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Health Care Disparities and Chronic Disease Burden: Policy Implications for NGOs

By

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Bachelors of Science in Chemistry, 2006

Xavier University of Louisiana

A Capstone Submitted to the Graduate Faculty of

Georgia State University in Partial Fulfillment of the Requirements for the Degree

Master of Public Health

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Health Disparities and Chronic Disease Burden: Policy Implications for NGOs

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Health Disparities and Chronic Disease Burden: Policy Implications for NGOs

Stella Obot

Under the direction of Ike Okosun, PhD, MPH

ABSTRACT

The purpose of this capstone is to develop a program to address health literacy among African American adults. The social cognitive theory and the health belief model was used to create a model of an age appropriate, culturally sensitive program with a pre and post test to improve the health literacy in this population. The Community Health Literacy Improvement Program (CHIP) is a pilot program that will consist of a four week didactic intervention focused on combating prose, document, and quantitative health illiteracy. This program will be implemented through a community based nonprofit organization. Participants who complete the CHIP program will be able to identify risk factors for chronic diseases, assess their ability to avoid chronic diseases, and be able to locate community health resources. This proposed intervention will show that community based nonprofit organizations have an important role to play in building community buy in and establishing the agency necessary for community based, culturally sensitive programs such as CHIP to succeed.

Index words: health literacy, health disparities, chronic diseases, social cognitive theory, health belief model

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I would like to thank the officers of Delta International Health Foundation for their determination and dedication to the service of people all over the world.

And to David Obot Goodman…the torch has officially been passed. As Pop would say, you got next.

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CHAPTER I

INTRODUCTION

BACKGROUND

Currently, 1 in 3 Americans self identify as African American, Hispanic, American Indian/ Alaska native, Native Hawaiian or Pacific Islander and by 2050, half of the population will be a person of color (Census, 2004). Minorities, regardless of their socioeconomic status, are less likely to be insured than their white counterparts and the rate of un-insurance is the highest among low income Hispanics (Kaiser, 2005; Wherry, 2004). This demographic shift and change in insurance coverage status presents a challenge to policy makers concerned with the delivery of quality health care to all. Health care disparities between whites and non whites are widely acknowledged to exist in the areas of access, quality of care, general health status, and medical outcomes (Satcher, 2005; Smedley, 2003; Levine, 2001). As well, there is a consensus that both medical and nonmedical factors contribute to these health care disparities (Gansler, 2005; Mayberry, 2000)

Nonmedical determinants are essential in identifying the landscape of influences on health disparities (Jerant, 2008; Lurie, 2007). These nonmedical determinants include poor education and its attendant consequences of low wage jobs, poor quality housing and low health literacy (Lurie, 2008). Individual, interpersonal, organizational, environmental, and societal factors all contribute to creating these nonmedical determinants of health care disparities. These areas are therefore ripe for policy action to

alleviate and eventually eliminate health care disparities among African American communities. Nonmedical determinants of health disparities are complex and while the provision of health insurance will alleviate these disparities, more is needed. Interventions that employ a step- wise, comprehensive approach may be necessary when designing and implementing health policy to combat these health disparities.

The chronic disease burden in the United States has increased greatly over the past two decades and research has shown that sizable proportions of chronically ill patients are not receiving effective therapy, have poor disease control, and are otherwise unhappy with their care (Wagner, 1997). The most successful chronic disease interventions occur when the clinical system, lead by a provider, reconfigures itself to specifically address the health care and global needs and concerns of chronically ill patients (Wagner, 1996). The needs and concerns of minority patients with chronic illnesses continue to elude many physicians, and results in poorer disease management and outcomes for these patients (Coleman, 2005; Wagner, 1996).

Culturally competent education programs are being explored to improve the health literacy of disparate populations (IOM, 2002). These initiatives focus on improving personal health management, access to community resources, and examination of community and personal health beliefs and norms. These initiatives have recently been expanded to address the association between individual health behaviors and chronic diseases by community based nonprofit organizations. Educating patients about the benefits of healthy behaviors such as increased exercise, when to seek medical care,

where to access resources, and providing these minority populations with a consistent connection to health resources such as a primary care provider, has been shown to alleviate individual socioeconomic barriers to accessing medical care (Coleman, 2005; McGinnis, 2002).

STATEMENT OF THE PROBLEM

There are medical and nonmedical determinants of health disparities between African Americans, other minorities, and their Caucasian counterparts. Research and existing policies have focused more on addressing the medical determinants, largely neglecting those that are non medical in origin. Health literacy, especially, is necessary to successfully navigate the dynamic and complex medical system in the United States and efforts to combat this confusion are sporadic at best. Communication is critical achieve successful health outcomes and health literacy remains "a neglected, final pathway to high quality health care" (IOM, 2008).

It is important that the patient-provider interactions to proceed as smoothly as possible. There are situations when a provider gives instructions that are misunderstood by the patient, leading to negative health outcomes. Such an example is as follows.

> *A two year old is diagnosed with an inner ear infection and prescribed an antibiotic. Her mother understands that her daughter should take the prescribed medication twice a day. After carefully studying the label and deciding that it*

doesn't tell how to take the medicine, she fills a teaspoon and pours the antibiotic into her daughter's painful ear. (Parker et al, 2003)

This example clearly shows the dangerous consequences that occur when the patient does not clearly understand instructions provided and cannot decipher information provided on prescription medication. This level of health literacy is very common and over 300 studies have shown that health information cannot be understood by most people for whom it was intended (IOM, 2004). Low levels of health literacy are associated with poorer health outcomes, including mortality, self reported physical health status, and emergency department use (Baker et al., 1998; Wolf, et al., 2006).

This example also highlights the need to improve the healthcare system to ensure that such misunderstandings are minimized. Dr. Rima Rudd, Senior Lecturer on Society, Human Development, and Health at Harvard School of Public Health found that a two sided approach is needed to improve health literacy. This approach consisted of the demand side, which is what the health care system requires, as well as the skill side, which refers to individual capacities to respond to system demands (Rudd, Kirsch & Yamamoto, 2004).

Nongovernmental organizations have a key role to play in improving the skill side, and improving the health literacy of minority populations and their ability to navigate the health care system. Improving the health literacy of African American women between 21-45 will serve to improve their health status, as well as that of their families, and reduce their chronic disease burden later in life.

Purpose

In an interview with the American Speech and Language and Hearing Association, acting United States Surgeon General Rear Admiral Kenneth P. Moritsugu, MD, MPH remarked that "Low health literacy is a threat to the health and well being of Americans. And low health literacy crosses all sectors of our society. All ages, races, incomes, and education levels are challenged by low health literacy." (Moore, 2007). Approximately one-half of the adult population may lack the needed literacy skills to use the U.S. healthcare system (USDOE, 2003). Low literacy has been linked to poor health outcomes such as higher rates of hospitalization and less frequent use of preventive services and minorities are more likely to have low health literacy than their majority counterparts (Berkman, 2004).

The purpose of this capstone is to design a community based, culturally sensitive intervention program that increases the health literacy of African American women between the ages of 21 and 45.

CHAPTER II

REVIEW OF LITERATURE

HEALTH LITERACY

Literacy is the ability to use printed and written information to function in society, achieve one's goals, and to develop one's knowledge and potential (United States Department of Education, 2003). Within this definition of literacy exists further subdivisions of prose, document, and quantitative literacy. Prose literacy refers to the knowledge and skills needed to search, comprehend, and use information from contiguous texts (United States Department of Education, 2003). Document literacy is the knowledge and skills needed to use noncontiguous texts in different formats including lists, rows, columns, matrices, and graphs (United States Department of Education, 2003).

Healthcare related document literacy incorporates the ability to locate a healthcare facility, complete insurance forms, or read a drug label. Quantitative literacy is the knowledge and skills required to perform tasks that require computations using information and numbers embedded in printed materials (United States Department of Education, 2003). These types of tasks are preformed when comparing health insurance costs, perform quick calculations to understand food labels, or determine the timing of medications.

Health literacy also can be defined as the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions (Ratzan and Parker, 2000). An individual's health literacy is mediated by their education, culture, and language as well as the compliance by those in the medical marketplace and media to provide information that is culturally sensitive (Ratzan and Parker, 2000). In the absence of a health system that is conducive and that provides support to those with low health literacy, it is imperative that individuals work to improve their health literacy in an effort to improve their health status. Figure 1 below demonstrates that educational systems, health systems, cultural and societal factors are all areas of potential influence on health literacy and may contribute to health outcomes.

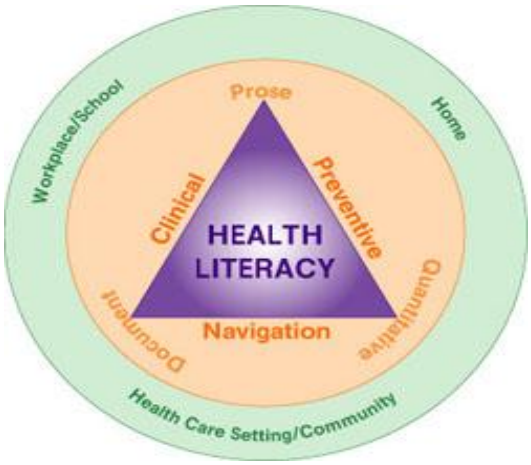

Figure 1: National Assessment of Adult Literacy

Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics (NCES).(2003). National Assessment of Adult Literacy (NAAL). Washington, DC: NCES; 2003.

How well a person comprehends written material varies with his or her conceptual knowledge of common health related vocabulary, familiarity with the structure of the written health material, the nature of the task itself, and familiarity with how the health care system works (Weiss et al, 1992). This task-based definition of health literacy is closely related to that of general literacy. Most health screening recommendations are not very explicit. Participants are called upon to read and comprehend long sentences and draw inferences, which are a demonstration of prose literacy (United States Department of Education, 2003). For this reason, health related literacy cannot be independent of general literacy.

In 2003, the National Center for Education Statistics and the US Department of education began collecting data for the National Assessment of Adult Literacy (NAAL). For this study, prose, document, and quantitative literacy were measured. A representative sample of more than 19,000 adults, including 1200 adults in prison, was used to perform this study (United States Department of Education, 2003). The NAAL was administered in person in the participant's home and most participants required ninety minutes to complete the interview, but were allowed to ask for more time. Interviews lasted about fifteen minutes for the least literate, who took an alternative assessment rather than the main NAAL.

The health literacy component of the NAAL was used to describe the status of health literacy among the nation's adults, aged 16 and older, who lived in households or prisons through the assessment of their functional literacy. Clinical tasks, awareness of

preventive measures, and the navigation of the health care system were assessed. It is important to note that knowledge of particular health issues, understanding of medical jargon, skills associated with listening, speaking, and nonverbal communication and materials relevant to a particular group were not included in this assessment (United States Department of Education, 2003).

The NAAL was more heavily weighted toward awareness of preventive guidelines and navigation skills of the healthcare delivery system. One of the tasks consisted of adults being shown an immunization schedule and then being asked questions such as "How many polio vaccinations should children receive by the time they are 7 years old?" (United States Department of Education, 2003). To perform this task, the participant had to use various pieces of information represented in the columns and rows and is a component of document literacy (United States Department of Education , 2003).

Results of the NAAL were based on the three health literacy skills (prose, document, and quantitative) and four literacy levels (below basic, basic, intermediate, and proficient). The Below Basic level indicated a grasp of the simplest, most concrete literacy skills and corresponds to a health literacy range of 0-184 (Baker, 2006; USDOE, 2003). The Basic level corresponds to skills that are needed to perform simple everyday literacy activities and corresponds to a health literacy range of 185-225 (Baker, 2006; USDOE, 2003). The Intermediate level indicates that the participant is able to perform moderately challenging literary activities and corresponds to a range of 226-309 (Baker,

2006; USDOE, 2003). The Proficient and highest level indicates that the participant possesses the skills necessary to perform more complex and challenging health literacy activities and corresponds to a range of 310-500 (Baker, 2006; USDOE, 2003). Figure 2 shows an overview of NAAL performance levels.

General Literacy Level	Health Literacy Range	Simple health literacy task typical of this level
Below Basic- indicates a grasp of no more than the simplest, most concrete literacy skills	0-184	Sign a health form Searching a short, simple text to find out what a patient is allowed to drink before a medical test
Basic- indicates skills needed to perform everyday literacy activities	185-225	Entering names and birthdates in a health insurance application Calculate what time to take a medication by combining two pieces of information
Intermediate- indicates skills necessary to perform moderately challenging literacy activities	226-329	Determine which foods contain a particular vitamin Determining a healthy weight for a person of specified height based on BMI graph
Proficient- indicated skills necessary to perform more complex and challenging literacy acticities	310-500	Computing the price per year of an insurance policy Interpreting a table about blood pressure, age, and physical activity

Figure 2: National Adult Assessment of Literacy Performance Levels

Source: Adapted from US Department of Education, Institute of Education Sciences, National Center for Education Statistics (NCES).(2003). National Assessment of Adult Literacy (NAAL). Washington, DC: NCES; 2003.

The results showed that 2% of adults were not literate in English and were unable to participate in the assessment (United States Department of Education, 2003). Another 3% of participants took an alternative assessment for those with extreme low general

literacy and were also not represented in the results. 14% of the population assessed were characterized as being at the below basic level, equivalent to about 31 million adults in the general population (United States Department of Education, 2003). 50% of those in the below basic level had low oral reading fluency as compared with 12% in the total population (United States Department of Education, 2003). Adults who did not graduate from high school made up 15% of the study participants and were 3.3 times more likely to be at the below basic health literacy level than those who graduated from high school (United States Department of Education, 2003). The results of NAAL showed that more is needed to improve the health literacy of adults in the United States.

Adults who reported good, very good, or excellent health conditions had higher health literacy scores (234, 254, and 262 respectively) (United States Department of Education, 2003). Those who reported poor or fair health reported lower health literacy scores, 196 and 207 respectively. 42% of adults reporting poor health and one third of adults reporting fair health scored Below Basic in health literacy (United States Department of Education, 2003). Hispanics had lower average health literacy scores (197) than any other racial or ethnic group (USDOE, 2003; Kutner et al, 2007). White and Asian/Pacific Islanders had higher average health literacy than did adults in other ethnic groups (United States Department of Education, 2003; Kutner et al, 2007). The racial/ethnic results of the NAAL are shown in Figure 3 below.

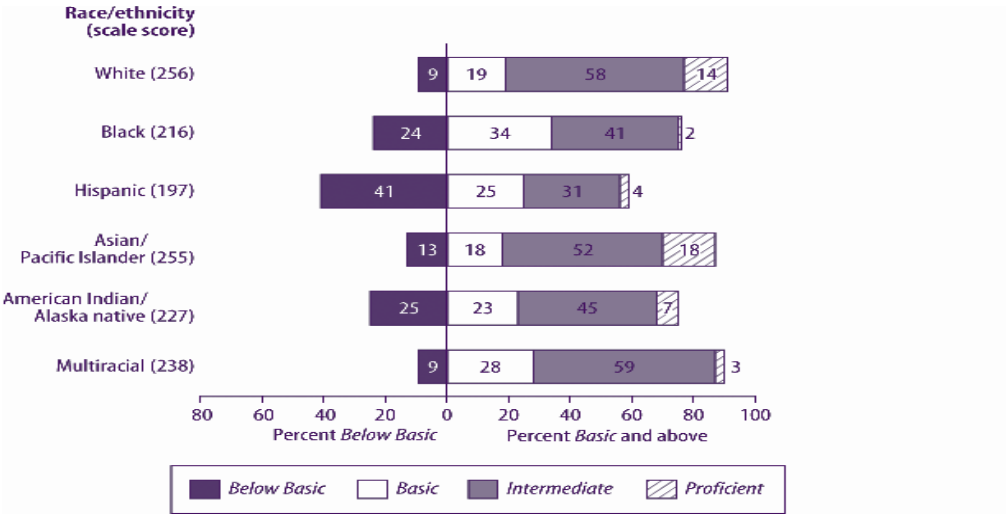

Figure 3: Racial Stratification of the National Assessment of Adult Literacy

Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics (NCES).(2003). National Assessment of Adult Literacy (NAAL). Washington, DC: NCES; 2003.

Adults living below the poverty level also had lower health literacy scores. Adults aged 65 and older had less post secondary education and a lower average health literacy score than adults in younger age groups. Adults who did not have any type of medical insurance or were not enrolled in any kind of program that helped pay for their health care had lower health literacy score (average of 220) than those who did (250). 53% of adults without health insurance scored in the Below Basic or Basic level of health literacy (United States Department of Education, 2003).

While the National Assessment of Adult Literacy (NAAL) provided baseline data to populate the only database with national data on health literacy, this tool still leaves

much to be desired. Access to NAAL data files is often difficult and very proficient researchers had trouble access this data (IOM, 2009). Another disadvantage of the NAAL is the exclusion of those who are unable to read at all. Without properly including this population in the assessment, data to calculate the prevalence of this problem is approximated at best.

Currently, the individual questions for the health portion of the NAAL are not available to the public. One researcher commented that

> "I found it particularly troublesome to not be able to find out the exact wording of the questions. It seemed like NAAL was operating with so many secrets and no interest in making the data available to advance our knowledge of health literacy" (IOM, 2009).

This is extremely problematic as data is needed to advance our knowledge of health literacy so as to develop targeted programs. Many researchers also suggest that stratifying the four NAAL general literacy categories into grade levels would allow the data to be more manageable and easily presented (IOM, 2009). Grade levels represent a concept that is understood by most people and will cause communication to more clear. There are currently different tools to address health literacy and they include the HALS (Health Activities Literacy Scale), REALM (Rapid Estimate of Adult Literacy in Medicine), TOFHLA (Test of Functional Health Literacy in Adults), and the NVS (Newest Vital Sign) among others. Unfortunately, all of these tools are incomplete and

more research is needed to produce a validated, universal, reliable instrument that is conducive to the study and analysis of the dynamic field of health literacy.

HEALTH BELIEF MODEL AND SOCIAL COGNITIVE THEORY

Theories and models of change specify the relationships among causal process operating within and across levels of analysis (McLeroy, 1992). They help explain how and why certain phenomena take place. The health belief model (HBM) and social cognitive theory (SCT) are two complimentary models of health behavior theory that provide a basis upon which to structure interventions to combat health literacy in African Americans (Middleton, 2009).

The Health Belief Model (HMB) attempts to explain and predict human behaviors. There are three assumptions at its core. First, people will take a health related action if they perceive or believe a negative health condition can be avoided. Second is the assumption that one will adopt a health related action if they feel the recommended action will help avoid a negative condition. Third is that one will take health related action only if they feel they will be able to successfully complete this action (Cottrell et al, 2005). This model states that people will prevent, screen for, or control disease conditions if they consider themselves susceptible to the condition, if they believe the condition could potentially lead to serious consequences, and if they believe the benefits

of taking health related action are greater than the imagined barriers to taking action (Janz, 2002).

Several constructs in the health belief model can be studied to further understand behavioral differences in the African American community that should be targeted to improve disease outcomes. Perceived susceptibility is the belief that one will actually acquire the condition. Perceived severity is the belief of how serious a condition is and what sequlae are likely to follow (Cottrell, 2005). Studies of African American focus groups have shown that non-adherent members did not feel any symptoms of high blood pressure at the time of their diagnosis, causing them to doubt the diagnosis (Lukoschek, 2003). It is also likely that these nonadherent patients do not know that hypertension, without any symptoms, can lead to heart disease and stroke, further leading to their cavalier self management of their condition. The constructs of perceived susceptibility and severity are important to combat hypertension, obesity, and diabetes because these conditions can cause irreparable damage to the body without overt symptoms. If a patient does not feel "sick" and does not understand which lifestyle behaviors directly lead to different chronic diseases, they are less likely to take actions to prevent these illnesses (Lukoschek, 2003).

Another construct in the Health Belief Model is perceived barriers. These are defined as the cost associated with an advised action (Cottrell, 2005). These barriers can include time, cost, transportation, lack of convenient places to buy healthy food, and the social isolation of eating foods that differ from what everyone else is eating (Horowitz,

2004). Barriers to medication adherence include side effects and the cost of the medication. It is important to correctly identify the perceived barriers to combating diabetes, hypertension, and obesity in African American communities. Figure 4 below depicts the health belief model.

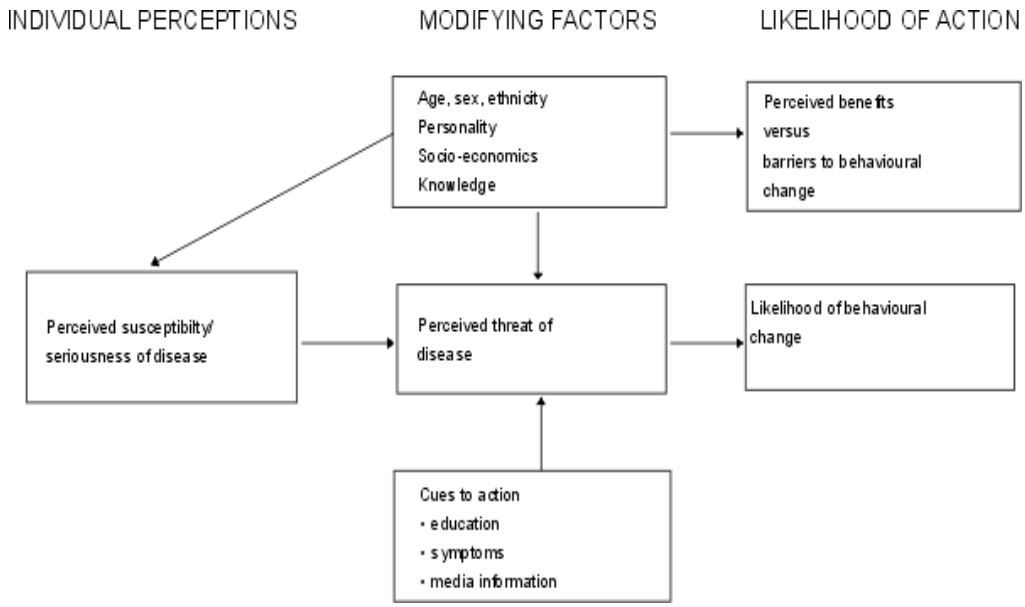

Figure 4: Health Belief Model

Source: Glanz, K., Rimer, B.K. & Lewis, F.M. (2002). *Health Behavior and Health Education. Theory, Research and Practice.* San Francisco: Wiley & Sons.

The Social Cognitive Theory (SCT) explains how people acquire and maintain certain behavior patterns (Cottrell, 2005). Behavior change is dependent on the interaction between environment, behavior, and personal factors and is depicted in figure 5 below.

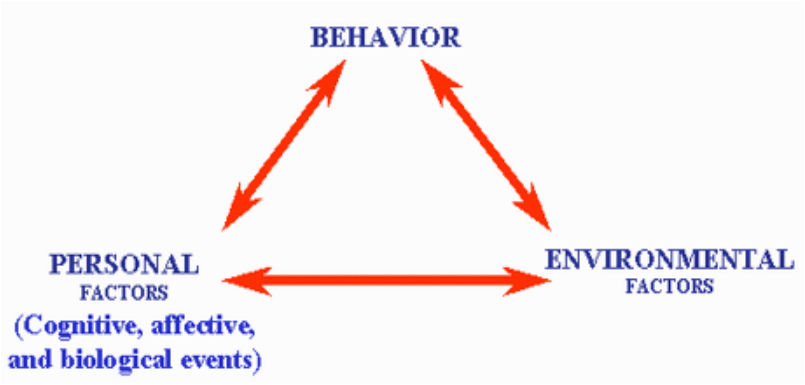

Figure 5: Social Cognitive Theory

Source: Pajares (2002). *Overview of social cognitive theory and of self-efficacy*. Retrieved November 20, 2009 from http://www.emory.edu/EDUCATION/mfp/eff.html.

Three constructs at the center of the social cognitive theory are behavioral capability, locus of control, and self efficacy (Cottrell, 2005). Behavioral capability is the belief that one possesses the knowledge and skills necessary to perform a task or adopt a behavior. An example of behavioral capability is when people are instructed to exercise aerobically, they would need to know what exactly aerobic exercise is and how to do it. Locus of control is the perception of decision making over reinforcement.

Locus of control is internal to those who have control over reinforcement and external for those who believe an external force have control over reinforcement (Laffrey, 2003). Those with an internal locus of control are more likely to take direct responsibility for their actions than those who have an external locus of control. A figure describing internal versus external locus of control is below.

Figure 6: Locus of Control

Source: Locus of Control: Finding Out Who's In Charge of Your Destiny. Retrieved on November 15, 2009 from https://www.mindtools.com/media/Diagrams/LocusofControl.jpg.

Self efficacy is an individual's confidence in their ability to perform a health related task or function (Bandura, 1997). Added to the construct of self efficacy is outcome efficacy, which is the belief that their actions will successfully combat their disease or prevent it entirely (McLeroy, 1992). If one is to engage in a regular exercise program, they must feel confident that they can do it successfully and that the results will

be positive. The intervention to be developed envisions that health literacy impacts the constructs of behavior capability, locus of control, and self efficacy.

Health Literacy Programs

Health literacy is beginning to garner attention on both the local and national level. The Institute of Medicine report entitled *Health Literacy: A Prescription to End Confusion* showed that 90 million Americans have trouble understanding complex texts which are used often in medicine (IOM, 2004). This study goes on to highlight the fact that even those with strong general literacy skills may have trouble obtaining, understanding, and using complex health information and concludes with a call to improve health literacy.

While there are still many more populations to reach, several organizations have launched successful programs to combat health literacy. Many drug companies and organizations that produce educational materials for different health conditions have become more cognizant of the readability of their materials. There is a new drive to produce plain language literature that effectively communicates with the audience addressed and ensures the audience can both find and understand the information provided (Harvard, 2000). Production of plain language literature significantly decreases the chance for miscommunication between patient and physician and helps improve the

health literacy of the patient receiving the materials. The Joint Commission on the Accreditation of Healthcare Organization currently requires that all patient materials be written in plain language (NIH, 2003).

Currently, there are very few programs that specifically address health literacy in minority communities in the United States. Many federally funded programs that address health disparities have a health education component that many organizations are expanding to highlight health literacy. These programs were used to provide a skeletal foundation for the health literacy initiative to be implemented through Delta International Health Foundation, Inc.

One such program is the Access Community Health Network in Chicago, Illinois. This is a collaborative program with the University of Illinois Chicago that uses local faith leaders to help low income women of color obtain the preventive services of cervical and breast cancer screenings (CDC,2007). Lay health workers are recruited from local area churches and are instrumental in ensuring health information is added into church service on Sunday, focus groups on cervical and breast cancer screenings, health fairs, and support groups are held. Workshops are held in local area churches. Primary care services are also offered through this initiative and any participant who expresses interest is referred to local area physicians. Since the implementation of this program in 2004, more than nine thousand women have attended educational sessions on breast and cervical cancer and more than five thousand have been referred for a papanicolaou smear or mammogram (CDC, 2007).

Another successful program is the Black Women's Health Imperative, located in New Orleans Louisiana. This program is a community based participatory research project that works with local area churches to reduce the risk factors for heart disease among African American women (CDC, 2007). This program serves as a good model for building community partnerships as 40 churches across 10 denominations participated in this city wide initiative. This program embraced the role of women being agents of change for their own health as well as the health of their families and communities. A participant is quoted as saying "REACH helped us to understand that if we don't take care of ourselves, we can't take care of our husbands, our children, or our people" (CDC, 2007). This quote signifies the positive change in the way that women who took part in this well-run, community based, culturally sensitive program developed self efficacy.

CHAPTER III

Intervention

To combat low health literacy among African Americans, Delta International Health Foundation, Incorporated will develop and implement the Community Health Literacy Improvement Program (CHIP). This program will be designed to increase the health literacy in African American women between the ages of 21 and 45. Currently, women consist of more than half of all deaths due to cardiovascular disease and stroke. Each year 400,000 more women than men have a stroke (CDC, 2004). 49% of African American women currently have cardiovascular disease and in 2004, cardiovascular disease caused approximately a death per minute among this population (CDC, 2001). Women in this age group will be targeted because they are more likely caregivers and have responsibility for the health and well being of the entire family (Chadila, 2004; KFF, 2002).

The Community Health Literacy Improvement Program will be an age appropriate, culturally sensitive four week didactic intervention to combat prose, document, and quantitative health literacy while familiarizing participants with common risk factors and prevention mechanisms for chronic diseases. The impact of the intervention will be assessed using the three constructs of the health belief model (perceived susceptibility, perceived severity, and perceived barriers) and the three constructs of the social cognitive theory (behavioral capability, locus of control, and self efficacy).

Delta International Health Foundation, Incorporated (DIHF), is a non-profit organization dedicated to educating those living in Delta regions of the world, evaluating programs and initiatives designed to alleviate health problems germane to minority populations, and researching innovative ways to effect a positive change on minority populations. The first objective in the Articles of Incorporation for Delta International Health Foundation, Inc. states that a focus should be placed on the research and implementation of programs to reduce the incidence and prevalence of diabetes, obesity, and hypertension among African Americans and recent immigrants to the United States of America (Appendix A). The proposed Community Health Literacy Improvement Program is directly concordant with the mission and objectives of DIHF.

The Community Health Literacy Improvement Program will be a pilot program consisting of a four week intervention of didactic learning. Twenty five to thirty participants will be recruited from local area churches, barber shops, beauty salons, and community grocery stores. The community will be approached through community partners to ensure cultural competency as well as foster community buy-in (Curtis, 2007). An incentive of a gift card to a local store, such as Wal Mart, will be provided to participants who have completed all four weeks of the intervention. Token financial incentives of either money or a gift card improve response rates and have a positive impact in recruiting study participants (Lesser et al, 2007). The education classes will be held locally in a community recreation center accessible by public transportation. After the intervention is complete, health care resources in the community as well as some of

the literature distributed during the intervention will be made available to partner institutions. Figure 7 describes the four week intervention.

	CHIP Session 1 First Aid	CHIP Session 2 Eat Wisely. Exercise More. Live Well.	CHIP Session 3 Just the Numbers	CHIP Session 4
Assessment	Pretest	Tracking of normal diet	Vital Signs	~Post Test ~Evaluation of the course
Focus Areas	~Preventive care ~Community resources ~Payment options ~Health notes: when to seek treatment, how to take medications	~Recommended diet/ food pyramid ~Carbohydrates/ protein/Fat/ Fiber ~Exercise recommendations ~Foods to avoid ~How to read food labels	~BMI ~Pear vs. Apple Shape ~Cholesterol/ Triglyceride ~Blood Sugar ~Blood Pressure	~Review ~CPR Certification
Information to Distribute	~Location of community health resources ~Table of recommended preventative measures for adults between between 21-45	~Food pyramid with suggested healthy alternatives ~Example of food label	~Lab form with personal numbers (characterized as low, normal, or high)	~CPR Certificate ~Overview of material presented during the course of the intervention ~Information on DIHF and where to find additional information if needed

Figure 7

Community Health Literacy Improvement Program (CHIP)

The first session will begin with a pretest, establishing the baseline for assessment. The pretest will consist of core questions addressing the participant's knowledge of prevention strategies, nutrition, and navigation of the health care system. The pretest in its entirety is as follows in Figure 8 below.

Delta International Health Foundation, Inc.

COMMUNITY HEALTH LITERACY IMPROVEMENT PROGRAM (CHIP)

PRE/POST TEST

HIGHEST EDUCATION LEVEL COMPLETED_____ AGE _____

NUMBER IN HOUSEHOLD _____ ZIP CODE _____

Please answer the following questions as either true or false

1 A correct example of preventive care is a flu shot. TRUE FALSE

2 Medical resources include free clinics and health centers. TRUE FALSE

3 Drug companies are available to help patients pay for drugs. TRUE FALSE

4 You should go to the doctor when you are first feeling sick. TRUE FALSE

5 Exercise should be performed 3 to 4 times per week. TRUE FALSE

6 All adults should receive an annual physical exam. TRUE FALSE

7 Lack of exercise can lead to the development of chronic diseases. TRUE FALSE

8 White bread is better to eat than wheat bread. TRUE FALSE

9 Fats are included in recommended dietary allowances. TRUE FALSE

10 Whole fruit are a better choice of fiber than fruit juice. TRUE FALSE

Answer the following multiple choice questions:

11 Which of the following is an example of protein?

(a) Chicken (b) fish (c) eggs (d) all of the above

12 Fried, fatty foods should be eaten

(a) As often as possible (b) As little as possible (c) Never (d) only on Sunday

13 One is classified as obese if their BMI is

(a) Greater than 20 (b) greater than 25 (c) greater than 30 (d) greater than 35

14 How would you classify your health

(a) Poor (b) Fair (c) Good (d) Very good

15 Normal blood glucose for a healthy adult before eating should be

(a) Less than 100 (b) equal to 100 (c) greater than 100 (d) greater than 120

16 Normal blood pressure is closest to

(a) 120/80 (b) 140/90 (c) 180/110 (d) 210/120

17 A good example of aerobic exercise is

(a) Walking (b) swimming (c) running (d) all of the above

18 Complications of chronic diseases such as diabetes and hypertension include

(a) Dialysis (b) limb amputation (c) blindness (d) all of the above

19 Someone who is overweight or obese has a high likelihood of developing

(a) Diabetes (b) hypertension (c) heart disease (d) all of the above

20 Risk factors for developing chronic diseases include

(a) Diet (b) exercise (c) family history (d) all of the above

FIGURE 8 CHIP Pre/Post Test

After administration of the pretest, four primary focus areas will be discussed which include preventive care, community resources, payment options, and general health notes. Preventive care will discuss the importance of primary and secondary interventions such as flu shots, annual physical examinations, pap smears, and tetanus shots. The health related parts of the National Assessment of Adult Literacy (NAAL) were heavily weighted toward preventive medicine and after completing this intervention, participants should score high on this type of assessment.

African Americans living in low income neighborhoods often are unaware of the resources within their community which include free clinics, community health centers, medical student clinics, and upcoming free health fairs (Ford, 2009). These resources will be extensively discussed and a map of their respective locations will be distributed.

The NAAL also identified that many tested participants who received scores that were in the *Basic* or *Below Basic* level of health literacy did not accurately answer questions regarding the navigation of the health system correctly (USDOE, 2008). Navigation of the health care system includes knowledge of payment options and facilities. To combat this, information about navigation of the health care system including Medicaid, Medicare, sample medications, and drug company indigent support will be discussed. Participants also will be directed to a physician partner for a consultation at the onset of one symptom and to take all medications as directed. Participants will also be reassured to ask questions of directions given to them that they do not understand. The constructs of internal locus of control and self efficacy will be

stressed and participants will be reassured that they deserve to be well and that there are steps they can take to gain complete control of their health.

The first session will also highlight methods to enhance communication between providers and patients. Ineffective communication seriously impairs medical outcomes and health status, especially of patients with low literacy (Sudore et al., 2006). The Partnership for Clear Health Communication at the National Patient Safety Foundation has begun to implement the "Ask Me 3" campaign. This campaign encourages patients to ask three questions before during their medical consultation.

1.) What is my main problem?
2.) What do I need to do?
3.) Why is it important for me to do this?

(NPSF, 2008)

The second session will focus primarily on diet and nutrition. Studies have shown that people with low income do not eat what they want or what they know they should eat, but what they can afford (Aguirre, 2000). Emphasis will be placed on inexpensive healthy alternatives that are locally available. The recommended diet will be explained through the use of the USDA food pyramid and examples of healthy choices from each group will be given. For example, the Food and Drug Administration recommends that adults consume 50 grams of protein per day, which is equivalent to 200 calories (FDA, 2005). Acceptable examples of protein are grilled or baked chicken, grilled or baked fish, and boiled eggs among others. Participants will be persuaded to embrace cooking

methods other than frying to decrease negative health consequences associated with ingesting excess oil. Fried foods are generally heated to temperatures above 248 degrees Fahrenheit, making them more likely to form the carcinogen acrylamide (Tareke et al, 2002).

Participants also will be given the necessary tools to quickly assess and understand a food label, with specific emphasis placed on total calories and percent sodium. In addition to healthier eating habits, participants will be informed of the different ways to become physically active. Swimming, walking, running, and bicycle riding will be among the exercises suggested and local area gyms and recreation centers will be identified.

The third week of CHIP will focus on the quantitative aspects of health literacy. Important numbers in the context of health will be explained including, body mass index (BMI), cholesterol, blood sugar, and blood pressure. Individual measures of participants will be taken. Participants will be able to use their own BMI, cholesterol, blood sugar, and blood pressure to understand what the normal should be and where their measurements fall in comparison.

The fourth week of CHIP will consist of a review, post test, and evaluation. The evaluations of this pilot program will be used to refine the CHIP initiative to improve efficacy upon its next implementation. Delta International Health Foundation, Inc. will also conduct process evaluations to improve how the program is delivered. Partnership with the local chapter of the American Heart Association will prove useful in providing

take-home educational materials, recommendations about exercise, and Cardiopulmonary Resuscitation (CPR) Certification at the completion of the program. Upon completion of the four week CHIP Program, participants will be able to identify preventive health measures, locate community resources, and identify payment options to receive health services. They will know what BMI is, the difference between proteins, carbohydrate, fat, understand dietary recommendations, and identify foods to avoid.

Methodology

Successful participants shall complete all four sessions of didactic and interactive discussions and demonstrations. During the fourth session, participants will complete a post test. This test will consist of a paper and pencil questionnaire, individually completed and monitored. The goal is for participants to achieve a higher post test score compared to their pretest score. Successful participants will be able to indentify chronic diseases, risk factors, correctly assess their personal risk, and understand how to successfully prevent certain illnesses. Community resources will be identified and located, and participants will be advised on which foods to avoid and the importance of exercise. Participants will also be able to understand a food pyramid and incorporate planning for healthier eating habits in shopping for their family.

CHAPTER IV

DISCUSSION

In 2008, The Agency for Healthcare Research and Quality implemented a mass media campaign asserting that *Questions are the Answer* (Agency for Healthcare Research and Quality, 2008). This campaign was implemented to serve as a catalyst to get patients more involved in their healthcare. According to the Agency for Healthcare Research and Quality,

> The single most important way you can stay healthy is to be an active member of your own health care team. One way to get high-quality health care is to find and use information and take an active role in all of the decisions made about your care." (Agency for Healthcare Research and Quality, 2008)

Health literacy is the single most important factor affecting the quality of patient-physician communication (IOM, 2004). Addressing health literacy in the most affected populations will improve their health status and lessen their chronic disease burden (Parker, 2003). It is important that policies, such as the Community Health Literacy Improvement Program, be implemented to improve health literacy. The successful implementation of the CHIP program will show that theory based, culturally sensitive community interventions can be implemented to enhance health literacy.

The cornerstone of federal efforts to eliminate racial and ethnic disparities in health is the REACH program (Racial and Ethnic Approached to Community Health

Across the United States) funded by the Centers for Disease Control and Prevention (CDC, 2009). Community based organizations are given grants to plan, implement, and evaluate programs that eliminate health disparities. In Georgia, the Fulton County Department of Health and Wellness coordinates the REACH program that works to improve nutrition, increase physical activity, and create a smoke free community (CDC, 2007). This program was able to increase the percentage of adults who have had their cholesterol checked from 69.1% in 2002 to 79.7% in 2004 and increase medication adherence from 79.1% in 2002 to 80.5% in 2005 (CDC, 2007). The success of this program is hinged on community relationships and the trust local nonprofit organizations have gained from their community. Delta International Health Foundation, Inc. will work to gain similar trust and create community buy-in and achieve comparable post intervention results.

People can be empowered on an individual and community level to take responsibility for their immediate and long term health care (Hussey, 1989). At the core of the Social Cognitive Theory are the constructs of self efficacy, locus of control, and behavioral capability. Locus of control and behavioral capability are both combated through educating participants about the actions they can take within their homes to be healthier as well as educating them on the resources at their disposal in their community.

The health belief model states that people will prevent, screen for, or control disease conditions if they consider themselves susceptible to the condition, if they believe the condition could potentially lead to serious consequences, and if they believe the

benefits of taking health related action are greater than the imagined barriers to taking action (Janz, 2002). The CHIP intervention will teach participants about their personal susceptibility to different chronic conditions and describe the possible sequale that may result if these actions are not taken. Increasing their education about their susceptibility to these chronic diseases will result in more preventative measures taken to curtail the onset of these chronic conditions.

While the CHIP program is centered on African Americans, other minority groups can be assisted by a similar initiative. Studies suggest that while many individuals have limited health literacy, the problem is often greater among older adults, people with limited education, and those with limited English proficiency (Gazmararial et al, 1999). Medicare enrollees with inadequate health literacy, as measured by reading fluency, had a higher all-cause mortality and cardiovascular death rate than their counterparts (Baker et al, 2007). Elderly immigrants, especially, have difficulty navigating the health system. There are currently 38.1 million foreign-born individuals in the United States of America and 22% are over 55 years of age (United States Census, 2005). 75% of immigrants are from Asia and Latin America, which compounds limited English proficiency as another barrier to physician communication and navigation of the health care system (Agency for Healthcare Research and Quality, 2009).

There is an association between health literacy, health care utilization, and health care costs. Public hospital patients with low health literacy had higher rates of hospitalization, which is associated with a greater resource use (Baker et al, 2002). The

additional healthcare expenditure attributable to inadequate reading skills in 1996 was $29 billion (Friedland, 1998). Patients with reading levels at or below third grade had mean Medicaid charges $7,500 higher than those who read above the third grade level (Weiss, 2002). Although more data and research is needed to determine the exact cost of low health literacy on health expenditures, the expenses in these studies underscore the importance of combating health literacy from a fiscal perspective.

Limitations

The primary limitation to the Community Health Literacy Improvement Program it that it is not tested. The Pre/Post was developed for this intervention and is not standardized or validated. The use of a standardized and validated instrument would allow for more reliability when assessing the impact of this community intervention.

Recommendations

More research is needed to fully determine the effects of low health literacy both on the patient themselves as well as well as projected costs to the medical care delivery system. More robust policies also should be developed to combat health literacy through state or federal policies. Funding should be allocated to comprehensively evaluate existing health literacy programs. Health care systems should develop and support programs to establish effective approached to reducing the effects of low health literacy. The IOM recommends that these programs engage consumers in the development of health communications, explore creative approach to communicate health information,

establish methods and media that is appropriate, and include cultural and linguistic competency (IOM, 2004). Research shows that restructuring the health care system can decrease health care disparities by ensuring more have access to a medical home, improving quality, and promoting safety (Davis et al., 2006; Kripalani et al., 2006; Weiss et al., 2006). More research, funding, and the implementation of more interconnected programs for health communication would positively affect health literacy in the United States while contributing to the elimination of health care disparities.

Conclusion

Age appropriate, culturally sensitive programs are necessary to combat health literacy in minority populations. Prose, document, and quantitative literacy skills should be taught by community based non-governmental organizations though the development of community based programs. The Community Health Literacy Improvement Program is an example of such a program. CHIP will improve the health literacy of African American women aged 21-45, which will improve their health status, decrease their chronic disease burden, and allow them to live healthier lives. This also should decrease the medical expenditures attributed to low health literacy. Teaching skills that improve health literacy, improve self efficacy, create an internal locus of control, and a better understanding of personal and environmental factors that contribute to the development of chronic diseases.

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ARTICLES OF INCORPORATION

OF

DELTA INTERNATIONAL HEALTH FOUNDATION, INC.

Article I

The name of the corporation is Delta International Health Foundation, Incorporated.

Article II

The corporation is organized pursuant to the Georgia Nonprofit Corporation Code.

Article III

Principal Office: 651 Woodstone Road

Lithonia, GA 30058

Article IV

Mailing Address: P.O. Box 29368

Atlanta, GA 30359

Article V

Phone Contact: (404) 454-5300

Facsimile: (770) 469-2349

Web Address: *www.difhi.org*

Article VI

Principal Agent Stella S. Obot

Article VII

PURPOSE

Focusing on Health Education and evaluation and research for decreasing the impact of infectious diseases, illiteracy, and poverty amongst people in the delta regions of the United States and by extension the world.

Article VIII

The duration of Delta International Health Foundation, Incorporated is perpetual.

Article IX

Statement of Non Profit

Delta International Health Foundation, Incorporated is a non-profit, non political, nongovernmental organization dedicated to educating those living in Delta regions of the world, evaluating programs and initiatives designed to alleviate health problems germane to these areas, and research innovative ways to affect a positive change in the lives of those living in Delta regions.

Delta International Health Foundation, Incorporated shall for the duration of its certificate of incorporation remain a non-profit charitable organization.

Delta International Health Foundation, Incorporated shall be administered with the rules and regulations of the state of Georgia on non-profit, charitable organizations. All financial information shall be available for inspection by the Attorney General of the State of Georgia upon adequate and formal notification of the Chief Executive Officer of the need for such proceedings.

Article IX

Objectives

1.) Research and implementation of programs to reduce the incidence and prevalence of obesity, diabetes, and hypertension among African Americans, Hispanics, and recent immigrants to the United States.

2.) To reduce the spread of HIV/AIDS by promoting abstinence, the delay of onset of sexual activity, and the unconditional use of condoms among school aged youths who are enrolled or not enrolled in school.

3.) Evaluation of school based HIV prevention programs in secondary and post secondary institutions in the United States and Delta regions of the world.

4.) To reduce the incidence and prevalence of malaria in Delta regions around the world through the use of insecticide treated bed nets and information on indoor residual spraying. Focused populations will be pregnant women, children, and the elderly.

5.) Evaluation of the rate of "trickle down" of workplace based HIV prevention programs to families with women and children

6.) Research on the impact of poverty on the rate of transmission of HIV among adolescent aged 15-29 in Delta regions of the world, especially in the Niger Delta

7.) Research on the impact of illiteracy on adoption of better health practices among those aged 15-29 in Delta regions of the world, especially in the Niger Delta

8.) Foster capacity building and evaluation of health promotion programs in delta regions

9.) Increase the dissemination of health information among geographically isolated communities in Delta regions of the world.

10.) To train health and community leaders, public health personnel, and other health care providers on programs implementation and population specific application of prevention technology.

Article X

SPECIFIC CAMPAIGNS

1.) People Against Diabetes Campaign (P.A.D.)

The P.A.D. Campaign will increase awareness of Diabetes among African Americans, Hispanics and recent immigrants to the United States. Minority populations and recent immigrants to the United States are acquiring Type II Diabetes Mellitus at a higher rate than the general population. Through the *People Against Diabetes Campaign*, we will increase their awareness of dietary guidelines to reduce their risk of acquiring Diabetes.

2.) Obesity prevention among minority and immigrant communities

Supply communities with parks and gyms as well as distribute written materials in the form of flyers and books. We will also distribute culture specific dietary guidelines and exercise programs.

3) Equipped To Succeed Program

The E.T.S. Project is a training program aimed at the following sub populations:

a.) Directors and staff of AIDS orphanages
b.) Community Health Workers
c.) Public Health Personnel
d.) Recent Immigrants to the United States

Through the *Equipped to Succeed Program*, the capacity building and evaluation component of DIHF will be satisfied. The objectives will be to improve overall care of AIDS orphans, eradicate maternal and neonatal tetanus, and reduce vertical transmission of HIV. And to prevent chronic medical problems including hypertension, obesity, diabetes, anemia, and malnutrition within the above the above disadvantaged populations.

4.) People Against Malaria Campaign (P.A.M.)

The P.A.M. Campaign is to be launched in the Niger Delta of Nigeria and two other delta regions with the highest malaria related morbidities and mortalities. The *People Against Malaria Project* shall focus on the most vulnerable populations: pregnant women, children and the elderly.

5.) Mosquitoes Be Gone Campaign

The M.B.G Campaign shall focus on eliminating the primary vector through which malaria is spread. The *Mosquitoes Be Gone Campaign* shall consist of the acquisition and distribution of insecticide treated bed nets in delta regions to families with children under the age of five.

6.) Nothing Without Condoms Campaign

The N.W.C. Project shall be a media promotion utilizing the evolving mass media in the delta regions. The N.W.C. campaign shall also deliver short, succinct messages on cellular devices now popular among university and high school students aged 15 to 29 in the delta regions.

Nothing Without Condoms messages shall be sent to cell phone users in the evening hours as reinforcements to better health practices.

7.) Riverside Health Promotion Project

The R.H.P. Project shall focus on the dissemination of language appropriate, culturally sensitive health information among people residing in the creeks and fishing villages of delta regions. The *Boatload of Knowledge Program* shall utilize existing local transportation to reach these often-isolated communities.

8) Sponsorship of Short Term Training for Health and Community Leaders for the development and maintenance of an effective healthcare infrastructure. Training shall be conducted in and outside of the United States. The long-term specific aim of the training program shall be the development of *Safe Blood Transfusion programs* in the Niger Delta region.

Article XI

Board of Directors

The Board of Directors shall consist of six (6) members. For the first five years, the Board of Directors will consist of the members of the Executive Board (President, Executive Vice President, Secretary, and Treasurer) and two additional Board Members.

Article XII

Directors Term

The term of service shall be five (5) years for general board members and three (3) years for office holders. Each director may serve two (2) successive terms at each position. The term of service of the Chief Executive Officer is perpetual.

Article XIII

Quorum

A simple majority of the board members, including the President or representative, in person, via videophone or teleconference shall constitute a quorum.

Article XIV

Meeting Structure

Robert's Rules of Order shall apply and govern all official proceedings. Decisions shall be adopted by simple majority rule.

Article XV

Designation of Officers

President/ Chief Executive Officer: Stella S. Obot

Executive Vice President: Chinwe Obiaga, MPH

Secretary- Maria Abasi

Treasurer- Brooke S. Howard

Board Member: Maurice Obot

Board Member: Aduowa Aduonum, PhD

Article XVI

Executive Committee

The President, Executive Vice President, Treasurer, and Secretary shall constitute the Executive Committee of the Delta International Health Foundation.

Article XVII

Officers of the Corporation

The following shall constitute salaried officers of Delta International Health Foundation, Inc.

1.) The Executive Director

2.) Executive Secretary
3.) The Treasurer
4.) Board Member
5.) Board Member

Article XVIII

The following shall constitute contract or consultant positions.

1.) Secretary
2.) Accountant
3.) Attorney/ Legal Counsel
4.) Project Officers
5.) Epidemiologist
6.) Statistician
7.) Security Project Security Officers
8.) Data Analyst
9.) Data Collectors
10.) Ancillary Support Staff

Article XIX

Junior Executives- Unpaid

After 15 years of uninterrupted operation, the Chief Executive Officer shall select an Executive Vice President/ Chief Operating Officer to assist with the management of the Foundation. The training period shall not exceed seven (7) years. During the training period, the Executive Vice President. Chief Operating Officer designee shall participate in on-going projects in the United States and elsewhere while becoming familiar with the administration of the Secretariat. There shall be no salary paid during the training period. Benefits shall be limited to conference, travel, and management training expenses. An undergraduate or graduate scholarship shall be extended to the Vice President designate during the training period. A stipend not exceeding 25 to 50% of the published median salary of a project officer may also be paid at the discretion of the Executive Director.

After the training period, the Foundation shall be jointly administered by the Chief Executive Officer and the Chief Operating Officer until the retirement of the President/ CEO.

Article XX

The Chief Operating Officer shall also be a member of the Board of Directors.

Article XXI

Board Compensation

The President/Chief Executive Officer and other members of the Board shall not be compensated except as otherwise specified.

ARTICLE XXII
EMPLOYEES

All employees of Delta International Health Foundation (salaried, contract, or consultant) shall be compensated at the published median rate of compensation for their comparable position, duties, and level of experience within the industry. Fringe benefits shall be computed at 17% to 22% of annual salary as applicable.

ARTICLE XXIII

The President/ CEO and members of the Board shall be reimbursed for Board meeting related travel and accommodation expenses.

The President/ CEO shall be reimbursed for all conference, journal, and educational expenses incurred while serving as the President/CEO.

Accommodation or residence (the less expensive of the two) shall be provided for the President/ CEO in the vicinity of the headquarters or secondary city of operation of the foundation.

The President/ CEO shall be entitled to an IRS/Life and Accident Insurance. Transportation shall be provided for the President/ CEO within the city of operation by a contracted, leased, or purchased vehicle.

Article XXIV

Sources of Funding

I Individual Donations

II National and International Nongovernmental Organizations

III Grants from Multi National Corporations

IV Grants form Local, State, and National Governments

V Materials and In Kind Donations

Article XXV

Use of Funds

1.) 70% of ALL grants shall be used for scientific research in support and execution of the stated goals and related objectives of Delta International Health Foundation, Inc. 5% of which shall be placed in an Emergency Endowment Fund.
2.) 30% of All grants shall be used for administrative and Secretariat expenses.
3.) Targeted donations shall be utilized as directed by the donor in writing.
4.) Materials and in-kind donations shall be utilized without conversion.
5.) No portion of DIHF shall be used to subvert or support any political party or government.
6.) No funds shall be used to print or disseminate hateful or discriminating materials.

Article XXVI

DIHF reserves the right to enter into contractual and/or grantee/grantor cooperative agreements with other Non Governmental Organizations, religious and civic organizations as well as with community leaders in executing its goals and objectives.

Articles XXVII

SIGNATURE AND ATTESTATION:

In witness whereof, the Corporation has caused these articles of incorporation to be executed and filed with the Georgia secretary of State

On this _____day of _____, 2007

Sworn to by _____

Stella S. Obot

President & Chief Executive Officer

Delta International Health Foundation, Inc.

My Notary public Commission

Expires on _____ day_____, 20___.

_____

Signature of Notary

Delta Internatonal Health Foundation, Inc.

Community Health Literacy Improvement Program

TIMELINE

DATE	ACTIVIY
January 2011	Grant awarded
January-March	Recruitment of Additional Partners
March-May	Recruitment of Participants
June	CHIP Session 1
July	CHIP Session 2
Mid July	CHIP Midterm process evaluation
August	CHIP Session 3
September	CHIP Session 4
October-December	CHIP Final Evaluation Pre Test/Post Test Comparison Preparation of Draft of Key Findings
January	CHIP Publication of Key Findings Dissemination to Partners and Stakeholders

Glossary of Terms

Chronic disease- A disease that lasts three months or more. They cannot be prevented by vaccines or cured by medications. They include diabetes, hypertension, arthritis, and obesity. (Wagner, 1996).

Construct- A construct is a specific concept that has been developed, created, or adopted for use with a specific theory. Examples include constructs of self efficacy and locus of control in the health belief model. (Cottrel, 2005)

Disparities- A lack of uniformity. In this capstone, disparities refer to the difference in health literacy between African Americans and their Caucasian counterparts. (Bhopal, 2007)

Document Literacy- Refers to the knowledge and skills needed to perform document tasks such as searching, comprehending, and using noncontinuous texts in various formats. Noncontinuous formats include lists, rows, columns, matrices, and graphs. A common assessment of document literacy is the use of a vaccination chart or drug label (USDOE, 2003).

Health Belief Model – Model that attempts to explain and predict health behaviors by focusing on attitudes and beliefs of individuals. At its core is the feeling that a negative health condition can be avoided, there is a positive expectation that by taking a recommended action, he will avoid a negative health condition and a belief that he can successfully take the recommended health action (Cottrell, 2005).

Health Literacy- The ability to read, comprehend, and take action on the basis of health related material (USDOE, 2003).

Literacy- The ability to use printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential (USDOE, 2003).

Locus of Control- Construct of the Health Belief Model. Refers to a person's belief that they are in control of the positive or negative determinants in their life (Cottrell, 2005).

NAAL- The National Assessment of Adult Literacy conducted in 2003 by the National center for Education Statistics (USDOE, 2003).

Prose Literacy- This refers to the knowledge and skills needed to perform prose tasks of searching, comprehending, and using information from continuous texts. Continuous texts include sentences organized as paragraphs (USDOE, 2003).

Obesity- Having a BMI above 30 (USDOE, 2003).

Quantitative Literacy- This refers to the knowledge and skills required to perform quantitative tasks of identifying and performing computations, and using information and numbers embedded in printed materials (USDOE, 2003).

Self Efficacy- Defined as one's confidence in their ability to perform a certain desired task or function (Cottrell, 2005).

Social Cognitive Theory- A theory that explains how people acquire and maintain certain behavioral patterns while providing the basis for intervention strategies. At its core are the constructs of behavioral capability, locus of control, and self efficacy (Cottrell, 2005).