori*) are gram-negative bacteria with the ability to replicate within the gastric mucosa. Infection with *H. pylori* pathogen leads to several gastrointestinal diseases, such as gastritis, peptic and duodenal ulcers and gastric carcinomas (Kato, Vivas, Plummer, Lopez, Peraza & Castro, et al 2004). *H. pylori* survive and colonize in the gastrointestinal and in the hepatobiliary tracts of humans and animals (Azevedo, Almeida, Fernandes, Cerqueira, Dias & Keevil, et al., 2008). The infection is acquired in early childhood and persists throughout life if not treated (Kivi & Tindberg, 2006).

Sgouros & Bergele, (2006) demonstrated that *H. pylori* have the *cagA*, a large chromosomal region of the bacteria that encodes virulence and cytotoxin genes. The variations in strains are the cause of pathogenesis of infectious diseases (Sgouros & Bergele, 2006). Several types of polymorphisms in the human genome are considered to be responsible for differences in the outcomes of *H. pylori* infection. The inherited genotypes are responsible for differences in carcinogen metabolism, inflammatory responses, DNA repair, and tumor suppressor genes (Sgouros & Bergele, 2006). People infected with *cagA* positive *H. pylori* are more likely to have gastric adenocarcinoma. Gastric cancer is the second most common cancer with poor prognosis leading to high morbidity and mortality. The International Agency for Cancer Research categorized *H. pylori* as a group 1 carcinogen causing gastric cancer (Morales, Sampliner, Camargo, Marquis, Garewal & Fennerty, 2001).

Increased prevalence of *H. pylori* infection has been demonstrated in blacks and Hispanic groups. These minority groups also have high risk for gastric cancer. The highest frequency of gastric cancer in the US is found in geographic areas with populations having the highest rates of *H. pylori* infection and has been shown that 80–90% of elderly patients and 60% of children

Helicobacter Pylori Infection. A Case Study. 3
have H. pylori infection (Alexander & Brawley, 2000). The growing number of underserved patients with the H. pylori infection raise the health care costs, and concerns about the quality of life of these patients.

Socioeconomic status, cultural, ethical, political factors are associated with the environmental risks for H pylori infection in the minorities. Evidence shows that people with low socioeconomic status are exposed to environmental health risk factors including hazardous wastes and poor water quality in crowded residential areas with low housing quality (Evans & Kantrowitz, 2002). Studies demonstrated that H. pylori survives in water which may be a potential source of bacterial transmission, especially where water is not adequately treated and the plumbing systems are very old (Park, Mackay & Reid, 2001). It was shown in a study that H. pylori can survive several days in water, suggesting that water contaminated with feces will cause H. pylori infection by fecal-oral transmission (Lu, Redlinger, Avitia, Galindo & Goodman, 2002). The persistent form of H. pylori in water plays an important role in the transmission of disease (Shahamat, Mai, Paszko-Kolva, Kessel & Colwell 1993). Other risk factors for H. pylori infections and gastric precancerous lesions are diet high in salt and starch and low in meat, fish, and fresh vegetables (Wu, Chen & Lin., 2005). Alcohol drinking and smoking have been reported to be associated with H. pylori infection. H. pylori infection is common in people with low education level. (Beevers, Lip & Blann, 2004).

Case study

Many patients seeking care at Portland Adventist Community Services (PACS), a family health clinic for minorities and underserved population are diagnosed with Helicobacter pylori (H. pylori) infection. To illustrate, a case will be presented in this paper. Lana is a 45-year-old Hispanic female who presented with complaints of stomach pain that worsened in the last eight

Helicobacter Pylori Infection. A Case Study. 4 months. She reported intermittent increased burning pain in the epigastric area over ten years in her country of origin. She moved from Mexico in the US three years ago. Two years ago, she has been seen by a Primary Care Provider in a free clinic in the Portland area and was diagnosed with Gastro-Esophageal Reflux Disorder (GERD). After completing eight weeks of daily proton pump inhibitor (PPI) therapy she reported only minimal improvement with her stomach pain. One year ago, she started to take anti-inflammatory drugs for headache and lower back pain. The burning pain in her stomach worsened and the pain was not improved by antacids. She stated that the frequency of pain had increased gradually from twice a week to daily. Family history revealed that her father had a history of Barrett's esophagus, her mother had GERD, and three sisters and two brothers reported having intermittent stomach pain. She socializes with friends and likes to drink alcohol 2-3 times a week and smokes ½ of pack of cigarettes per day. Labs have been ordered and she has been diagnosed with H. pylori infection. She has been treated with Prevacid, a triple therapy regimen for 2 weeks and her gastric pain has decreased and her quality of life has improved. She reduced her drinking and smoking and would want to quit in the future

At this time, Lana is a single mother with three children who are at risk for H.pylori infection and need to be tested and treated as well. She works a part time job with minimum wage salary. Lana lives in substandard housing with environmental hazards for H. pylori infection. Her house has old plumbing system in much disrepair. Because of her low income she continues to eat food very high in salt from cans, a diet low in fresh fruits and vegetable, low in fish and meat increasing her risk for H. pylori infection. Alcohol and smoking affect esophagus and gastric mucosa increasing the risk for cancer.

Case analysis

Lana's case has many cultural, ethical, political and socioeconomic implications

associated with environmental health risks for H. Pylori infection. Lana lived in a developing country with poor living conditions before arriving in the US. She lived with her family in a very crowded place where water was not adequately treated. In minority groups, low socioeconomic status and overcrowding are associated with infectious diseases including H. pylori infection (Fiscella & Williams, 2004). Higher prevalence of H. pylori is experienced by those living in crowded household, those foreign born with lower income, less education, and having farming occupation (Everhart, Kruszon-Moran, Perez-Perez, Tralka, McQuillan, 2000)

In the minorities' country of origin the public health regulators do not pay attention to the full treatment of wastewater, rainwater and the proper disposal of treated wastewater, which still contain significant amount of pollutants with environmental health risk for H. pylori infection. They also do not pay attention to a healthy diet with well balanced nutrients, leading them to a higher risk for H. pylori. In these families living in poverty most of the children are infected with H. pylori at younger ages and remain infected for life because they do not seek medical attention except when they are very sick (Ozen Ertem & Pehlivanoglu, 2006). Many of these patients ultimately develop chronic gastritis in their country of origin and immigrate to the US already exhibiting signs and symptoms of their medical condition (Ozen Ertem & Pehlivanoglu, 2006).

There are political implications associated with immigrants coming from countries with low socioeconomic status. It takes a long time for the policymakers to inform themselves about the environmental health risk factors for H. pylori infection in the country where these immigrants lived before they arrived in the US. It also takes longer to develop policies to regulate the construction of ecological purification systems and confection of adequate plumbing material where people with low income live. Much of the research on H. pylori transmission in

Helicobacter Pylori Infection. A Case Study. 6
water is focused on detecting the bacterium in drinking water and associated biofilms but is not focusing on the plumbing system (Azevedo, Pinto, Reis, Vieira & Keevil, 2006).

Greater exposure to *H. pylori* infection among ethnic minorities contributes to gastric cancer and peptic ulcer disease, increasing the burden of those diseases in the US (Everhart, Kruszon-Moran, Perez-Perez, Tralka, McQuillan, 2000). Large public hospitals in an area of high immigration with people harboring *H. pylori* increase the cost of care for the entire nation.

DNP's interventions and prevention strategies

Studies suggest that *H. pylori* infection is putting minority groups at risk for gastric adenocarcinoma and represents a public health hazard. It is necessary to address the inequality of underlying social environmental determinants of the health. All people and communities are entitled to equal protection of these public health laws and regulations. The DNP develops strategies and studies to address the potential environmental risk factors for *H. pylori* infection in populations with low socioeconomic status. The main recommendations are to take specific measures to reduce the risk of *H. pylori* infection diseases in very young children, old people, pregnant women, and immunocompromised individuals (Leclerc, Schwartzbrod & Dei-Cas, 2002). If *H. pylori* infection is caused by contaminated water then then DNP addresses the management of urban rainwater, water reuse, construction of ecological purification systems, and the better selections of materials for water pipes and plumbing technology (Bragança, Azevedo, Simoes, Keevil & Vieira, 2007). To prevent transmission of *H. pylori*, the builders must make the right decision in choosing the plumbing materials (Azevedo, Almeida, Cerqueira, Dias, Keevil & Vieira, 2007). More sophisticated methods are needed to clean the water system in different geographic areas where people use well water.

Because a low socioeconomic status is associated with lower level of education, the

Helicobacter Pylori Infection. A Case Study. 7
population at risk must be educated about the environmental health risk factors for H. pylori infection. The DNP develops intervention programs to educate the minority groups about the possible exposure to contaminated water, diets high in starch and salt and low in meat, fish, and fresh fruits and vegetables, smoking cessation and alcohol abuse.

The DNP influences the federal and state government to address environmental inequalities in the population with low socioeconomic status internationally. International health policies must be developed for prevention, mass screening for H. pylori and antibiotic therapy to be designed to eradicate the infection in developing countries from where the immigrants move to the US. The US policy makers should influence international policy makers to develop health policies for vaccination against infection as a possible solution in those countries.

The DNP develops intervention programs to eradicate H. pylori to improve symptoms of all patients and to reduce the incidence of peptic ulcer and gastric cancer. Treatment should be with triple therapy using a proton pump inhibitor combined with two antibiotics (Malfertheiner, Megraud & Morain, 2002). The DNP influences changes in clinical behavior to avoid delay of translating the research evidence into clinical practice by raising awareness of health care providers about minorities at higher risk for H.pylori infection. The DNP addresses problems with identification of patients with H. pylori infection by screening this population at risk. A great number of underserved patients may benefit from screening and treatment for H pylori infection (Wright, Manning, Bolus & Rajaratnam, 2001).

Smoking and alcohol intake are considered risk factors for H. pylori infection. The DNP considers training smoking cessation and alcohol therapists to understand the theoretical basis of behavior change and treatment using the evidence base. The DNP develops intervention programs to train practice nurses in delivery of motivational behavioral change and to train

Helicobacter Pylori Infection. A Case Study. 8
alcohol therapists in the primary care environment. The DNP develops programs for screening, identification, referral for treatment in conjunction with Adult Children of Alcoholics World Service Organization and Co-Dependents Anonymous which offer 12-step programs for individual psychotherapy, family therapy, and psychopharmacology (Gunderson, Levin & Owen, 2008).

Expected outcomes.

With all the programs developed by the DNP and interventions regarding H. pylori infection in underserved patient population it is expected to attain reduced incidence of gastric cancer and premature death in the minority groups over time. It is expected that with the eradication of H. pylori infection the cost of unnecessary procedures for investigations such as endoscopies will be reduced. The costly multiple failing therapies with antacids and repeated prescriptions for proton pump inhibitors in the clinical practices will be also reduced. Reducing clinical time used by providers for the same patients with the same conditions will free the providers to spend more time with other patients suffering from more complicated conditions. Practitioners will use that time to provide care to other uninsured patients with no access to the health care system. All interventions will increase patients' satisfaction with reduced signs and symptoms, pain and discomfort. Their quality of life will be increased in general.

Health outcomes attained

Eradication of H. pylori infection led to a decrease in procedures such as endoscopies, referral to gastroenterologists and hospital admission for further investigations. The incidence of peptic ulcer, gastric cancer and premature death were reduced (Morales, Sampliner, Camargo, Marquis, Garewal & Fennerty, 2001). The cost associated with unnecessary investigation such as endoscopy, specialists, and hospitalizations was reduced. Patients were satisfied with reduced pain, discomfort, anxiety, fear and other signs and symptoms from H. pylori infection. They

experienced increased quality of care that led to higher quality of life. The cost of multiple failing therapies with antacids and repeated prescriptions for proton pump inhibitors for misdiagnosis of dyspepsia was reduced.

Implications for DNP practice

The implication for practice at the level of a DNP is to influence the policy maker to develop policies for noninvasive evaluation of the population at risk to test-and-treat H. pylori infection. This will reduce referral to hospitals for unnecessary endoscopy of the patients with dyspepsia. The endoscopy workload in dyspeptic patient population will be reduced. The DNP designs research to demonstrate benefits from the H. pylori infection eradication. The DNP influences the policy maker to develop policies for test strategies and vaccination to prevent transmission of the infection among minority children with high prevalence of H. pylori infection in the US. The DNP develops studies to better understand the epidemiology of H. pylori infection in underserved population in their childhood in their country of origin and better understand the interactions between ethnic groups, environment, and socioeconomic conditions. The DNP may study possibilities to influence international policy makers to vaccinate children to reduce the cost of lives lost in developing countries. The DNP emphasizes life style changes as cessation of cigarette smoking, alcohol intake, and an increase in fresh fruit and vegetable consumption that may help slow the progression to gastric cancer in high-risk populations. Lifestyle changes in diet can have anti-inflammatory effects reducing inflammation and risk for gastric adenocarcinoma (Kato, Vivas, Plummer, Lopez, Peraza & Castro, 2004). Studies have documented H. pylori as the major determinant of environmental risk for gastric adenocarcinoma is preventable, clinically detectable and chemotherapeutically treatable.

DNP self-reflection on developing expertise

The growing numbers of uninsured patients with gastric adenocarcinoma from the H. pylori raise the health care costs and the concerns of the health care providers about the quality of life of these patients. It is essential to develop strategies for gastric adenocarcinoma prevention in the minority groups. It is important for the DNP to understand that gastric adenocarcinoma is an important public health problem (Wu, Chen & Lin¹, 2005). Population screening by endoscopy is not feasible in minority groups. The major environmental risks for gastric adenocarcinoma in minority groups are linked to socioeconomic status in their country of origin, unhealthy lifestyle as smoking, alcohol intake and unhealthy diet (Wu, Chen & Lin, 2005). Studies demonstrated that household environment and birth in a developing country from where the minorities immigrated are important risk factors for H. pylori infection (Tsai, Perry, Sanchez & Parsonnet, 2005). In the country of their origin, minorities with duodenal or gastric ulcer had not been offered therapy for H. pylori eradication. The DNP develops partnership with other country.

The DNP needs better understanding of the interactions between environment, ethnic group, and socioeconomic conditions and must develop expertise by understanding more the epidemiology of H. pylori infection in childhood. The DNP must increase the expertise in identifying population with ulcers, dyspepsia, close relatives of patients with peptic ulcer and gastric cancer. This can be accomplished by testing patients with a trial of antacid therapy and nonsteroidal anti-inflammatory drug therapy and treat them to eradicate the H. pylori infection. Screening is a strategy for cancer prevention and H. pylori eradication is the way to prevent gastric cancer and peptic ulcer disease. Benefits must be balanced with the cost of the programs in order to develop a policy for mass screening and vaccination (Forman & Graham, 2004)

The DNP gains knowledge about international health problems and their worldwide implication. For example people get diseases in their country of origin and then immigrate to the

Helicobacter Pylori Infection. A Case Study. 11
US with no access to health care system and become a burden on the US government.

Vaccination in the developing countries can reduce the costs associated with ulcer disease and gastric cancer treatment and save millions of lives (Prinz, Hafsi & Volland, 2003).

The DNP develops H. pylori guidelines using a framework with specific details for best practice and follow-up care in immigrants (de Wit, Mendive, Seifert, Cardin & Rubin, 2000). To protect the immigrants against H. pylori infection is to develop a vaccine in their country of origin and in the US (e Wit, Mendive, Seifert, Cardin & Rubin, 2000). The full treatment of wastewater and rainwater, proper disposal of treated wastewater which contains pollutants is needed.

Minority patients must have better access to medical care and DNPs and NPs must screen, educate and treat H. pylori infection in minority groups. The DNP advocates for minorities' clinic projects to make regular health care more accessible and reduce expensive emergency care for H. pylori infection. The DNP creates systems that improve patient and provider communication for disease management for higher efficiencies and lower costs for care. The DNP develops projects for mobile home clinic that can be more efficient for care in the minority groups.

References

- Adams, B.L., Bates, T.C., & Oliver, J.D., (2003). Survival of *Helicobacter pylori* in a natural freshwater environment. *Applied & Environmental Microbiology*. 69, 7462-6.
- Alexander, G.A., Brawley, O.W., (2000). Association of *Helicobacter pylori* infection with gastric cancer. *Military Medicine*. 165, 21-7.
- Azevedo, N. F., Almeida, C., Cerqueira, L., Dias, S., Keevil, C. W., & Vieira, M. J., (2007). Coccoid form of *Helicobacter pylori* as a morphological manifestation of cell adaptation to the environment. *Applied in Environmental Microbiology*. 73, 3423-3427.
- Azevedo, N. F., Pacheco, A. P., Vieira, M. J., & Keevil, C. W., (2004). Nutrient shock and incubation atmosphere influence recovery of culturable *Helicobacter pylori* from water. *Applied in Environmental Microbiology*. 70, 490-493.
- Azevedo, N.F., Almeida, C., Fernandes, I., Cerqueira, L., Dias, S., & Keevil, C.W., et al., (2008). Survival of gastric and enterohepatic *Helicobacter* spp. in water: implications for transmission. *Applied in Environmental Microbiology*. 74, 1805-11.
- Azevedo, N.F., Pinto, A., Reis, N., Vieira, N., Keevil, C., (2006). Shear stress, temperature, and inoculation concentration influence the adhesion of water-stressed *Helicobacter pylori* to stainless steel 304 and polypropylene. *Applied in Environmental Microbiology*. 72, 2936-2941
- Beevers, D.G., Lip, G.Y., & Blann, A.D., (2004) Salt intake and *Helicobacter pylori* infection. *Journal of Hypertension*. 22, 1475-7.
- Bragança, S., Azevedo, N., Simoes, L., Keevil, C., & Vieira, M., (2007). Use of fluorescent in situ hybridisation for the visualisation of *Helicobacter pylori* in real drinking water biofilms. *Water Science and Technology*. 55, 387-393.
- Cellini, L., Del Vecchio, A., Di Candia, M., Di Campli, E., Favaro, M., & Donelli, G., (2004). Detection of free and plankton-associated *Helicobacter pylori* in seawater. *Journal Applied in Microbiology*. 97, 285-292.

- de Wit N.J., Mendive, J., Seifert, B., Cardin, F., & Rubin, G.,(2000). Guidelines on the management of H.pylori in primary care: development of an implementation strategy. *Family Practice. 17*, 27-32.
- Evans, G.W., Kantrowitz, E., (2002). Socioeconomic status and health: the potential role of environmental risk exposure. *Public Health. 23*, 303–31.
- Everhart, J.E., Kruszon-Moran, D., Perez-Perez, GI., Tralka, T.S., McQuillan, G., (2000). Seroprevalence and ethnic differences in Helicobacter pylori infection among adults in the United States *Journal of Infectious Diseases. 181*, 1359-63.
- Fiscella, K., Williams, D.R., (2004). Health disparities based on socioeconomic inequities: implications for urban health care. *Academic Medicine. 79*, 1139-47.
- Gunderson, E.W., Levin, F.R., Owen, P., (2008). Impact of a brief training on medical resident screening for alcohol misuse and illicit drug use. *American Journal on Addictions. 17*, 149-54.
- Kato, I., Vivas, J., Plummer, M., Lopez, G., Peraza, S., & Castro, D., et al., (2004). Environmental factors in Helicobacter pylori-related gastric precancerous lesions in Venezuela. *Cancer Epidemiology, Biomarkers & Prevention. 13*, 468-76.
- Kivi, M., & Tindberg, Y., (2006). Helicobacter pylori occurrence and transmission: a family affair? *Journal of Infection Diseases. 38*, 407-417.
- Leclerc, H., Schwartzbrod, L., & Dei-Cas, E., (2002). Microbial agents associated with waterborne diseases. *Critical Revolution. Microbiology. 28*, 371-409.
- Lu, Y., Redlinger, T. E., Avitia, R., Galindo, A., & Goodman, K., (2002). Isolation and genotyping of Helicobacter pylori from untreated municipal wastewater. *Applied in Environmental Microbiology. 68*, 1436-1439.
- Malaty, H.M., Logan, N.D., Graham, D.Y., Ramchatesingh, J.E., (2001). Helicobacter pylori infection in preschool and school-aged minority children: effect of socioeconomic indicators and breast-feeding practices. *Clinical Infectious Diseases. 32*, 1387-92.

- Malfertheiner, P., Megraud, F., O'Morain, C., (2002). Current concepts in the management of Helicobacter pylori infection. *Aliment Pharmacological Therapy* 16, 167–180
- Ozen, A., Ertem, D., & Pehlivanoglu, E., (2006). Natural history and symptomatology of Helicobacter pylori in childhood and factors determining the epidemiology of infection. *Journal of Pediatric Gastroenterology & Nutrition*. 42, 398-404.
- Wu, M.C., Chen, C.J., Lin, G.T., 1 (2005). Host-Environment Interactions: Their Impact on Progression from Gastric Inflammation to Carcinogenesis and on Development of New Approaches to Prevent and Treat Gastric Cancer. *Cancer Epidemiol Biomarkers Prevention*. 14, 233-258.
- Morales, T.G., Sampliner, R.E., Camargo, E., Marquis, S., Garewal, H.S., Fennerty, M.B., (2001). Inability to noninvasively diagnose gastric intestinal metaplasia in Hispanics or reverse the lesion with Helicobacter pylori eradication. *Journal of Clinical Gastroenterology*. 32, 400-427.
- Park, S. R., Mackay, W. G., & Reid. D. C., (2001). Helicobacter species. recovered from drinking water biofilm sampled from a water distribution system. *Water Research*. 35, 1624-1626
- Piqueres, P., Moreno, Y., Alonso, J.L., & Ferrus, M. A., (2006). A combination of direct viable count and fluorescent in situ hybridization for estimating Helicobacter pylori cell viability. *Research in Microbiology*. 157, 345-349.
- Prinz, C., Hafsi, N., Volland, P., (2003). Helicobacter pylori virulence factors and the host immune response: implications for therapeutic vaccination. *Trends in Microbiology*. 11, 134-8.
- Sgouros, S.N., Bergele, C., (2006). Clinical outcome of patients with Helicobacter pylori infection: the bug, the host, or the environment. *Postgraduate Medical Journal*. 82, 338-42.

Shahamat, M., Mai, U., Paszko-Kolva, C. P., Kessel, M., & Colwell, R. R., (1993). Use of autoradiography to assess viability of *Helicobacter pylori* in water. *Applied in Environmental Microbiology*. 59, 1231-1235

Tsai, C.J., Perry, S., Sanchez, L., Parsonnet, J., (2005). *Helicobacter pylori* infection in different generations of Hispanics in the San Francisco Bay Area. *American Journal of Epidemiology*. 162, 351-7.

Watson, C. L., Owen, R. J., Said, B., Lai, S., Lee, J. V., Surman-Lee, S., et al., (2004). Detection of *Helicobacter pylori* by PCR but not culture in water and biofilm samples from drinking water distribution systems in England. *Journal Applied Microbiology*. 97, 690-698.

Wright J. Manning AP. Bolus J. Rajaratnam G. (2001). Do all patients in primary care who may benefit from eradication of *Helicobacter pylori* have access to effective care. *Public Health*. 115, 282-5,

Wu, M.S., Chen, C.J., & Lin, J.T., (2005). Host-environment interactions: their impact on progression from gastric inflammation to carcinogenesis and on development of new approaches to prevent and treat gastric cancer. *Cancer Epidemiology, Biomarkers & Prevention*. 14, 1878-82.

Running head: HEALTH FAIR CASE REPORT

Health Fair Case Report on DNP Leadership

Rodica Malos

Oregon Health & Science University

04/28/09

DNP Leadership Case Report

The leadership role of the DNP student in organizing a Health Fair (HF) event for community dwelling minority groups in June 2008 is addressed in this paper. The DNP student embraced the need to educate a specific minority group regarding health promotion and disease prevention, beginning with screening for hypertension, hyperglycemia, and hyperlipidemia levels. At the three days HF event, approximately 200 people were screened. Many of them were found with high blood pressure, high blood sugar levels and high cholesterol; many undiagnosed, asymptomatic and thus, unaware of these potentially debilitating, predisposing health factors.

Relevant issues addressed in this case report

Many people from the Romanian community and other different minority groups are underinsured or uninsured, with no health care access or economic means to provide ongoing health care. Frequently, they have multiple undetected medical conditions which worsen without timely treatment. With no PCP to follow them, their acuity level rises which may then require immediate and emergent care. With the growing ranks of the number of unemployed, the health care delivery system must shoulder a deeper burden and eventually will be depleted of finite resources. The question is where will all these patients go for care with their undiagnosed, uncontrolled chronic conditions and who will pay for that care?

Organizing HF events for screening will detect untreated conditions before the person develops complications from those disease processes; and people with abnormal

results can be connected with free or low cost clinics for further evaluation. Early detection of disease and treatment may decrease the costs for care for this patient population by preventing or reducing complications and improving the quality of life of these human beings.

The planner, organizer, and central leader of the HF event was the DNP student who had many network connections to this community and to free or low cost clinics in Portland; she was able to connect persons found with abnormal results for further investigation and management of their diseases. People with complications were connected with well known specialists who donate their time, providing free health services for the needy patients through the Project Access Now (PAN) program.

Context for decision making

The first and foundational decision was to choose the proper volunteer board of directors. The health care professionals representing different minority groups were approached to form the board of directors. The DNP had the responsibility of contacting different organizations, churches, providers and health care professionals, pharmacies, business people in the community, and nursing students to donate supplies and time for the HF. All the stakeholders were individually informed about the event and asked for cooperation and collaboration with the respective board of directors. Church leaders, activists and media (Romanian Times) were contacted to advertise about the event, to inform people from their community about the screening event.

In general, the church leaders were interested in having healthy people in their congregation, thus reducing the burden upon the Church expenses supporting those seeking financial help. Healthy members would be able to support themselves and would

be able to contribute more from their finances, and volunteer help to others. Health care providers from different practices were willing to participate to obtain additional information about their specific population's health conditions in the community at large and secondarily, to advertise for their services. Media was involved to showcase health care events, stimulating interest in ongoing events through media coverage.

Decision points and locus of authority for decision making

Decisions were made about providers' willingness to participate, the census and competency of the health care providers that needed to be validated with documentation. Additionally initiatives, policies, technologies, responsibilities, legal ramifications all affect the personnel who participate in the HF. The DNP, as the leader of the event, had to make decisions about time, location, supplies, , limits of the services as screening and medical consultation, referrals to clinics, follow up possibilities, resources for those persons with abnormal results from screening, other underlying conditions, and complications from untreated diseases. The DNP was able to choose a strong and healthy board based on her leadership experience from the past leading her own organization for 17 years (Dirubbo, 2007). Business leaders and friends in community were asked about their willingness to take positions on the volunteer board of directors for two years period.

Criteria used for making decisions

In making decisions the DNP had to emphasize cooperation, reduction of hierarchy, teamwork and empowerment of the volunteering health care professionals to improve participation in screening for people in the minority groups. The DNP had to establish common goals and directions, to motivate and inspire, to align people, to plan and

budget, to organize staff, and to control and solve problems (Callahan & Ruchlin, 2003). The DNP promoted trust and confidence in her leadership abilities. She clearly articulated her point of view and she accepted challenges by others. DNP validated her leadership skills with other leaders in community communicating with them through different forms. She was able to develop additional skills after receiving feedback from the mistakes and successes in the past.

By using global thinking, the DNP gave vision and perspective in applying new strategies to optimize the practice and role of the volunteers at the HF. The DNP analyzed the American Diabetes Association and American Heart Association national standards and integrated them in the HF screening event. The DNP was able to create a clear view of future events in screening populations at risk. This enabled the DNP to lead and to model for others when developing future events targeting needs of community minority groups. She was able to integrate the past and present consequences and foresee outcomes of the health care events in the future to influence others, translating for them how they can envision a successful outcome for future outreach efforts. The leader created a safe environment to communicate, by engaging people in dialogue, embracing and focusing on common goals of the stakeholders. The conflicts were addressed in a timely, respectful and professional manner.

Strategies used to address the problem

The strategies used to address the need for a HF event for the Romanians started with meetings with leaders and providers in the community who were concerned about Romanians living without health care coverage and getting sicker without access to

health services. It is known that over 15,000 Romanians live in Portland and Vancouver area. More than 50% have no medical insurance and half of this group are over age 50 years of age and unable to learn English to be able to find a job.

The volunteer board of directors was formed: one Registered Nurse (RN) working in community health department, one Nurse Practitioner (NP) practicing in the clinic for underserved populations with different specialties, two Medical Doctors (MD) and one Cardiologist. The DNP student was the Coordinator, and a clinical nurse manager was the facilitator. They held a meeting early in March to discuss the HF event in June. They also discussed the skills, competency and credentials of the personnel, expectations and personnel performance, patient satisfaction surveys, personnel surveys, incident reports and other evaluation forms, and optimal dates for the HF event. The group met an additional 2 times prior to the event. Each health care professional accepted responsibility for the HF event, bringing necessary equipment for screening. In June, the HF event was held at a local Romanian church who donated the space for the event. The church lobby served as a waiting room with a table for registration close to the main entrance. A total of seven RNs performed blood pressure, and blood glucose screening, three NPs and two MDs were consulting with patients in more depth about their untreated health and conditions. Three rooms were assigned for examination of people with heart disease to accommodate EKG and echography performed by a cardiologist. Age and language specific materials with evidence based information about health promotion and disease prevention targeting hypertension, diabetes, and hypercholesterolemia were distributed. They were developed by the DNP and distributed to each participant at the HF. The publicity of the event was sent to the Romanian Times and six Romanian Churches in

Portland and Vancouver area. The workforce personnel connected via phone and email for updates and reminders.

Rationale, theory, and evidence base

The DNP shared the vision that evolved from the improvement based on evaluation of past HF and explored current circumstances and possibilities in the future (Carney & Bistline, 2008). Vision is very important to continue to organize the HF events. The vision must be communicated effectively to motivate others to cooperate and build collaboration to take actions and implement the vision (Shanta & Kalanek, 2008). The entire team met to debrief all aspects of the HF event. Members of the team were asked questions about their suggestions for improvement and what would be recommended strategies for making these improvements (Carney & Bistline, 2008).

The leader observed for competency and culture sensitivity of the health care providers at the HF (Carney DM. Bistline B., 2008). She clearly articulated her point of view and she accepted challenges by others. She validated her leadership skills with other leaders in the community, communicating with them in different forms, able to develop additional skills from feed back, learning from her mistakes and successes.

The DNP needed to demonstrate knowledge and commitment to the mission and to the goals of the HF in order to optimize the outcomes of the persons attending the event and the health care professionals. The DNP informed others about the HF efficiency and overall efficacy. The of impact of the event of this magnitude was observed on the number of patients served with new diagnoses and the number of patients seeking follow up care (American Association of Critical Care Nurses, 2008).

Leadership style

To organize the HF I used the transformational leadership style that involves sharing vision, thus stimulating and inspiring followers to develop a humanistic relationship between leader and follower (Bally, 2007). The transformational leadership style involves collaborative partnerships built with health care professionals in the community to implement the vision. Gaining credibility and developing trust began with dialogue conducted in an open and friendly relationship style, treating people with respect and dignity. Based on feedback provided by the patients and community leaders during and after the event, my leadership skills were strengthened and I was able to plan other HF event in the future (Bally, 2007).

I was able to demonstrate knowledge and commitment to the mission of the HF optimizing population outcomes, the health care professional satisfaction, and ensuring evidence-based practice with screening processes. I was able to deliver effective communication by translating complex issues into meaningful explanations and to clearly explain the complex issues to groups and individuals, aligning the mission, goals and priorities of the health fair (Rusche, Besuner, Partusch & Berning, 2001).

As the leader of the event I initiated the process to prioritize and clarify the needed competencies including examples of skills that would be evident in an individual with the competency. The competency of the health care providers in screening people from different minorities groups helped in assessing the ability to perform specific activities, procedures, and behaviors needed to provide care for a designated client population (Rusche, Besuner, Partusch & Berning, 2001). This served to clearly communicate to stakeholders the competencies of the health care professionals involved in the screening

event roles and to assist health care professionals in the community in assessing their readiness for the HF. It also assisted in identifying, recruiting and developing potential providers as future health care providers for HF in community. As DNP student and Advance Nurse Practitioner emphasizing the need for health promotion and disease prevention I was able to focus on screening to discover diseases that are otherwise undetected in minority groups. Highly qualified and committed health care professionals were needed and essential to the continuing health and progress of the HF.

Self-evaluation of leadership style and impact

The debriefing of the HF activities revealed that leading such an event is a great service for minorities and people with no insurance but health care needs remain in the underserved patient population. I realized that my leadership style can bring improvement that will be achieved by elevating skill sets for the volunteers participating in HFs in different communities. It will have an impact on the health of the minorities groups and health care professionals who want to provide care at low cost or want to donate their time to make a difference in the underserved populations. The positive aspects included optimizing the physical environment for the participants, a closer relationship among the health care providers during screening time. Improvements will be achieved by including staff from additional professions and specialists and more health care professionals as primary care providers, endocrinologist, naturopaths, pharmacist doctors, dentists, ophthalmologists from Romanian community speaking language of persons screened and other minorities. Additional days will be added, and more advertising will be made in additional news papers and community TV channels, churches, stores and schools. The cost of the services provided were estimated at \$20, 000. This included the cost of

supplies, equipment, health care professionals hours and staff hours donated during the health fair event.

Feedback from others,

Many leaders in Romanian community and health care professionals reported that they were impressed and satisfied with the outcomes from the HF event. Romanian people want to have this event twice a year and to expand the screening to detect other risk factors for other disorders, more medical services and clinical consultation. The number of persons who benefited from screening and medical consultation were reported to the leaders in community as the American Romanian Society President, Christians Organizations and Churches leaders, and the Romanian Times magazine. Other leaders from different minorities groups visited us during this event and expressed their desire to initiate and organize a HF in their own groups to screen not only for BP, BG and Cholesterol but also for other conditions such as smoking, alcohol, drugs, risk for stroke, depression, etc. They asked for help to initiate the HF in their communities. The HF event was an opportunity for me to reflect on the skills as a leader and to discover ways to better organize screening events. I gained experience interacting with community stakeholders, activists and members who were concerned about community health. I experienced growth in interrelationship with patterns to solve problems and issues of health and I gained leadership skills in negotiating, managing, competing, prioritizing and solving conflicts for the well being of all people in community (Cox & Miranda, 2003). I grew up as a leader in collaborating with more health care providers from different specialties.

My influence in future leadership opportunities as a DNP

From the experience as a leader at this event, I can plan future, large community HF events for many minorities groups as Russians, Hispanics, Asians, and underserved Americans. I will be able to assist other health care professionals to organize HF in their minority groups, by influencing the faculty from different universities and colleges to include HF events and volunteer work in their leadership courses curriculum and community. This experience motivated me to increase my leadership role in the community to organize more events to advocate for underserved patient populations, to influence other leaders in the community, to locate resources, influence big companies to donate and other health care professionals from other minorities group to organize periodically HF events to screen people for other risks factors and health conditions as thyroid disorder, anemia, HPV, H.pylori, stroke, depression, and other risk factors to prevent further comorbidities of those conditions. As a DNP student, I can influence the legislators to consider the most disadvantaged population that can become a burden on the government in the future if their problems are not identified and treated.

As a health care leader, my vision includes advocating and influencing the need for health promotion and disease prevention to the legislators since the health promotion and disease preventions interventions are not reimbursed at this time for the providers, to obtain grants for providing care to minorities and to work closer with community leaders and activists. I also can organize HF in other cities where Romanian and other nationalities exist nationally and internationally.

References.

- American Association of Critical Care Nurses (2008). *Framework for governance leadership positions*. Retrieved from <http://www.aacn.org/WD/Volunteers/Content/frameworkforgovernanceleadershippositions.pcms?pid=1&&menu=> Accessed March 6, 2009.
- Apker, J., Ford, W.S., & Fox, D.H., (2003). Predicting nurses' organizational and professional identification: The effect of nursing roles, professional autonomy, and supportive communication. *Nursing Economic*. 21, 226–232.
- Bally, J.M., (2007). The role of nursing leadership in creating a mentoring culture in acute care environments. *Nursing Economics*. 25, 143-149.
- Callahan, M.A., & Ruchlin, H. (2003). The role of nursing leadership in establishing a safety culture. *Nursing Economic*. 21, 296.
- Carney, D.M., & Bistline, B., (2008). Validating nursing competencies using a fair format. *Journal for Nurses in Staff Development - JNSD*. 24, 124-8.
- Cox LS. Miranda D., (2003). Enhancing student leadership development in community settings. *Nurse Educator*. 28,127-31
- Dirubbo NE., (2007). A little altruism can hone your leadership skills. *Nurse Practitioner*. 32, 11.
- Laschinger, H.K., (2004). Hospital nurses perceptions of respect and organizational justice. *Journal of Nursing Administration*. 34, 354–364.
- Laschinger, H., & Finegan, J. (2005). Using empowerment to build trust and respect in the workplace: A strategy for addressing the nursing shortage. *Nursing Economic*. 23, 6–13.
- McGuire E, Kennerly SM. (2006). Nurse managers as transformational and transactional

leaders. *Nursing Economics*. 24, 179-185.

Rusche, J. D., Besuner, P., Partusch, S. K., & Berning, P. A. (2001). Competency program development across a merged healthcare network. *Journal for Nurses in Staff Developmen*. 17, 234-242.

Shanta, L.L., Kalanek, C.B., (2008). Perspectives on nursing leadership in regulation. *JONA's Healthcare Law, Ethics, & Regulation*. 10, 106-11.

Running head: AMPUTATION PREVENTION IN DIABETES

Leg Ulcer and Amputation Prevention in Diabetes: A Case Study

Rodica Malos

Oregon Health & Science University

School of Nursing

04/04/09

Foot infection and amputation in literature

Foot infection and amputation is a serious complication of diabetes and cardiovascular disease. The incidence of amputation is staggering, reported as 13.7 per 1000 diabetes patients with severe infection. Throughout the entire world every 30 seconds a patient with diabetes is losing a lower limb (Chow, Lemos & Einarson, 2008). Infection of the leg ulcer leads to morbidity and mortality and increases the economic burden of the nation. The current annual health care cost for lower extremity infection and amputation is estimated to be \$13.71 billion (Gordois, Scuffham, Shearer, Oglesby, Tobian, 2003).

The prevalence of diabetes is increasing every year with the estimation of 300 million people worldwide in 2025 and patients with diabetes are at high risk for foot ulceration leading to limb amputation (Chow, Lemos & Einarson, 2008). Leg ulcer and limb amputation often challenge the quality of life for patients and their family, disabling patients with diabetes due to immobility and pain. These patients have changes in social functioning and body image also. Persons with amputation may have work restrictions thus worsening their financial situation and socioeconomic status (Resnick, Carter, Lindsay, Henly, Ness & Welty, 2004). Interventions to prevent lower extremity infection and amputation and its complications may promote healthy lifestyles and optimal functioning which provide a higher quality of life and will save health care costs in the U.S. especially during these economically challenged times. Techniques in optimizing glycemic control, preventing and detecting foot infection, managing ulcers and wounds are needed urgently in communities with underserved patient populations (Hambleton, Jonnalagadda, Davis, Fraser, Chaturvedi & Hennis, A, 2009) who may be at greater risk due to economic hardship in maintaining the costly medication regimens.

Case Study.

BG, a 56-year-old male presented with complaint of left toe wound infection for about one year. He stated that he felt well until one year ago when had a cut in his left great toe and did not realize that the toe was infected until he was unable to wear his shoe to go to work. He stated that he was treated for infections in the same location a few times with antibiotics at other free

clinics. He had some relief but the infection worsened. He reported discomfort and pain when walking and “needles and pins” in his feet at night. He denied fever, chills, chest pain, shortness of breath, dyspnea, palpitation, peripheral edema, nausea, vomiting, weakness and syncope and changes in his bowel and bladder. Medical history revealed that he was diagnosed with hypertension in 1993, with type 2 diabetes in 1997, with hypercholesterolemia in 2003, with cellulitis in his lower extremities in 2006, and with neuropathy and retinopathy in 2007. He reported that he had taken medications for these conditions in the past but he had been out of supplies of these medications for years. He had no allergies to drugs. BG denied tobacco, alcohol, and drug use. Social history revealed that BG has been a truck driver for many years but lost his job while struggling with an unhealed wound of his left great toe. He, also, lost his insurance and his health condition deteriorated further. BG lives with his wife in an apartment and has 5 adult children who live in the Portland area. Family history is significant for multiple chronic conditions. His mother is 77 years old with history of diabetes and heart disease. His father died at age 82 from complications of diabetes and other multiple chronic conditions. He has 15 brothers and sisters with “some health problems.” BG has a strong family history of diabetes and heart diseases that made him aware about his own conditions that can lead to complication if the treatment is delayed. That motivates him to seek care from the providers and to adhere to the treatment and self care to prevent fatalism.

Physical exam revealed an ulcer on the left great toe involving the medial aspect (2.5 x 3 x 1 cm). The ulcer had purulent drainage, shedding of skin and well demarcated edges. The wound was surrounded by infarcted skin, dry gangrene with deeper tissues necrosis and a surrounding erythematous area with induration, tenderness, pain, and local warmth. The color of the skin on tip of the great toe was cyanotic and the lower extremities with loss of hair. The lower extremities were pale in color with elevation and dependency caused hyperemia indicating arterial insufficiency. Distal pulses were slightly diminished and the skin was cold. A monofilament exam was positive for severe neuropathy bilaterally. His blood pressure was 212/108 mmHg, heart rate was 88 beats per minute, and respiratory rate was 18 breaths per

minute; his temperature was 99.8 degrees Fahrenheit. Blood glucose test results were not available because BG did not monitor his blood glucose at home due to lack of resources.

Lab tests were ordered for Complete Blood Count (CBC), Comprehensive Metabolic Panel, lipid panel, Magnetic Resonance Image (MRI) of the left great toe for osteomyelitis. Fasting labs results were: WBC 18.9, Glucose 379, hemoglobin A1C values were 15.2 %, Total Cholesterol was 294 mg/dl, LDL 258 mg/dl, HDL 29, Triglycerides were 337 mg/dl. The rest of the physical exam was normal and the rest of the labs values were within normal range. The MRI results revealed that the infection had started to spread to the bone of the left great toe resulting in osteomyelitis. A bone biopsy was performed by the specialist to determine the susceptibility of the pathogens. A wound culture was sent to the lab. The results revealed chronic infection. A wound specialist recommended hospitalization and urgent surgery for great toe amputation due to osteomyelitis. BG was diagnosed with uncontrolled hypertension, uncontrolled, diabetes, uncontrolled dyslipidemia, cellulitis, and peripheral neuropathy at the first visit. Since he was out of medications for a very long time, medications for all conditions were prescribed as follows: Lisinopril 20 mg by mouth daily, Norvasc 5 mg by mouth daily, Atenolol 100 mg by mouth daily, Hydrochlorothiazide 25 mg by mouth daily, Aspirin 81 mg by mouth daily, Lovastatin 20 mg by mouth daily, Metformin 1000 mg by mouth two times daily, Lantus insulin 10 units subcutaneous injection at bed time, Keflex 500 mg capsule, one capsule by mouth four times a day for 10 days. He, also, was referred to a wound specialist for further evaluation and intervention. A surgeon was contacted and BG proceeded with a surgical work up to include possible amputation of the great toe.

In depth analysis of the case

Lower extremity amputation occurs due to foot ulceration caused by vascular insufficiency and nerve damage from prolonged uncontrolled diabetes and cardiovascular disease (Resnick, Carter, Lindsay, Henly, Ness & Welty, 2004). BG had uncontrolled diabetes, hypertension and dyslipidemia for many years which led to peripheral neuropathy and vascular

insufficiency. Loss of sensation in the foot may have allowed the problem to go undetected until serious complications ensued. His chronic uncontrolled conditions and his occupation as a truck driver led to inadequacy of arterial perfusion leading to high risk for infection and amputation. The skin was broken and exposed to multiple bacteria including staphylococcus aureus and beta hemolytic streptococcus resulting in severe infection. Acute infection can become chronic infection caused by enterococci, Enterobacteriaceae and Pseudomonas aeruginosa which if not treated adequately leads to limb amputation (Chow, Lemos & Einarson, 2008). He was predisposed to cellulitis, necrotizing fasciitis and osteomyelitis.

BG was treated by different providers at different clinics for recurrent infections in the past. The prolonged antibiotic therapy may predispose him to infection with antibiotic resistant organisms as Methicillin Resistant Staff Aureus (MRSA) or Vancomycin resistant enterococci (VRE) which cause worsening outcomes for patients with leg wound infection, especially in patients with diabetes (Marin, Kollef, Lena, Napolitano, Joseph & Solomkin et al., 2008). Hospitalization and long intense therapy in isolation is needed if MRSA or VRE were found and BG was unaware his protective layer of skin was broken and the underlying tissues were exposed to bacterial infection and colonization that involved deeper tissues. BG's diabetes also increased the risk of foot infection due to poor immunologic response. BG, also, lacked supporting blood supply to tissues and bone, resulting ultimately in surgical removal of the great toe.

BG did not have health coverage and did not receive appropriate antibiotic therapy and appropriate wound care. BG had a nonhealing wound for about one year which was severely infected. He did not go to a primary care provider or the emergency room (ER) to be evaluated. He delayed medical attention, worried about the medical bills that he would receive from the clinic or hospital.

He needed to be hospitalized for surgical procedures and urgent amputation due to deep tissue infection and necrosis, increased fever and leukocytosis. BG's hyperglycemia, hypertension and hypercholesterolemia were not controlled due to lack of medication, appropriate management and follow up care with specialists. BG needed improvement of

glycemic control to eradicate the infection and to heal the wound. Infection increases the blood glucose level. With prolonged unresolved known infection, healing is further compromised by elevated glucose at the tissue levels. BG's socioeconomic status affected his ability to return to the clinic for appropriate wound care. He experienced more transportation costs for appointments for foot ulceration. BG lost gainful employment opportunities due to his infection and subsequent amputation. BG's family and relatives experienced additional costs when they needed to accompany him to treatment.

Evidence based strategies used by the DNP.

The DNP identifies foot ulceration early to prevent further complications. The goal of early initiation of treatment and interventions for foot ulcers is to promote prompt healing to reduce the recurrence and the risk of chronic infection and lower extremity amputation in diabetes patients (Kravitz, McGuire & Sharma, 2007). In depth assessment of wound conditions in every patient with leg ulcer is needed to detect purulent drainage, erythema, induration, tenderness, pain, and local warmth and the presence of granulation tissue. The DNP develops a protocol for patient evaluation at clinic visits that can be documented on a flow chart. The DNP develops guidelines for testing patients for clinical laboratory abnormalities, examining them for abnormal physical findings and radiographic studies in underserved patient population with diabetes, hypertension, and dyslipidemia (Benjamin, Lipsky, Kenneth, Holroyd & Zasloff, 2008).

Prevention measures needed for BG to prevent recurrent ulceration and loss of foot function include glucose control, infection control and vascular supply. Glucose control will reduce peripheral neuropathy. Management of infections in diabetics is crucial to prevent infection of other toes or additional amputation. Foot ulceration and lower extremity amputation morbidity is caused by arterial insufficiency and peripheral neuropathy. It has been demonstrated that 50% of people with diabetes are predisposed to symptoms as numbness, burning,

parenthesis, aching and sensory loss leading to foot ulceration even from minor trauma (Gordoio, Scuffham, Shearer, Oglesby & Tobian, 2003). Monitoring of blood glucose and prevention of infection require proper wound cleansing, debridement, callus and necrotic tissue removal, and “offloading of pressure.” Referral to multiple specialists may be needed. The DNP plans early interventions knowing that treatment of peripheral neuropathy and its complications of foot ulcers and lower extremity amputation raises the cost and this economic burden is prolonged over time (Gordoio, Scuffham, Shearer, Oglesby & Tobian, 2003).

The DNP evaluates the severity of infection and foot deformities, and selects the appropriate interventions and treatment. To prevent foot infection and amputation, the DNP develops programs for educating nurses, and the patient population with diabetes about the importance of glycemic control, daily foot exam, appropriate footwear and prevention of foot trauma. The DNP develops programs to reinforce NPs and nurses to detect the severity of neuropathy with screening using the (10 g) Semmes-Weinstein monofilament. Monofilament and biothesiometer testing must be repeated annually in stable patients, and 2 to 3 times per year in moderate to severe neuropathic individuals (Gordoio, Scuffham, Shearer, Oglesby & Tobian, 2003).

A Doppler ultrasound is needed to screen for velocity and volume of flow to lower extremities. Patient observation and/ or questionnaires are needed to assess ability to perform daily foot inspection, selection of adequate shoes, ability to walk a prescribed distance with no pain, etc. The DNP assists in educating the PCPs to order labs to monitor control in the younger patient population diagnosed with diabetes. Procedures such as dermatopathology of atheroembolism, digital plethysmography, X ray arteriography must be ordered by the specialists when vascular disease is suspected and circulation is compromised (Gordoio, Scuffham, Shearer, Oglesby & Tobian, 2003).

.
Expected outcomes.

The expected outcomes are clinical improvement of infection due to the antimicrobial treatment, safety of the treatments, eradication of the pathogens and healing of the wound and preservation of vascular supply and limb with optimal mobility. After medical interventions at multiple levels, BG is expected to have well controlled diabetes with fasting blood glucose level of 70- 100 mg/dl before breakfast and less than 140 after meals, Hg A1C < 7 %, BP less than 130/80 mmHg, Total Cholesterol (TC) less than 200 mg/dl, Low Density Lipoproteins (LDL) less than 100 mg/dl and High Density Lipoproteins (HDL) more than 40 mg/dl. All other lab values including CBC and the rest of the comprehensive metabolic panel (CMP) are expected to be within normal limits. He will be free of signs and symptoms of lower extremities infections as redness, swelling, warmth, pain, induration, tenderness, presence of purulent secretions, necrotic tissues, cyanosis and gangrene. He, also, will have less signs and symptoms of neuropathy such as numbness, paresthesias at night and intermittent claudication with walking. He will have no episodes of infections in the other toes and lower extremities. His feet will have no edema, violaceous discoloration or venous stasis. Neuropathy and peripheral insufficiencies will be improved with well controlled blood pressure, diabetes and cholesterol levels.

The patient has compromised circulation in both extremities. One concern is that amputations are often serial in nature as more and more tissue is removed to achieve an adequate blood supply to heal the wound, prevent further infection and bone destruction.

Health outcomes attained.

BG attained close to optimal diabetic control with Hgb A1C 7.3%, improved BP at 138/78, TC 194 mg/dl, LDL 94 mg/dl and HDL to 39 mg/dl on the regimen described earlier. Mild peripheral insufficiency and mild neuropathy continued due to the long history of uncontrolled hypertension, diabetes and high cholesterol level all causing atherosclerosis of the blood vessels toxicity of the nerve pathways. BG was free of signs and symptoms of infections as fever, fatigue, dizziness, skin breakage with purulent drainage, local warmth, erythema, tenderness, induration and pain. Skin was intact and he is free of severe pain from neuropathy.

All other toes were intact and lower extremities were free of ulcers. BG was able to walk 10 blocks in the neighborhood and exercise without intermittent claudication in the calf. He started to look for meaningful and gainful employment. He kept his appointments for follow up visits for his chronic conditions. He was checking his feet daily for scratches, redness, irritation, calluses, bruises and skin breakage. In order to attain these outcomes BG needed many follow up visits that led to high costs for care.

Implications for practice of the DNP

When providing care to underserved patient populations and patients losing their health care insurance, the DNP works on informing and influencing the policymakers of the need for health promotion and disease prevention in patients with MS among underserved populations and the consequences of untreated diabetes, hypertension and high cholesterol levels (Short, 2008). The DNP examines the patient population for risk factors for atherosclerosis. In patient populations with uncontrolled hypertension, uncontrolled diabetes and uncontrolled cholesterol level, atherosclerosis is the most common cause of arterial insufficiency. Arterial insufficiencies are localized to vessels supplying the lower extremities involving femoral, popliteal, anterior and posterior tibial arteries which diminish the blood flow. Symptoms of atherosclerosis of lower extremity arteries are pain on exercise, intermittent claudication when walking short distances, paresthesias at rest and at night, purple toes with atheroembolism, The DNP educates the patient population with diabetes experiencing neuropathy to perform self foot exam daily and regularly to see a podiatrist. The DNP intensifies prevention in diabetic patients with low socioeconomic status with risk factors for foot ulcers and lower extremity amputations by developing algorithms to prevent and treat foot infection. The DNP develops effective programs for clinical foot screening to prevent peripheral vascular diseases and peripheral neuropathy which are major predisposing risk factors for leg ulcer infection and amputation. Treatment for hypertension, diabetes and dyslipidemia must start very early even in the prehypertension, prediabetes and prehypercholesterolemia phase.

Amputation Prevention in Diabetes 10

Medications are prescribed and titrated up until all those conditions are well controlled. Hypertension can be control with diuretics, ACEI, CCB, beta blockers, and other agents, diabetes can be controlled with oral agents as sulfonylureas, thiazolidinediones, biguanides, and injection of insulin and dyslipidemia can be controlled with statins. Pharmacologic treatment with vasodilators, heparin, warfarin sodium and antiplateletes products and intervention are individualized to prevent arterial emboli that threaten partial or total limb loss. Treatment for neuropathy is tight glycemic control, antidepressants, antiepileptics opioids, and other agents. A polypharmacy approach is needed, to improve pain and function. Tight glycemic control slowed or stopped progression of peripheral neuropathy. It is very important to remind all patients to keep blood sugar controlled with lifestyle changes including regular exercise 45-60 minutes a day, healthy diet, and diligent use of prescribed oral agents. Antiepileptics as pregabalin, gabapentin, lamotrigine oxcarbazepine carbamazepine are used to suppress spontaneous neuronal firing and for effective treatment for neuropathic pain (Kravitz, McGuire & Sharma, 2007).

The DNP develops guidelines for prevention, diagnosis and treatment approaches for leg ulcer in patients with diabetes to reduce the economic burden of escalating costs associated with wound infection and amputation in diabetes. Prevention of foot infections in patients with diabetes reduce the visits to ER and primary care and lead to decreased amputation of a lower extremity. The DNP develops and coordinates services provided by a multidisciplinary team facilitating access to infectious disease specialists. The DNP develops programs to diagnose early foot infection assessing signs and symptoms and using laboratory investigations by obtaining specimens for culture through biopsy, ulcer curettage or aspiration. Imaging studies performed include radiography and MRI. The DNP will develop intensive prevention programs with effort to protect the younger population from diabetic complications and to cope with physical and social stigma arising from resulting leg extremity amputation. The DNP develops studies on efficacy of intervention, surveillance of foot health, patients' self care and education.

Self-reflection on personal and professional skills

Reflecting on the current economic situation in the U.S., the lack of resources in primary care practice and in clinics with underserved patient populations restrict procedures and treatment to prevent leg ulceration, chronic infections and amputation. Complications arising from poor care may result when the clinic lacks the adequate resources. Quality of care is achieved when resources are available, the guidelines are followed by the health care providers and the patient learns the appropriate self-care (Marin, Kollef, Lena, Napolitano, Joseph & Solomkin et al., 2008). As a DNP, I discovered that clinics for underserved patient populations need staff training, better coordination of follow up visits, and increased resources for screening procedures. The emphasis is often on management rather than prevention. Using guidelines for antibiotic treatment, hospitalization, wound care, diagnostic testing, and surgery will increase initial cost of care but reduce the financial and medical burden associated with lower extremities amputation in the underserved patient population. I learned that prevention of neuropathy and peripheral insufficiency are the key in reducing limb amputation. Neuropathy creates the lack of protective sensation by disturbance of autonomic sensory and motor function (Marin, Kollef, Lena, Napolitano, Joseph & Solomkin et al., 2008).

I need to grow as DNP in the area of developing guidelines and providing a framework to treat patients with diabetes to prevent foot infections and amputation in the underserved patient population. I learned to work in collaboration with the vascular surgeons, the wound specialists and the intervention radiologists who are the key in providing care for these complex patients. Excessive mortality associated with amputation suggests that future research should focus on efficacy of interventions such as early screening for peripheral insufficiency and peripheral neuropathy in the asymptomatic patient population, patient self management and patient population education (Resnick, Carter, Lindsay, Henly, Ness & Welty, 2004).

References

- Benjamin, A., Lipsky, K. J., Holroyd, Zaslloff, M. (2008) Topical versus Systemic Antimicrobial Therapy for Treating Mildly Infected Diabetic Foot Ulcers: A Randomized, Controlled, Double Blinded, Multicenter Trial of Pexiganan Cream. *Clinical Infectious Diseases* 47, 1537-1545.
- Chow, I., Lemos, E. V., Einarson, T. R., (2008). Management and prevention of diabetic foot ulcers and infections: a health economic review. *Pharmacoeconomics*. 26, 1019-35.
- Gordois, A., Scuffham, P., Shearer, A., Oglesby, A., Tobian, J.A. (2003). The health care costs of diabetic peripheral neuropathy in the US. *Diabetes Care*. 26, 1790-5.
- Hambleton, I. R., Jonnalagadda, R., Davis, C.R., Fraser, H.S., Chaturvedi, N. & Hennis, A.J., (2009) All-cause mortality after diabetes-related amputation in Barbados: a prospective case-control study. *Diabetes Care*. 32, 306-7.
- Kravitz, S.R., McGuire, J.B., Sharma, S. (2007). The treatment of diabetic foot ulcers: reviewing the literature and a surgical algorithm. *Advances in Skin & Wound Care*. 20, 227-37.
- Lipsky, B.A., Berendt, A.R., Deery, H.G., Embil, J.M., Joseph, W.S., Karchmer A.W., et al., (2004). Infectious Diseases Society of America. Diagnosis and treatment of diabetic foot infections. *Clinical Infectious Diseases*. 39, 885-910.
- Marin, H., Kollef, Lena, M., Napolitano, Joseph, S. Solomkin, et al., (2008). Health Care–Associated Infection (HAI): A Critical Appraisal of the Emerging Threat—Proceedings of the HAI Summit. *Clinical Infectious Diseases* 47, S55-S99.
- Resnick, H.E., Carter, E., Lindsay, R., Henly, S., Ness, F., Welty, K., et al., (2004). Relation of lower-extremity amputation to all-cause and cardiovascular disease mortality in American Indians: the Strong Heart Study. *Diabetes Care* 27, 1286–1293 .

Formatted: Indent: Left: 0", Hanging: 0.5", No widow/orphan control, Keep lines together, Don't hyphenate

Running head: RENAL FAILURE CO-MORBIDITY IN PATIENTS WITH METABOLIC
SYNDROME

Renal Failure Co-morbidity in Patients with Metabolic Syndrome: A Case Study

Rodica Malos

Oregon Health & Science University

School of Nursing

May 29, 2009

Renal failure in literature

Diabetic nephropathy is the major cause of end-stage renal disease, and increased mortality (Barit & Cooper, 2008). End-stage renal failure (ESRF) requires renal replacement therapies such as dialysis and kidney transplant. The prevalence of diabetic nephropathy incidence of type 2 diabetes has increased in the United States and accounts for approximately 40% of new cases of end-stage renal disease (ESRD) requiring dialysis (Burnier & Zanchi, 2006). The increased incidence of renal failure is a socio-economic burden on the patient and society and is accompanied by an increased risk for complications and other co-morbidities. Progression of diabetic nephropathy in patients with type 2 diabetes could be reduced by improving control of hyperglycemia and hypertension (Burnier & Zanchi, 2006).

Pathophysiology

Diabetic kidney disease is a hemodynamic and metabolic disorder. High glucose levels cause injury by increasing kidney advanced glycation end-product (AGE) formations (Barit, Cooper, 2008). The AGE increases the production of reactive oxygen and the activation of both the protein kinase C (PKC) and the renin–angiotensin system (RAS). At the cellular level, the production of chemokines, cytokines, and growth factors increase renal damage. A decline in the glomerular filtration rate and a progressive increase in the urinary albumin excretion rate is the clinical sign of diabetic nephropathy (Barit, Cooper, 2008). The electron-transport chain of the mitochondria overproduce the superoxide through the process of hyperglycemia. The abnormalities in blood flow and the increased vascular permeability are caused by intracellular hyperglycemia. Programmed cell death causes microvascular cell loss and capillary occlusion due to extracellular matrix overproduction influenced by the transforming growth factor- β (TGF- β) (Basi, Fesler, Mimran & Lewis, 2008). Hyperglycemia decreases the production of trophic factors for endothelial and neuronal cells leading to edema, proteinuria, and glomerulosclerosis in the kidney. As a result, hyperglycemia is the major factor for renal injury associated with

diabetic endothelial inflammation and dysfunction, as well as abnormalities in the renin-angiotensin-aldosterone system (Basi, Fesler, Mimran & Lewis, 2008). According to Schernthaner (2009) when both blood pressure and hyperglycemia are controlled, the risk for diabetic nephropathy can be reduced by 33% in type 2 diabetes. It was demonstrated that the risk of all-cause mortality was also reduced significantly when microalbuminuria was reduced. Intensive glucose reduction such as HbA1c levels at 6.4% resulted in a significant reduction in renal events (Schernthaner, 2009). In type 2 diabetic patients reduction of microalbuminuria improves both the renal and cardiovascular disease morbidity and mortality (Schernthaner, 2009).

Case study

MG is a 63-year-old female with renal disease, presenting for a routine follow-up visit. She notes dyspnea on exertion with climbing 5 to 6 stairs and her feet are a “little bit swollen.” She denies cough, chest pain, fever, chills, and paroxysmal nocturnal dyspnea and orthopnea. Medical history revealed MG was diagnosed in her country of origin with hypertension, diabetes and dyslipidemia and has been treated with medications for the last 10 years. But she had no history of coronary atherosclerotic disease. The medication list includes Lisinopril 10 mg, once daily, Atenolol 50 mg once daily, Metformin 500 mg twice daily, Simvastatin 20 mg once daily, Aspirin 81 mg once daily. She reported “no known drug allergies.” She denied tobacco, alcohol and drug use. Family history revealed that both her mother and father died in their 70s, in the country of her origin from unknown reasons. Social history revealed that she lived by herself until her recent marriage. Her husband is a 72 year old man who recently had a myocardial infarction from untreated hypertension and coronary artery disease. They speak no English. Physical exam revealed a 63-year-old female in no acute distress. Her Ht = 5’4”, Wt = 188 lb, BMI = 32 kg/m²; her vital signs included BP = 162/94 mm Hg, P = 87 and regular. Head, Eyes, Ears and Nose (HEENT) revealed visual acuity 20/30 with eyeglasses; throat clear, thyroid midline, no cervical adenopathy, no carotid bruits. Heart: rate and rhythm irregularly irregular. Lungs sounds revealed rales bilaterally at the base and wheezing but no crackles. Abdomen:

bowel sounds are normal, soft, no tenderness and no hepatosplenomegaly. Extremities present with pitting edema 2 plus in both ankles and weak pulses, no limit in range of motion. Lab results revealed a fasting plasma glucose of 215 mg/dL, A_{1c} of 8.3%, LDL of 155 mg/dL, sodium of 118 mEq/L, potassium of 4.5 mEq/L, chloride of 98 mEq/L, bicarbonate of 23 mEq/L, calcium of 9.8 mg/dL BUN of 23 mg/dL. Serum creatinine of 2.2 mg/dL yielded an estimated glomerular filtration rate (GFR) per the Modification of Diet in Renal Disease (MDRD) equation of 59.8 mL/min/1.73 m², and her spot urine test revealed microalbuminuria of 122 mcg/mg creatinine, classifying her renal disease as Stage 3 by National Kidney Foundation (NKF) criteria. Liver enzymes (ALT and AST) were normal. The ECG showed an abnormal sinus rhythm and a diagnosis of CHF was confirmed by echocardiogram and established renal disease (microalbuminuria).

In depth discussion

MG's renal impairment put her at higher risk for cardiac events. Her target LDL goal was < 100mg/dL and optimally ≤ 70 mg/dL. Her elevated LDL is unlikely to be reduced through therapeutic lifestyle changes (TLC). Her statin dose could be increased but may increase proteinuria. She doesn't need predialysis counseling at this time but she may need in it the future if there is a rapid decline in GFR, Stage 4 CKD develops (GFR < 30 mL/min/1.73 m²), At this time she is at Stage 3 according to National Kidney Foundation (NKF) but she has multiple CAD risk factors (eg, CHF, renal disease) and needs treatment and counseling to avoid further decline in renal function.

Her fasting plasma glucose (FPG) exceeds 200 mg/dL. The American Diabetes Association (ADA) recognizes the diagnosis of diabetes if plasma glucose ≥ 200 mg/dL at any time of the day in conjunction with symptoms of hyperglycemia. Her impaired renal function may mask the hyperglycemia symptom of polyuria.

Diuretics are used to treat congestive heart failure. The American Heart Association (AHA) recommends initiating outpatient furosemide at low doses (20-40 mg once or twice daily) until weight decreases by 0.5 to 1.0 kg/day to reduce the clinical symptoms of CHF (jugular venous pressure elevation and peripheral edema). The AHA guidelines established that ACE inhibitors are used in diabetic nephropathy, heart failure and coronary disease. A lower BP will reduce the risk of progression of CKD, CHF, and reduce the development of diabetic microvascular complications. A target of 125/75 mm Hg is recommended for patients with proteinuria or an estimated glomerular filtration rate less than 60 ml/min/1.73 m², although these guidelines are not evidence based. Combining an angiotensin converting enzyme inhibitor with an angiotensin receptor blocker or adding an aldosterone antagonist further reduces urine albumin excretion and blood pressure in the short term. According to the National Cholesterol Education Program Adult Treatment Panel III (ATP III) guidelines, statin therapy along with reinforcement of life style change will reduce the risk for CKD and CHF.

Appropriate therapies will provide kidney protection and a major reduction in nephropathy in these patients with diabetes. Targeting increased glycemic control is necessary to delay the development of microalbuminuria. Lifestyle change is the key in controlling metabolic syndrome. Patients should be encouraged to lose weight if necessary, exercise, and eat healthy (low fat, low sodium, and manage their glucose intake).

Treatment

Providers must be aggressive in treating modifiable risk factors such as blood pressure, cholesterol, or blood glucose using a combination of ACE inhibitors and ARBs to obtain adequate blood pressure control at <125/75 mmHg. ARBs, such as Losartan and Irbesartan will delay diabetic nephropathy in patients with type 2 diabetes and reduce blood pressure. This will provide cost-saving benefits by preventing dialysis and kidney transplant for several years (Burnier & Zanchi, 2006). To provide additional reduction of albuminuria statins, renin

inhibitors, and glycosaminoglycans must be added. It is recommended that ACE inhibitors such as captopril, enalapril, and lisinopril be prescribed for patients with hypertension, diabetic nephropathy and CHF. It is also recommended that beta-blockers such as bisoprolol, carvedilol, and metoprolol to be used for patients with hypertension, and CHF. Renal disease can worsen with diuretics or ACE inhibitors, but the increase of serum creatinine in blood urea nitrogen (BUN) are insignificant. If serum creatinine is more than 3 mg/dL, hemofiltration is recommended. Dialysis is recommended for patients with serum creatinine > 5 mg/dL to minimize the risk of anemia, to control fluid retention, and to prevent progression of heart failure. A renal biopsy is indicated when renal pathology is suspected.

Albuminuria is an important predictor of cardiovascular and renal risk in patients with type 2 diabetes and hypertension. It has been demonstrated that suppressed albuminuria in all patients with type 2 diabetes and hypertension will prevent future renal and cardiovascular adverse events (Basi, Fesler, Mimran & Lewis, 2008). In order to obtain 13% reduction in risk for a microvascular event and an 11% reduction for myocardial infarction events a reduction of 10 mm Hg in systolic blood pressure must be obtained (Marshall & Flyvbjerg, 2006). It was demonstrated that statins reduce the risk of a major cardiovascular event by 37% in patients with type 2 diabetes (Marshall & Flyvbjerg, 2006). To reduce MG's CV risk at the second visit the statin dose was doubled. Digoxin was added to Furosemide 20 mg once daily, Lisinopril 20 mg once daily, Carvedilol 6.25 mg twice daily (12.5 mg total daily dose), Simvastatin 40 mg once daily and Aspirin 81 mg once daily. Since all antidiabetic medications increase the risk of CHF, Metformin has been discontinued. Long-acting basal insulin analogs as glargine, 10 units at bed time was started. Insulin can reduce A_{1c} by 1.5% to 3.5%, and has a lower risk of CHF. Twice-daily Self Monitoring Blood Glucose is recommended with this regimen. MG was taught to self-administer insulin injections, to modify carbohydrate intake, to increase exercise, to recognize hypoglycemia and hyperglycemia, and to use glucagon for hypoglycemic reaction. MG has been educated in a low sodium diet regimen. Sodium is often hidden in food, and it is important to read the nutrition labels to keep intake below ≤ 4 g/day. MG needed to weigh herself and

measure her BP daily. Referral was made to a diabetes education clinic at the local hospital for additional education on meal and exercise planning, insulin injection technique, and self-monitoring of blood glucose (SMBG). Labs, electrolytes and creatinine levels need to be monitored for the next 2 weeks while initiating these medication changes. She was asked to return for followup.

After the interventions, her dyslipidemia has improved but her LDL-C and TG are still beyond the goal and she needs a bile acid sequestrant (BAS) to lower LDL-C which also lowers glucose. Her BP still exceeds the JNC VII standards ($< 130/80$ mm Hg). The cardiologist was consulted, who recommends increasing the patient's doses of carvedilol and simvastatin. MG left the clinic visit with the following medication regimen: Furosemide 20 mg twice daily (40 mg total daily dose), Lisinopril 20 mg twice daily (40 mg total daily dose), Carvedilol 12.5 mg twice daily (25 mg total daily dose), Simvastatin 30 mg twice daily (60 mg total daily dose), and Aspirin 81 mg once daily. Continue with the same regimen for glargine (Lantus). MG is self-injecting her insulin rotating sites. She feels overwhelmed with all the changes in her health conditions and the treatment needed to prevent further complications. She is also concerned about her husband's worsened health condition in the last three months. But she gets support from the Romanian Church where she finds spiritual support and friends who are assisting her with appointments and transportation. She is thankful about the services she receives from this clinic at no cost reducing her stress level and building her confidence that she can manage her health conditions.

Expected outcomes

Intensive treatment of hypertension, hyperglycemia, dyslipidemia in patients with type 2 diabetes can reduce the incidence of cardiovascular and microvascular events by 50% (Reasner, 2008). In patients with type 2 diabetes, treatment targets blood pressure $< 130/80$ mm Hg, glycosylated hemoglobin (A1C) $< 6.5\%$, Creatinine < 1.2 , BUN < 20 , LDL cholesterol (LDL-C) < 70 mg/dL which reduced the incidence of coronary heart disease (Reasner, 2008). For patients

with pre-existing CVD guidelines suggest goals for LDL-C of <70 mg/dL and HDL-C 40 mg/dL in men and 50 mg/dL in women. The goal for MG is to attain all those values to prevent renal failure. Glycated hemoglobin should be as low as possible (but avoid undue hypoglycemia)—aim for < 7.0% if the patient is on insulin or < 6.5% if not on insulin (Marshall, Flyvbjerg, 2006). Blood pressure should be as kept as low as possible (avoiding symptoms of postural hypotension)—aim for < 130/80 mm Hg or < 125/75 mm Hg if proteinuria is present, if the glomerular filtration is < 60 ml/min/1.73 m², or if the patient has cardiovascular disease (Marshall & Flyvbjerg, 2006).

Health outcomes attained

MG returned to clinic 6 weeks after initiating insulin therapy. Both prebreakfast and predinner SMBG measurements averaged values around 100 mg/dL and below the 110 mg/dL. She was keeping her salt intake ≤ 4 g/day. She was pleased with her rapid weight loss totaling 18 lbs. We generally want 2 lbs of weight loss per week for weight reduction but with her fluid status (LE edema) this is good. She denied dyspnea on exertion and with stair climbing. Her Wt = 170 lb, BMI = 30 kg/m², her BP = 132/88 mm Hg, with a P = 80 and regular. Heart rate and rhythm were within normal limits and she had no rales, crackles, wheezing, or egophony. Her bowel sounds were normal, and the abdomen soft and nontender with normal tone, and no hepatosplenomegaly. She had full ROM in her extremities; strong pulses and no ankle edema. Her FPG = 103 mg/dL, sodium = 139 mEq/L, potassium = 4.7 mEq/L, chloride = 95 mEq/L, bicarb = 23 mEq/L, calcium = 9.1 mg/dL, BUN = 18 mg/d, Serum creatinine = 1.7 mg/dL, Urinary albumin = 180 mcg/mg creatinine (spot collection), and Estimated GFR = 61 mL/min/1.73 m² (MDRD equation). Her liver enzymes (ALT&AST) remained normal. Her total cholesterol = 180 mg/dL, LDL-C = 120 mg/dL, HDL-C = 35 mg/dL, and Triglycerides (TG) =

170 mg/dL showing marked improvement. It is hoped that as blood glucose control improves she will increase her exercise which would raise her HDL and lower the LDL.

DNP implications for practice

The DNP coordinates the care to prevent disease complications using a multidisciplinary team and medical specialties in patients with multiple co-morbidities. The DNP develops management programs for diabetes, hypertension, dyslipidemia, congestive heart failure (CHF) and renal failure, planning nonpharmacologic interventions and medical therapy that will improve outcomes. The DNP raises awareness for the primary care providers who must provide comprehensive care of patients with kidney and cardiac disease due to decreased numbers of specialty physicians. Specialty-trained cardiologists and nephrologists will not be available to provide the care regularly to these patients.

DNP self-reflection on personal and professional skills

During the residency I gained expertise in using guidelines of the National Kidney Foundation (NKF), the American Diabetes Association, the International Diabetes Federation, and the American Association of Clinical Endocrinologists. I am an advocate for aggressive management of blood pressure, blood glucose, lipid profile (LDL-C, HDL-C and triglycerides) to minimize complications in patients with type 2 diabetes (Reasner, 2008). I worked with other providers from appropriate specialties to address the burden of the diabetic nephropathy, congestive heart failure, and other comorbidity in patients with Metabolic Syndrome (MS). I translated research evidence into practice and applied scientific methods for clinical inquiry in MS management to prevent renal failure in underserved patients. I developed competencies in working with the interdisciplinary professional teams and improved my consultation and collaboration skills to improve and optimize health and clinical outcomes for the underserved patients with MS at risk for renal failure.

I grew in practice at all levels of health care delivery specific to diabetes nephropathy and

congestive heart failure, diabetes management, cardiovascular interventions and lipid control in multiple systems of health care. I learned to focus on prevention of renal disease and congestive heart failure as co-morbidities of the MS by using risk assessment tools and aggressively treating the most common classic risks (such as hypertension, diabetes, LDL cholesterol and triglycerides,). This will reduce the burden of renal diseases, congestive heart failure and other co-morbidities at the community, city, state, and national level. I have gone beyond the clinical role of the advanced practice nurse and I am able to critique clinical scientific findings in nursing research. I am more prepared to design programs of care delivery that are economically feasible, relevant and have significant impact on the health care outcomes for patients with metabolic syndrome.

References

- Barit, D., Cooper, M.E., (2008). Diabetic patients and kidney protection: an attainable target. *Journal of Hypertension*. 2, 3-7.
- Basi, S., Fesler, P., Mimran, A., Lewis, J., B., (2008). Microalbuminuria in type 2 diabetes and hypertension: a marker, treatment target, or innocent bystander?. *Diabetes Care*. 31,194-201.
- Brownlee, M., (2001). Biochemistry and molecular cell biology of diabetic complications *Nature* 414, 813-820
- Burnier, M., Zanchi, A., (2006). Blockade of the renin-angiotensin-aldosterone system: a key therapeutic strategy to reduce renal and cardiovascular events in patients with diabetes. *Journal of Hypertension*. 24, 11-25.
- Marshall, S.M., Flyvbjerg, A, (2006). Prevention and early detection of vascular complications of diabetes. *British_Medical_Journal* 333, 475-80.
- Reasner, C. A., (2008). Reducing cardiovascular complications of type 2 diabetes by targeting multiple risk factors. *Journal of Cardiovascular Pharmacology*. 52, 136-44.
- Scherntaner, G., (2009). Kidney disease in diabetology: lessons from 2008. *Nephrology Dialysis Transplantation*. 24, 396-9.

Running head: ETHICS CASE STUDY

ETHICS CASE STUDY

RODICA MALOS

OREGON HEALTH & SCIENCE UNIVERSITY

Case study and dilemma.

Mrs. S. a 67 years old Romanian female presents at the PACS, a health clinic for underserved population, with complains of feeling very tired for the last four months. She reports other symptoms as dizziness, fatigue, blurred vision, headaches, and frequent urination at night that got worse in the last two weeks. She, also, reports a skin rash on her right lower leg that does not go away for about one year. She stated that she has been diagnosed in the past in Romania with hypertension and diabetes. She does not take any medications because she believes that God healed her of her high blood pressure and diabetes. Today she refuses to discuss about those two diseases and about a treatment plan.

Mrs. S came from Romania five years ago to help her son and daughter-in-law with his seven small children between 1 to 12 years old. Two years ago, her son and daughter-in-law had a Motor Vehicle Accident (MVA) and died with three children. They left behind four small children without help and support. The oldest child is severely disabled and totally depended with all the activities of daily living. Mrs. S' husband, a 72 years old male, arrived in United States of America (USA) for the funeral service of his only son, daughter-in-law and three grandchildren. He remained in USA to help Mrs. S with the children left behind from the MVA accident. He, also, has health problems and takes medications from Romania. When Mrs. S doesn't feel good he let her use from his medications. She wants to know why she feels so tired and does not have energy to help her grandchildren.

At this visit Mrs. S' blood pressure is 188/110, hear rate is 88 beats per minute, respiration rate is 16 breath per minute, weight is 170lbs., height is 5' 3", capillary blood glucose level is 367 mg/dl. All the labs have been ordered and showed uncontrolled diabetes with hemoglobin A1C of 12.8 mg/dl, uncontrolled dyslipidemia with total cholesterol level of 227 and low

density lipoprotein (LDL) of 169. Rest of the lab values is normal and the Chest X-ray and Electrocardiogram (EKG) are with no abnormalities. The diagnosis have been confirmed as uncontrolled hypertension, uncontrolled diabetes, and uncontrolled dyslipidemia.

The ethical dilemma is: should the NP let Mrs. S to go home with no treatment because she believes that she is healed of her hypertension and diabetes and refuses to talk about those diagnosis or should the NP proceed with patient education about hypertension, diabetes, and dyslipidemia and start the treatment giving the patients prescriptions for all her conditions?.

Medical Indication

Mrs. S arrived at the PACS Family Health Clinic with a Romanian friend from a Romanian church that Mrs.S attends giving her a ride to this clinic and assisting her with translation. During the interview Mrs. S' friend confirmed that Mrs.S tells everybody that she had diabetes and hypertension in the past but she has been healed and refuses any treatment for her condition. Mrs. S talks with tears in her eyes about her only son, daughter-in-law and three children who died in the MVA two years ago and about her four small children left behind with no parents and no help.

Based on the signs and symptoms that she presents as fatigue, being very thirsty, having headaches, getting up at night to urinate many times and the vital signs and labs results, she has been diagnosed with uncontrolled diabetes, uncontrolled hypertension and uncontrolled dyslipidemia.

Mrs. S. prognosis of chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels. Her long-term complications of diabetes include retinopathy with potential loss of vision, nephropathy leading to renal failure, peripheral neuropathy with risk of foot ulcers

and amputation, and autonomic neuropathy causing gastrointestinal, genitourinary, and cardiovascular symptoms.

The plan for treatment for Mrs. S will be to start with insulin Humalog 70/30 injections twice a day with daily follow up visit to normalize the blood sugar level and then slowly introduce oral agents as Metformin 250 mg three times a day with meals, a diet low in carbohydrates and increase in fibers as vegetables and legumes, regular exercise 45-60 minutes daily at least 5 days a week. The insulin can be decreased slowly and discontinued if the blood sugar will get within normal range with oral agents only. She will need to monitor her capillary sugar glucose (CBG) level three times a day and to record all the CBG results for the follow up visit to the clinic in one week to evaluate the results from the initial treatment and to guide the therapy in the future.

For hypertension the treatment will be to start with an Angiotensin Converting Enzymes Inhibitor (ACEI) as Lisinopril 5 mg twice a day and low salt diet and reduced calories for weight reduction. The Lisinopril can be increased until the blood pressure is well controlled or another agent will be added for optimal results.

For dyslipidemia the treatment will be to start with a statin as Lovastatin 20 mg daily and low cholesterol diet. She will need to take 81mg of Aspirin since she has uncontrolled diabetes for long time. An increase in the medication dosages and new oral agents will be added to the current treatment until the goal is achieved to control her diabetes getting the HgA1C lower than 7.0, hypertension lower than 130/75 and the total cholesterol level at lower than 200 and Low Density lipoprotein (LDL) lower than 100 to the ideal level of 70.

Patient Preferences.

Mrs. S is mentally capable to make decision about her care. There is no evidence of incapacity. She stated that she had diabetes and hypertension in the past but she is healed and

does not need to take any medication. Mrs. S, also, wants to be free of signs and symptoms of her diseases. She wants to be healthy for a long period of time to be able to take care of her 2, 4, 7, and 12 years old grandchildren left behind after the tragic Motor Vehicle Accident two years ago where both their parents died. When Mrs. S is asked about the normal values of the blood pressure and the normal value of the capillary blood sugar level for a healed person she is not able to give the right values because the lack of information. She admits that she did not get sufficient information about her diseases in the past.

She does not know and does not understand the Advance Directives information and she does not express her preferences about who will make decision for her care if she will be incapacitated or she will not be able to make decisions about life sustaining support in the future if she will experience an event of heart attack or cerebrovascular accident.

Quality of life.

Mrs. S is physically active providing care to her four children with some help from her husband. She enjoys shopping, cooking, cleaning, doing laundry and playing with the grandchildren outside. But the uncontrolled diabetes and uncontrolled hypertension reduce her quality of life through the acute signs and symptoms she experiences of being very tired, having headache, being extremely thirsty and having frequent urination at night. She does not get 7-8 hours of sleep and her activities of daily living are affected by her signs and symptoms of untreated diseases. Her quality of life will deteriorate more from the long-term complications of diabetes including retinopathy with potential loss of vision which will decrease her ability to see, nephropathy leading to renal failure and dialysis in the future, peripheral neuropathy with risk of foot ulcers, infections and amputation impairing her mobility, and autonomic neuropathy causing gastrointestinal, genitourinary, and cardiovascular symptoms. The morbidity and mortality

associated with strokes and heart attacks will lead to a shorter and less enjoyable life with her grandchildren.

However, if the plan for treatment will be implemented and followed as instructed, Mrs. S will have her signs and symptoms reduced and her quality of life will be improved in the future.

Contextual Features

Mrs. S came from Romania five years ago to help her son with his seven children under the age of 12 years. Mrs. S' son and daughter-in-law died in a tragic accident and left behind four children and the oldest child totally disabled who needs total care. Mrs. S lives with her four grandchildren and her husband who is helping her with the children. Her husband has been diagnosed recently with a terminal disease. Mrs. S. does not have insurance and she does not qualify for Medicaid or Medicare because she is not an American citizen. She used medications from Romania in the past but she finished them a few years ago. She does not have money to seek care at a private clinic and does not have a primary care provider to treat her conditions. She does not afford to buy the medications if they will be prescribed. She does not speak English to apply for citizenship in order to have medical benefits.

Mrs. S does not have a car and does not drive. She does not have family to help her with appointments for follow-up visits, labs, procedures and specialists as ophthalmologist, nephrologist, cardiologist if her health condition declines and if she will need specialized care. She depends on people from the local church for transportation, translation, and other needed resources. She does not plan to go back to Romania to get treatment for her diseases because she must take care of the four children left behind with no parents and her husband who has been recently diagnosed with metastasized bone cancer.

Case analysis and recommendations

Mrs. S' preferences not to be treated for her diseases are based on her own values and personal beliefs that she has been healed of her diseases. But, also, her lack of knowledge about the progression of her illnesses made her wait to seek care. Based on her beliefs, she refuses to talk about her diagnosis of diabetes and hypertension and the complications of those untreated diseases. However, she expressed her desire that she wants to be healthy and free of signs and symptoms in order to be able to provide care for her small grandchildren. The signs and symptoms of her untreated diabetes, hypertension, and dyslipidemia contribute to a decrease in her quality of life. Her desire to be free of signs and symptoms of those diseases will not be accomplished without medical intervention.

To avoid harm for Mrs. S' chronic disease such as type 2 diabetes requires a health system that promotes long term management to prevent diabetes complications, a multidisciplinary team care that incorporate patient self-management. A progressive and stepped approach is needed to intensify therapy until management goals are met. Mrs. S' diabetes care requires long-term patient and clinical attention to the principles of self-care, healthy life style, preventive services, and cardiovascular risk factor management.

Mrs. S' desire to be healthy and free of the complications from her chronic diseases will be fulfilled if the health care provider follow the standards of medical care for patients with Diabetes Mellitus developed by American Diabetes Association (ADA). ADA has been actively involved in the development and dissemination of diabetes care standards, guidelines, and related documents for many years. The need for the standards is based on data from American Diabetes Association which reports that persistent hyperglycemia is the hallmark of all diabetes. Hayward et al., (1997), stated that for patients with type 2 diabetes on insulin therapy is generally safe and effective in achieving moderate glycemic control in patients who initially had poor glycemic control. Grover et al., (2000), mentioned that analyses suggest that lipid abnormalities among

diabetic patients should be treated with the same intensive intervention that is currently recommended for patients with cardiovascular disease. This is consistent with the LDL goal of <100 mg/dL recently recommended by the American Diabetes Association. Aggressive control of blood pressure significantly reduced strokes, diabetes-related deaths, heart failure, microvascular complications and visual loss.

In order for Mrs. S' to continue to stay healthy and to be able to assist her grandchildren continuing care is essential in management of chronic illnesses. At each visit, the Mrs. S' progress in achieving treatment goals should be evaluated by the health care team. If the goals are not being met, the management plan needs to be revised and the goals need to be reassessed. The ADA guidelines identify numerous clinical guidelines for diagnosis and treating patients diagnosed with diabetes. Mrs. S must have frequent visits for follow up for continuity of care. After beginning the treatment with oral glucose-lowering agents may need to be contacted weekly until her diabetes is controlled and the patient should generally be seen at least quarterly until achievement of treatment goals. Her values and beliefs must be assessed at each visit and she needs to participate in making decisions about her therapy.

An interim history from Mrs.S should be obtained at each visit and should include frequency, causes, and severity of hypoglycemia or hyperglycemia, results of CBG, adjustments by the patient of the therapeutic regimen, problems with adherence, symptoms suggesting development of the complications of diabetes, other medical illnesses, current medications, psychosocial issues, lifestyle changes, tobacco and alcohol use.

Mrs. S' routine follow-up examination will include weight, blood pressure, funduscopy, and foot examination in patients at risk. If abnormalities are identified, more frequent follow-up may be required. Comprehensive dilated eye and visual examinations should be performed annually by an ophthalmologist or optometrist. Mrs. S should receive a thorough foot examination at least

once a year to identify high-risk foot conditions. For neuropathy she should have a visual inspection of her feet at every contact with the health care professional. Laboratory evaluation will include HbA_{1c} every 3 months and annually for lipid disorders with fasting serum cholesterol, triglyceride, HDL cholesterol, and calculated LDL cholesterol and in abnormal values requiring institution of therapy should be repeated. The National Diabetes Education Program is serving as a catalyst to coordinate, extend, and contribute to the ongoing efforts to increase understanding of the seriousness of diabetes, its risk factors, and its effective management (DeFronzo, 1999). The research literatures indicate that early therapeutic interventions are cost effective, improving quality of life.

The principle of autonomy and beneficence

Ethical essay

The principle of autonomy is defined as the moral right to choose and follow the patient's own plan of life and action. The attitude of the provider should not interfere with the patient's autonomous beliefs and actions (Jonsen, et al. 2006). According to Beauchamp and Childress (2001) based on the principle of autonomy the patient has the right to choose to refuse treatment based on the patient's own values and beliefs.

The patient's system of values and beliefs will be compromised if the provider prescribes the treatment against the patient's will. Sargent, & Smith-Morris, (2006) stated that the patient has the right to choose to refuse treatment based on the principle of autonomy but it is important to elicit and evaluate objectively patient's beliefs and values with respect to their illnesses and treatments and to negotiate with these differing perspectives in the same way the advisor gives expert advice to an advisee who retain the right to accept, alter, or reject the advice. The patient must know the truth. If the patient is not fully informed about the diseases process and the risk of the untreated diseases, the patients cannot make an informed decision. According to Jonsen et

al. (2006) many questions must be asked as if the patient got sufficient information about the diseases process and the long term complications of untreated diseases, what the patient wants and what are the patient's goals, to find out the patient's preferences and to make the right decision about patient's medical treatment.

The action of the provider to proceed with patient education about the progression and complications of the chronic diseases and the need to start and continue the treatment will be based on the moral principles of beneficence and nonmaleficence. Based on the principles of beneficence and nonmaleficence the provider has the duty to assist the person in need to maximize the benefit and to refrain from causing harm. The provider must place the interest of the patients above his or her own interest demonstrating honesty, integrity, respect for the patient, commitment to patients' welfare, and compassion (Jonsen, et al. 2006).

Reference

- DeFronzo, R.A. (1999). Pharmacologic therapy for type 2 diabetes mellitus. *Annals of Internal Medicine*, 13(4), 281-303.
- Hayward, R.A, Manning, W.G., Kaplan, S.H., Wagner, E.H., Greenfield, S. (1997). Starting insulin therapy in patients with type 2 diabetes: effectiveness, complications, and resource utilization. *JAMA*, 278:1663-1669.
- Grover, S.A., Coupal, L., Zowall, H., Dorais, M. (2000). Cost-effectiveness of treating hyperlipidemia in the presence of diabetes : Who should be treated?. *Circulation*, 102(7):722-7.
- Standards of Medical Care for Patients With Diabetes Mellitus. [American Diabetes](#)
- Jonsen, A. R., Siegler, M., & Winslade, W.J. (2006). *Clinical ethics: A practical approach to ethical decisions in clinical medicine* (6th ed.). New York: McGraw-Hill.
- Sargent, C., & Smith-Morris, C. (2006). [Questioning our principles: Anthropological contributions to ethical dilemmas in clinical practice](#). *Cambridge Quarterly of Healthcare Ethics*, 15, 123-134.
- Beauchamp, T., & Childress, J. *Principles of Biomedical Ethics*, 5th ed. New York: Oxford University Press, 2001.
- [Association: Clinical Practice Recommendations 2001](#). Volume 24 Supplement 1.
<http://journal.diabetes.org/Full Text/Supliments/DiabetesCare/Suplement101/S33.htm>

References

If you need to type anything after the reference list
then start it on this page

Policy Analysis: Medicare for All

Rodica Malos, RN, MS, ANP-C, GNP

3963 SW 30th DR, Gresham, OR 97080

email: malos76@yahoo.com

Tel: (503) 780-1112

Policy Analysis: Medicare for All.

Abstract

Purpose: To provide an overview on the universal insurance coverage policy in US including policy alternatives as well as a review of outcomes of the policy alternatives.

Data sources: To complete this review, a search for English language publications was conducted through the Medline and CINAHL database (1990-2008) with an extensive review of worldwide literature and policy articles.

Conclusions: The public's attention on reforming the health care system focusing on universal insurance coverage is directed by the rising health care costs due to the growing numbers of uninsured. The universal insurance coverage policy will create access to health insurance coverage and will improve cost effectiveness as well as access to care. The universal insurance coverage will promote delivery system improvement to optimize patient-centered health and improve quality of care.

Implications for Practice: Instead of dealing with 150 insurers, health care practitioners will deal with one insurer allowing them to spend more time with their patients. It will eliminate the disparity in access to a common set of services and has a focus on public health, prevention, and early intervention by health care practitioners.

Keywords:

universal insurance coverage, access to care, quality of health care, health care costs,.

Acknowledgements

This article received support from the Oregon Health & Sciences University. The author thank Dr. Mary Pate and all the DNP students for their review of this manuscript.

Introduction

Nearly 46 million persons in the United States (US) did not have health insurance in 2004 and more than 31 million of America's workers were underinsured. Lack of health insurance coverage not only affects the financial well-being of individuals and families, but also the health care delivery system. The primary roadblock to major health care reform is financing concerns, such as how much government, business, and the individual can afford to pay, who should bear the costs, and how health care costs can be controlled. US health care costs have been a crisis level for roughly 40 years, and they remain high for several reasons, including administrative overhead, high payments to providers, and the practice of defensive medicine (Brown, 2008).

The Context

Health insurance status is influenced by the political cultures, ethnic diversity, and economic development. The US' public health system is characterized by problems of quality, disparities across racial and socioeconomic groups, and unclear accountability within a fragmented authority structure, the immense power of the insurance and pharmaceutical industries. The public system, also, is characterized by the political fragmentation and ambivalence of the medical profession, the intimidation of politicians, and the erroneous media images of unsatisfied patients in universal systems (Kuttner, 2008). Health insurance status and socio-economic status are clearly related. Low-income Americans are at increased risk and many employed individuals also lack insurance coverage. Lower educational achievement is associated with lower income and employment without health benefits.

America's racial and ethnic minority populations are disproportionately without health insurance (Okie, 2007). In the US, problems are confined to the lower class strata, a group that is

not well supported in the political system. Family and age conditions have significant effect on medical service utilization. Geographic variables play a significant role in hospital service utilization (Ruiz, 2007). Changing demographics and medical technology pose a cost challenge for every nation's system. America's medical culture has developed a style of relying on specialized services and technology, both increasing the health care cost (Brown, 2008). It is estimated that the millions of people without insurance in the US cost an annual total of \$65 billion to \$130 billion. The medical inflation has been attributed to many factors such as the aging population, the proliferation of new technologies, poor diet and lack of exercise, the tendency of supply of hospitals, tests, pharmaceuticals, medical devices, excessive litigation and defensive medicine (Kuttner, 2008).

In the US the dominance of for-profit insurance and pharmaceutical companies, a new wave of investor-owned specialty hospitals, and profit-maximizing behavior even by nonprofit players raise costs and distort resource allocation (Kuttner, 2008).

The US is the only modern, industrialized country without some form of universal health care coverage (Blankenau, 2001). It did not develop national health insurance in the first half of the 20th century when most industrialized countries adopted some form of universal health care. At the state level, pressure to broaden coverage continues to build, with a few states following Massachusetts's lead and at least proposing universal coverage (Blankenau, 2001).

Problem Statement

In the US the uninsured population continues to grow and puts a strain on the health care system that ultimately results in increased health care costs for everyone. Being uninsured translates into serious health consequences, including a higher risk of death. An increasing number of uninsured and underinsured patients postpone seeking medical treatment until their health conditions get worse and as a result their care is more expensive. Unaffordable health care

jeopardizes Americans' health status and the nation's economic future. The growing numbers of uninsured, rising health care costs and concerns about the quality of health care focus the public's attention on reforming the health care system (Thompson, 2007).

Searching for Evidence

The remedy for the high medical costs and reduced access is health care reform. Many Americans lack both access to care and to information about costs and quality standards. The uninsured are less likely to get routine care and more likely to delay treatment, resulting in serious and costly conditions. Providers treat uninsured patients, providing care for which they are not paid. Providers must increase costs to insured patients through higher charges to insurers to recoup their costs. The higher costs affect us all if one of us loses coverage, gets ill, or needs expensive treatment (Thompson, 2007).

Other nations ensure the accessibility of care through universal health insurance systems and through better ties between patients and the primary care providers. Information systems in countries like Germany, New Zealand, and the U.K. enhance the ability of physicians to monitor chronic conditions and medication use. In Taiwan, after the introduction of national health insurance, life expectancy was increased even in health class groups that had higher mortality rates. The health disparity narrowed, reversing an earlier trend toward widening disparity. National health insurance contributed to larger reductions in death from cardiovascular diseases, infectious diseases, and accidents in the lower health class groups (Ven, Tsai, & Chung, 2008). These findings indicate that, from the perspectives of both physicians and patients, the US health care system could do much better in achieving better value for the nation's substantial investment in health (Davis, Schoen, Schoenbaum, Doty & Holmgren, 2007).

Katz (2008) mentioned that many states across the US are seeking their own solutions to the health care crisis, due to lack of progress at federal and state levels in reducing the number

of uninsured Americans. The local efforts to achieve universal coverage often encounter substantial obstacles, including the loss of federal and state revenues that benefit the uninsured, limited authority to mandate insurance coverage, and the high cost of insurance plans. Addressing these problems may include a program where everybody pays, reducing or eliminating unnecessary services and improving access to care for the uninsured. A good example is the legislation in Massachusetts that passed in 2006 with the blended strategies necessary to generate political consensus for large scale change. The Massachusetts' plan is designed to achieve nearly universal coverage of state residents by requiring everyone to have health insurance and subsidizing it for those with a low income. The plan, also, is requiring employers with more than 10 employees to either offer health benefits or pay a fee to the state for each worker. Understanding how a particular reform will affect an already complex financing system is difficult to evaluate, even for health policy experts (Hoffman & Rowland, 2007).

Policy Alternatives

Universal health insurance is considered the first alternative as the number of Americans without health insurance has grown substantially. The primary source of health insurance for US workers and their families is through employers. Due to the significant decline in employer sponsored insurance many employees have lost the health insurance. In 1993 President Bill Clinton proposed reform of the health care system, which would have created a system of universal health insurance (Oberlander, 2004). In a survey of Massachusetts physicians, almost two-thirds (63.5%) of respondents indicated that a single-payer system would provide the best care for the most people for a fixed amount of money (Huebner, Agrawal, Sehgal, Jung, Hedgecock & Simon, 2006).

The second alternative is to provide direct financial assistance to employers or

workers for purchasing more affordable insurance. According to Garson and Blumenthal (2007), the major stumbling block to providing insurance through small business is lack of resources. The government must develop a plan to provide direct financial assistance to employers or workers for purchasing insurance to make insurance more affordable to employers and workers and to increase coverage (Thorpe, 2004). Strategies include providing new federal tax credits to small businesses to encourage them to offer health benefits and offering less costly state-sponsored health plans to small employers. Providing public funds for low-income workers will help them to purchase employer-sponsored health benefits and will mandate that some or all employers offer health benefits to their employees (Hoffman & Rowland, 2007).

The third alternative is the redistribution of coverage through the expansion of Medicaid or the State Children's Health Insurance Program. The government can extend the coverage by Medicaid and the State Children's Health Insurance Program (SCHIP) to people who are currently ineligible for such coverage as single adults and childless couples living below the poverty line and parents with incomes of less than 200 percent of the poverty line. That will cover nearly 30 million (64%) of the uninsured. Full federal funding is likely to result in higher rates of program enrollment. Congress will need to authorize grants to individual states, groups of states, or even portions of states to carry out any of a broad range of strategies to increase healthcare coverage (Price, 2007).

Strategies include expanding Medicaid and SCHIP to cover more of the low-income uninsured by raising the income eligibility levels and including adults who do not have children. Other strategies include expanding Medicare to cover some of the uninsured, such as those as young as age 55 or more of those who are disabled, or expanding Medicare to cover all of the uninsured. Expanding either Medicare or Medicaid would be relatively easy administratively,

given its existing structure and demonstrated cost-efficiency compared to the private sector. (Hoffman & Rowland, 2007). Medicare, Medicaid, and SCHIP already have mechanisms in place to enroll beneficiaries and pay providers, and could provide benefits to many more without incurring the start-up costs of a new program.

Projected Outcomes

The outcomes of universal health insurance include access to health insurance coverage or care for all, encouragement of initiatives to improve cost effectiveness as well as access, delivery system improvement to optimize patient-centered health, and encouragement of efforts to improve quality of care. Universal health insurance include support for development of health information infrastructure as electronic health records, transparent data on cost and quality, and secure exchange of health data among providers. Universal insurance coverage will support practices that can lead to better management of chronic conditions and better coordination of care and the provision of care that is safe and coordinated, as well as accessible, efficient, and equitable (Hacker, 2006).

The outcomes of providing direct financial assistance to employers or workers for purchasing insurance include making insurance more affordable to employers and workers thereby increasing coverage. This will promote the principle of shared responsibility among stakeholders to improve the health care system including personal accountability and a requirement for everyone to have health insurance. Employer-based insurance for small employers provide direction for more detailed health care reform planning. It also includes the role of employers in providing benefits and contributing to premiums and the role of insurance exchange and purchasing pool. It will make private coverage more affordable.

Shifting the current tax advantages granted to businesses onto individuals in the form of

federal tax credits and deductions will also be helpful. A refundable tax credit applied toward the cost of premiums would help a greater number of people. Tax-advantaged health savings accounts might increase consumer choice because enrollees could choose any provider or health service when they use their own out-of-pocket dollars (Garson & Blumenthal, 2007).

The outcomes of the redistribution of coverage through the expansion of Medicaid or the State Children's Health Insurance Program include support for healthy kids as a "building block" for improved access. This alternative will assure expansion of eligibility for Medicaid and public subsidies for other low-income people in order to improve coverage. It will increase the importance of the use of realigned incentives to improve cost effectiveness and quality. Public program expansion helps to expand public coverage. Extending public coverage to all low-income children and adults could cover nearly 30 million (64%) of the uninsured.

Given its existing structure and demonstrated cost-efficiency compared to the private sector, expanding either Medicare or Medicaid would be relatively easy administratively. Through this alternative, the current inequity between poor parents and poor childless adults will be eliminated. Equity increases as more groups are included, tying Medicaid eligibility requirements to income level alone, without regard to family status. Expanding public programs would also distribute public dollars more fairly by covering those not connected to the workforce. The degree of choice in providers could be directly or indirectly regulated and could be constrained as needed for cost containment (Hoffman & Rowland, 2007).

Evaluative Criteria

According to Collins (2005) relevance, progress, efficiency, effectiveness and impact can be applied as evaluative criteria to policy alternatives. Universal insurance coverage is relevant because it addresses the needs of all uninsured population, the rights and enumeration of the services accessible to all, and the consistency and continuity of services across healthcare. It

has a clear delineation of the quality expectations for services provided and freedom of choice with regard to healthcare providers and practitioners.

Universal insurance coverage has an impact on the standardization of health administration, documentation, reporting, and information management. It will eliminate the disparities in access to a common set of services and has a focus on public health, prevention, and early intervention. Universal insurance coverage has adequate and broad distribution of a variety of prepared qualified healthcare practitioners and providers. It has evidence-based and safe foundations for clinical practice and patient care (Porter, 2006). It would insure against major economic shocks stemming from unemployment, ill health, disability, and the death of a family breadwinner, and its benefits would be generous enough to help families truly get back on their feet (Hacker, 2006).

The second alternative of providing direct financial assistance to employers or workers for purchasing insurance addresses the needs of the individual and the family. These approaches could lower premiums and increase health plan choices by allowing small employers to band together. The necessary government subsidies would be paid with public tax dollars. Tax subsidies for employer-sponsored coverage would favor those who work full-time in a business while providing little help to the self-employed and those not in the workforce, such as adult students, housewives, disabled persons, and early retirees (Reischauer, 2007).

The third alternative involves redistribution of coverage through the expansion of Medicaid or the State Children's Health Insurance Program and would be available to the majority of American families. It would build on, rather than supplant, existing social insurance programs and provide a flexible new platform for enhancing economic security in a world of rapidly changing risks (Hoffman & Rowland, 2007).

Weighing the Outcomes.

The trade-offs are between the two alternatives of universal health insurance and to provide direct financial assistance to employers or workers for purchasing insurance the trades off will be between the outcomes of these two alternatives. The outcomes of the first alternative are access to health insurance coverage or care for all, improved cost effectiveness as well as access, optimized patient-centered health, improved quality of care, development of health information infrastructure as electronic health records, transparent data on cost and quality, and secure exchange of health data among providers. Universal health insurance will create ways to support practices that can lead to better management of chronic conditions, better coordination of care, and the provision of care that is safe and coordinated, as well as accessible, efficient, and equitable.

The second alternative's outcomes are promotion of the principle of shared responsibility including personal accountability, requirements for everyone to have health insurance, and shared responsibility among all stakeholders to improve the health care system. This second alternative will leverage available federal funds, support the importance of raising federal-level issues such as tax exemptions for employer-sponsored, improve benefits to be provided to individuals, and realign incentives to improve cost effectiveness and quality. This alternative will lead to shifting the current tax advantages granted to businesses to individuals in the form of federal tax credits and deductions. Comparing the outcomes of the third alternative, the redistribution of coverage through the expansion of Medicaid or the State Children's Health Insurance Program shows that the eligibility for Medicaid and public subsidies for other low-income people to improve coverage will need to be expanded. The incentives will be realigned to improve cost effectiveness and quality. Public program expansion helps expanding public coverage (Hoffman & Rowland, 2007).

Making Decision

Due to higher prices, a higher demand for care and an aging population, the Centers for Medicare and Medicaid Services (CMS) have projected that health care costs will increase to more than \$4 trillion per year by 2017. Health care spending will increase by 6.7% a year, which

is about three times the rate of inflation. Currently, the total health care expenditures exceeded \$2.1 trillion, or more than \$7,000 for every American man, woman, and child according to the Centers for Medicare and Medicaid Service (Kuttner, 2008). Medicare costs jumped a record 18.7%, driven by the new privatized drug benefit. Profits, billing, marketing, and the gratuitous costs of private bureaucracies accounted for \$400 billion to \$500 billion of the \$2.1 trillion. The more serious is the set of incentives produced by commercial dominance of the system. Total health care spending, now amounting to 16% of the gross domestic product, is projected to reach 20% in just seven years (Kuttner, 2008).

Based on the outcomes from the first alternative, universal insurance coverage policy will solve the uninsured problems. The proper term for this is "single-payer insurance" considered in Americans terms "Medicare for all" (Bloche, 2007). Universal insurance coverage policy will create access to health insurance coverage, will improve cost effectiveness as well as access to care, will promote delivery system improvement to optimize patient-centered health, and improve quality of care. Universal insurance coverage will provide support for the development of health information infrastructure as electronic health records and will lead to better management of chronic conditions and better coordination of care and the provision of care that is safe and coordinated, as well as accessible, efficient, and equitable. Universal insurance coverage would provide protection to qualifying families whose income suddenly declined by 20 percent or more (Hacker, 2006). The insurer is accountable to the legislature and the voters if the quality of coverage slides. Care is seldom denied because everybody knows the rules (Robinson, 2008).

The government's role in the operation of the system would shift to ensuring information availability and transparency in payment. The simplified system would eliminate unnecessary and redundant administration. The government would maintain current employment-based subsidies and implement income-based redistribution for individuals with low incomes. A collective risk pool would reallocate funds so all can access appropriate care regardless of their individual health status. The carriers would facilitate payment, provide information, and respond

to patient preferences. Patients and clinicians will make informed decisions about the care needed to achieve high-quality outcomes due to appropriate incentives (Luft, 2007).

Universal insurance coverage will allow equal access to health services for poor populations which is a comprehensive objective of any health reform. This health reform is possible through a segmented progressive social health insurance approach to assure universal coverage by expanding the population covered through payroll linked insurance and implementing a subsidized insurance program for the poorest populations. Universal insurance would cover only a limited, yet still meaningful, fraction of the losses suffered when families are hit with covered economic shocks, and it would aim to fill the gaps left by existing social insurance programs, rather than to substitute for those programs. Congress could resolve many of the issues confronting the health-care delivery system in the US by providing universal insurance coverage "Medicare for all Americans."

The Medicare for All Act (HR 2034 and S 1218) would provide universal health-care coverage to everyone within 5 years. Currently, Medicare successfully provides health insurance to 44.6 million aged and disabled beneficiaries. The administrative costs of the original Medicare program amount to less than 2% of total Medicare expenditures (Hacker, 2006). Universal coverage would be provided in an efficient manner and will save huge sums that our system wastes on administration, billing, marketing, profit, executive compensation, and risk selection (Kuttner, 2008). This is much more efficient than most private health insurance plans. Coverage for preventive care will be included in this plan and could save the government millions of dollars. The use of more preventive services will allow patients to get care earlier when their health conditions are less advanced and less costly.

It would be more costly not to provide health insurance to seniors and the disabled since they would join many of uninsured Americans by showing up in hospital emergency rooms, which everyone agrees is the most costly means of providing health care. The goal of this policy is to reduce costs and improve the quality of care that people receive. The policy also gives people the option to choose between a private health insurance and the insurance that federal

employees receive (Becerra, 2008). With the 2008 elections, the topic of health care in America has already emerged as a top political platform issue. It is critical that we take action now, with an estimated 47 million uninsured people in the US, and overwhelming evidence that the uninsured have less access to care and poorer health outcomes than the insured.

References

- Becerra, X. (2008). Health care reform: an interview with Congressman Xavier Becerra.
- Blankenau, J. (2001). The Fate of National Health Insurance in Canada and the United States: A Multiple Streams Explanation. *Policy Studies Journal*. 29, 38-55.
- Bloche, M. G. (2007). Health care for all?. *New England Journal of Medicine*. 357, 1173-5.
- Brown, L. D. (2008). The amazing non-collapsing U.S. health care system--is reform finally at hand?. *New England Journal of Medicine*. 358, 325-7.
- Collins, T. (2005). Health policy analysis: a simple tool for policy makers. *Public Health*. 119, 192-196.
- Comparison of Oregon Health Care Proposals Included in SB 329A and SB 27A Accessed from http://www.census.gov/hhes/www/cpstc/cps_table_creator.html <Feb. 15, 2006>.
- Davis, K.C., Schoen, S. C., Schoenbaum, M. M., Doty, A. L., & Holmgren, J. L., (2007). Mirror, Mirror on the Wall: An International Update on the Comparative Performance of American Health Care. *The Commonwealth Fund*. Retrieved February 09 available at http://www.commonwealthfund.org/publications/publications_show.htm?doc_id=482678
- Garson, A. Jr., & Blumenthal, D. (2007). State-federal partnerships for access to care: An end and a means. *Journal of American Medicine Association*. 297, 1112-5.
- Hacker, J. S. (2006). Universal Insurance: Enhancing Economic Security to Promote Opportunity. Retrieved February 29, 2008. Available online at http://www.brookings.edu/papers/2006/09useconomics_hacker.aspx
- Hoffman, C., & Rowland, D. (2007). Covering America's uninsured. *American Journal of Nursing*. 107, 75-9.
- Huebner, J., Agrawal, J.R., Sehgal, A.R., Jung, P., Hedgecock, J., & Simon, S.R. (2006). Universal health care and reform of the health care system: views of medical students in the United States. *Academic Medicine*. 81, 721-7.
- Katz, M. H. (2008). Golden gate to health care for all? San Francisco's new universal-access program. *New England Journal of Medicine*. 358, 327-9.

- Kuttner, R. (2008). Market-based failure - a second opinion on U.S. health care costs. *New England Journal of Medicine*. 358, 549-51.
- Luft, H. S. (2007). Universal health care coverage: a potential hybrid solution. *Journal of American Medicine Association*. 297, 1115-8.
- McGinnis, J., Williams-Russo, P., & Knickman, J. (2002). The Case for More Active Policy Attention to Health Promotion. *Health Affairs* 21, 78-93.
- Oberlander, J. (2004). Tilting at windmills: health reform and the 2004 US presidential election. *Canadian Medical Association Journal*. 171, 1035-6.
- Okie, S. (2007). Immigrants and health care—at the intersection of two broken systems. *New England Journal of Medicine*. 357, 525-9.
- Porter, M. E., & Teisberg, E. O. (2007). How physicians can change the future of health care. *Journal of American Medical Association*. 297, 1103-11.
- Porter, T. (2006). Can American healthcare coverage catch up?. *Nursing Management*. 37, 64.
- Price, T. (2007). A new solution may modify healthcare. *Medical Laboratory Observer*. 39, 68.
- Reischauer, R. D. (2007). Benefits with risks--Bush's tax-based health care proposals. *New England Journal of Medicine*. 356, 1393-5.
- Robinson, S. (2008). 10 Myths About Canadian Health Care, Busted. Accessed from http://www.pnhp.org/news/2008/february/10_myths_about_canad.php
- Ruiz, F., Amaya, L., & Venegas, S. (2007). Progressive segmented health insurance: Colombian health reform and access to health services. *Health Economics*. 16, 3-18.
- Thompson, J.A., & Lee, V. (2007). The effect of health insurance disparities on the health care system. *Association Operative Registered Nurses Journal*. 86, 745-56.
- Thorpe, K. E. (2004). Protecting the uninsured. *New England Journal of Medicine*. 351, 1479-81.
- Wen, C.P., Tsai, S.P., & Chung, W.S. (2008). A 10-year experience with universal health insurance in Taiwan: measuring changes in health and health disparity. *Annals of Internal Medicine*. 148, 258-67.

N 732 Rodica Malos

Journal Author Guidelines for Publishable Manuscript assignment.

I selected the *Journal of the American Academy of Nurse Practitioners (JAANP)* for data dissemination of the CIP. This is a very long paper because the JAANP Pre-Submission Guidelines are very detailed and concise. I could not exclude any parts from the guidelines. I retrieved the JAANP guidelines from <http://www.blackwellpublishing.com/submit.asp?ref=1041-2972&site=1>. I did read all the details and then I copied them here for this assignment.

The *Journal of the American Academy of Nurse Practitioners (JAANP)* is a monthly scholarly, peer-reviewed journal for Advanced Practice Registered Nurses (APRNs) and is the official journal for the more than 24,000 members of the American Academy of Nurse Practitioners (AANP).

JAANP Pre-Submission Guidelines

Manuscript Submission Criteria

- * The *JAANP* encourages submission of articles addressing evidence-based clinical practice, case studies, research, NP education, legislation, health policy, practice management, and other advanced practice nursing issues.
- * Manuscripts must be original, unpublished works submitted for the exclusive use of the *JAANP* in accordance with these guidelines.
- * Manuscripts must be submitted via the Web-based Manuscript Central™ system at <http://mc.manuscriptcentral.com/jaanp>
- * Guidelines must be followed exactly to assure your submission is complete. If you do not receive an automated e-mail response, your manuscript has not been successfully entered into the system.

Manuscript Files and Format

- * Manuscript text should not include page numbers, running heads, headers/footers, or hard returns at the end of each sentence (use the word wrapping feature of the computer).
- * Tables and figures must not be included in the body of the text. Each table and figure should be in a separate file and labeled appropriately (e.g., Table 1).
- * You will also need to do a word count (available on the MS Word Tools menu) of the text excluding the tables, figures, references, and abstract. This word count is entered in a specified data field during the submission process.

The Abstract must be formatted with the following specific headings:

- Purpose;
 - Data
 - Sources;
 - Conclusions;
 - Implications for Practice. (See the *JAANP* Example Issue PDF on the AANP Website).
- * There is a firm 200 word limit for the abstract.
 - * Acknowledgements may be inserted at the end of the abstract provided they do not reveal the author's identity. Acknowledgements include recognition of grant funding and

thanks to reviewers or colleagues and mentors. If acknowledgement of grant funding would compromise author anonymity please add this as a “supplemental file not for review” and upload it as directed in Manuscript Central.

* Any editorial assistance provided by pharmaceutical, manufacturing, or marketing companies must be clearly acknowledged in the abstract, including the name of the editor/writer and the source of funding. This statement will also be copied and inserted in the appropriate text box during the online submission process.

Conflict-of-Interest Disclosure Statement

* A Conflict-of-Interest Disclosure Statement must be included in all manuscripts that mention specific drugs, devices, or other proprietary content

Sample Conflict-of-Interest Disclosure Statements:

No relationship exists between any of the authors and any commercial entity or product mentioned in this article that might represent a conflict of interest. No inducements have been made by any commercial entity to submit the manuscript for publication.

Size / Length / Fonts

* The title should be no longer than 50 words and should reflect the content of the paper.

* The body text of a typical manuscript, excluding abstract, references, tables, figures or graphics, should be no longer than 16 – 18 pages (3,500 to 4,000 words). Longer articles may be considered at the editor’s discretion. Text should be double-spaced, with approximately one inch margins.

* Standard Fonts such as “Times New Roman” or “Times” are preferred. For maximum clarity we recommend you use sans serif fonts “Arial” or “Helvetica” for labeling figures, and “Symbol font” for Greek letters and the MS Word symbol menu for other unusual characters. NOTE: Unusual fonts may not be supported on all systems and may be lost on conversion of your documents at the time of online submission.

If you have used the Track Changes feature in the process of writing and editing your manuscript, please save a final version that accepts all the changes you intend to include.

Style and References

* The APA Style Manual (*Publication Manual of the American Psychological Association* 5th edition) is the *JAANP* standard for the format for citations, references, headings, and other matters.

* The use of electronic bibliographic citation managers (such as EndNote™) is acceptable.

* References should be listed alphabetically in a separate section at the end of the manuscript; they should be double-spaced under a heading titled References.

* References should be current and journal titles should not be abbreviated. For most manuscripts, citations older than five years, other than classic works, are rarely required. It is the author’s responsibility to assure that all references are complete and accurate.

* Manuscripts that do not conform to referencing guidelines will not be reviewed.

* Reference works not cited in the main text should be deleted from the manuscript. In

some cases it may be useful to create a table titled Useful Resources or Useful Websites for inclusion at the end of the manuscript.

Electronic File Formats

The body text portion of the manuscript files must be in a .DOC, .DOCX, .RTF or other Microsoft Office compatible file format. Further information on file formats can be found under the Get Help Now tab of Manuscript Central™.

Tables, Figures and Graphics

Tables, figures, and other graphics must not simply duplicate what has been said in the body of the manuscript. If they do not enhance the text, they may be eliminated for space considerations.

Tables, Figures and Graphics should be grayscale (not color) and should use one of the file formats recommended by the publisher at:

<http://www.blackwellpublishing.com/authors/digill.asp>

NOTE: Electronic files that are unreadable or do not print properly can not be processed until a suitable file has been received.

Tables and figures should be uploaded as separate files during the submission process.

Permissions

Permissions to reprint Tables, Figures, Graphics, Tools, or any other previously copyrighted information should accompany the manuscript at the time of submission. If a payment for permission to reprint is required, it will be the author's responsibility to pay all fees prior to publication and submit evidence of such payment to the editor.

NOTE: Do not pay fees until the manuscript has been accepted and scheduled for publication. Permissions should be scanned or copied into a file and uploaded as a "Supplementary file not for review." Permissions must include both print and electronic publication.

Exclusive License Form (ELF) and Copyrights

A signed Exclusive License Form (ELF) will be required for all submissions approved for publication (available on-line at

<http://aanp.org/Publications/JAANP/Author+Information.htm> and on the Manuscript Central™ site for JAANP). NOTE: The contact author is authorized to sign the Exclusive License Form on behalf of all authors.

The copyright to your work remains in your name or your employer's name in accordance with the terms of the ELF. If you are an employee of the Federal Government, your work will reside in the public domain and you should include any disclaimers required by Federal law in the manuscript.

Submission

The JAANP uses the ScholarOne Manuscript Central™ (MC) online submission processing system.

Submission site URL: <http://mc.manuscriptcentral.com/jaanp>

To make a submission you must login to your account. If you do not have an account you must create one. If you do have an account please login, check it over and update it

if necessary. (NOTE: All JAANP MC Accounts are dual role Author/Reviewer accounts so if you are an active JAANP reviewer you already have an account.)

Before you log in to create/update your account and start a submission we suggest that print out this file, read it first then and use it as a reference.

PRIOR TO LOGIN INSTRUCTIONS

Have an email address for all co-authors.

Have a webmail address for yourself.

Decide how you wish you and your co-author(s) email to be addressed:

Dr. Miss Mr. Mrs. Ms or Prof

(NOTE: If your manuscript is accepted for publication you will be able to update your credentials, address, affiliation, etc. at proof reading time.)

Make sure that there are no page numbers in your main document. (Nothing should be in the header or footer.)

Determine the approximate number of words in your submission files.

Select keywords for both your account and submission. (See Key word Tips below)

Limit your Title to 50 words.

Limit your Running Head to 50 characters.

Limit your Abstract to 200 words and ensure it is structured according to the *JAANP* Author Guidelines.

Write a brief cover letter. You may enter or copy and paste your cover letter text into a MC "Cover Letter" box OR you can attach a file containing your cover letter following the onscreen instructions. (We suggest that you enter or paste it into the MC box.)

Be prepared to:

Confirm that the manuscript has been submitted solely to this journal and is not published, in press, or submitted elsewhere.

Confirm that all the research (and your use of citations) meets the ethical guidelines, including adherence to the legal requirements of the study country.

Confirm that you have prepared a complete text minus the title page, acknowledgments, and any running headers with author names, to allow blinded review.

State if you have any conflicts of interest.

AFTER YOU HAVE LOGGED IN INSTRUCTIONS

NOTE: If necessary, you may interrupt the submission process and logout. When you are ready to resume, just login, go to the author dashboard and click the "Continue submission" button.

TIP: Pressing the letter U five times on the "Country" field lands you on "United States"

In the "Degree" field please use only your three (3) most significant credentials.

KEYWORD TIPS -- You will be required to select four keywords for the creation of your account and each submission. The JAANP keyword selection list found in MC is fixed. It has almost 800 broad-based nursing science keywords in it that should be suitable for most submissions. Your account keywords should reflect your areas of professional expertise and interest. The keywords associated with your submission must reflect the content of your manuscript. You may leave your own list of keywords added to the end of the Abstract if you do not find similar words in the list, but you will need to select 4 keywords from the list in order to proceed.

TIP: When selecting keywords from the list, enter three or four letters AND an asterisk (wild card symbol) to filter the list.

Upload your submission files. Try to upload them in numeric order – this will save you the step of re-ordering them within the system.

NOTE: The *JAANP* conducts a blinded peer-review. When uploading your manuscript you will need to upload a Main Document file with no author identifying author information in it (designate as Main Document) and a separate title page (designate as Title Page) with all author identifying details including an email address for all authors. The next section details file type and naming conventions.

Manuscript File Naming for Submission

Title Page includes only the title of the submission and the author information. Authors should be listed in the order in which you want them to appear and the contact author must be clearly identified. Contact information for all authors must be complete and accurate. This page is not included in the reviewer files when the manuscript is sent out for review.

Main Document includes the body of the text and references with all author identifying information removed, no page numbers, no running head, and no embedded tables or figures.

Tables and Figures should be separated into individual files and uploaded with appropriate labels applied as requested during the submission process.

Supplementary Files Not for Review may be uploaded to provide specific information such as permission to reprint material, a complex conflict of interest disclosure, or a copy of the letter of approval to conduct research from the appropriate review board. A scanned copy of your signed ELF should be uploaded here as well.

Suggested upload-file name conventions:

(Contact Author Last name and _Initial followed by file type).

NOTE: Title Page, Main Document, Figure, Table, or Supplemental (may or may not be designated for review)

1-Author_A TitlePage.doc

2-Author_A MainDoc.doc

3-Author_A Figure-1.tif

4-Author_A Table-1.doc

5-Author_A SupFile-ELF.doc

6-Author_A SupFile-Permit.doc

NOTE: We suggest that you place your upload-files in a separate easy-to-find folder named "S1MC" on your hard drive and give them a "sort-order prefix" like 1-, 2-, 3-, etc. (shown above) so that you can upload them in the right order.

During the upload process your files will be converted into both HTML and PDF format for use by the reviewers. (Sometimes the conversion process takes a while or fails.) If it seems to be taking too long - close the conversion-in-progress window and check to see if a file conversion actually occurred. If the file conversion appears stalled or failed, follow any instructions that may become visible on the screen. Otherwise delete any corrupted files and start the process over.

Please be aware that MC services millions of users and sometimes you may experience a glitch in file conversion processing (e.g. "Unable to convert file Author_N1 CL.doc

(PDF)" it did make an HTML) and you may have to delete a botched job and restart the process.

Once your submission is complete you will receive an automatic email from the MC system verifying your submission and providing you with your Manuscript ID Number. You will be able to track the progress of your submission using that number in the MC system.

Reference

Charon Pierson (2008).. Author Guidelines. Journal of the American Academy of Nurse Practitioners <http://www.aanp.org/AANPCMS2/Publications/Journal%28JAANP%292/AuthorInformation.htm>



DNP Clinical Inquiry Project Report & DNP Portfolio Approval

Student Name: RODICA MALOS

Degree: Doctor of Nursing Practice

Title of Study:

FOLLOW UP VISITS IN PATIENTS WITH METABOLIC SYNDROME IN A CLINIC FOR AN UNDERSERVED POPULATION

APPROVED:

Committee Chair: M. K. Crabtree, DNSc, FAAN, APRN, BC Signature: M. K. Crabtree
(name and credentials)

Committee Member: Deborah Messera, PhD, MPH, RN, CNS Signature: [Signature]
(name and credentials)

Committee Member: _____ Signature: _____
(name and credentials)

Michael R. Bleich, PhD, RN, MPH, FAAN
Dean, School of Nursing

Signature: Michael R. Bleich

Date: 6/3/09

Submit completed original form to the Graduate Program office.