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A Spatial and Health Burden Analysis of Census Tract 85: Implications for Prevention and Intervention

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ABSTRACT

ALLISON EDWARDS
A Spatial and Health Burden Analysis of Census Tract 85: Implications for Prevention and Intervention
(Under the direction of Dr. Rodney Lyn, Faculty Member)

New regulations requiring not-for-profit hospitals to provide documented evidence of charitable care and community benefits provide a unique opportunity for strategic and targeted investment within the given community of the hospital. And with a growing number of uninsured and underserved in the US, the need for tactical community benefits is increasing exponentially. The purpose of this capstone is to pool together the relevant resources and data necessary to guide and inform the decision making process involved in creating prevention and intervention programs tailored specifically to census tract 85. Utilizing several different forms of demographic and health data including Census, Online Analytical Statistical Information Systems (OASIS), and Geographic Information Systems (GIS), this capstone provides an assessment of the community of census tract 85 and identifies the two major health conditions of said community, diabetes and stroke, for prevention/intervention. Following the principles of evidence-based decision making, this project pulls together the necessary resources and provides recommendations on how not-for-profit hospitals and other community partners can best intervene within the community of census tract 85, thus improving the health of its residents.

INDEX WORDS: census tract, intervention, community, diabetes, stroke

A Spatial and Health Burden Analysis of Census Tract 85: Implications for Prevention
and Intervention
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Georgia State University, Atlanta GA
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Piedmont Healthcare/Piedmont Hospital, Atlanta GA   **2009**
Intern
> Worked with team of administrative executives on improving community benefits
> program strategically through community needs assessment and improvement of hospital outreach
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Georgia State University, Atlanta GA   **2008-2009**
Graduate Research Assistant
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Volunteer Experience

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> Volunteered on a project collecting qualitative data from residents of public housing in
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The Red Cross, Atlanta GA   **2005**
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CHAPTER I- INTRODUCTION

<u>Introduction</u>

According to Centers for Disease Control and Prevention (CDC) data, in 2009 there were 46.3 million people without health insurance living in the United States (CDC, 2010). The recent climate in this country of increased job loss and poverty only promises to see this number rise over the next several years. In a country with such an overwhelming number of uninsured citizens, there is a desperate need for some form of relief to both the underserved populations with unequal access to healthcare, and the governmental institutions responsible for their support. One solution to this problem is the not-for-profit hospital, which has a core responsibility to provide charity care to those underserved populations. Not-for-profit hospitals are 501(c)(3) organizations that receive tax advantages from the federal government and the Internal Revenue Service (IRS) , including exemption from federal income taxes and ability for their donations to be tax deductible (Harrison, 2004). These tax exclusions are contingent upon the not-for-profit hospital employing a charitable mission, providing charity care, and relieving the government of some of the burdens of health care (Harrison, 2004). This precedent was set by the IRS in a revenue ruling in the year 1969 which stated that hospitals qualify as charitable if they engage in health promotion activities within the community (IRS, 1969). The ruling established improving community health as a fundamental priority of the not-for-profit hospital (CHA, 2008).

Recently, the US government has been requiring not-for-profit hospitals to provide an increased amount of charitable care and community benefits, along with more evidence of doing so, in order to justify their tax exemptions (Harrison, 2004). This update to the legislation provides a unique opportunity for the not-for-profit hospital to refocus their community benefit efforts, and employ strategies, methods, and targeted investment into prevention and interventions within the community and based on the diverse needs of the community. Strengthened efforts at the community benefit level of not-for-profit hospitals have great potential to reduce the burden of disease, decrease health disparities, and minimize social injustice in underserved communities with low access to care, should these efforts be strategic and aimed at the priorities.

Background

In spring 2009, I began working with a large not-for-profit hospital in Metro Atlanta on a new project they were undertaking to improve the health of their community. This hospital wanted to create new prevention and intervention programs based on the needs of their community in order to improve their community's overall health. They identified the zip code 30318 as a priority and decided to narrow the scope of the project to this area because its residents were the most frequent users of the Emergency Department (ED). And so the research began with this area, as we all collectively struggled to understand what it might be about this specific community that led to more frequent utilization of the ED.

Primary and secondary data sources were utilized and focused on the following areas: population demographic profile; health burdens; community-based health care and social service assets and needs; community members' staff perceptions and

recommendations; and, emergency department use trends. The health assessment found that over 1/3 of the neighborhoods within the zip code 30318 had high morbidity rates for lung cancer, diabetes, hypertension, kidney disease, stroke, and asthma. Research and focus groups informed the hospital of the many community clinics within the zip code, the services they provide, and their perceptions of this not-for-profit hospital. Internal focus groups provided the hospital with staff perceptions of the challenges of both the ED and the hospital's community outreach abilities. Analysis of ED records produced a profile of the most frequent users of the hospital ED. Based on the data amalgamation and analysis, recommendations were developed on three different levels: organizational, community benefit, and emergency department. One of the specific recommendations at the community benefit level was to develop and implement interventions with appropriate metrics aimed at priorities. This capstone will elaborate on this initial recommendation, taking it several steps further, by providing specific information about exactly which interventions would be needed and what interventions would work best within the given community.

As part of the research team, I was responsible for gathering data to form a community profile and a community health analysis. In my pursuits of searching for relevant data associated with this zip code, I observed that 30318 is hardly a homogenous, uniform group of people to which all interventions would apply equally, nor would there be equal need for the same intervention throughout the zip code. Some areas of 30318 seemed to be doing relatively well in terms of health conditions, while other areas within that same zip code had a disproportionate burden of disease by comparison.

The work of this capstone stems from my interest in these areas of health inequality. I specifically chose to further explore health and community data for census tract 85. Census tract 85 was one of the areas with consistently higher morbidity rates across many of the health conditions I researched. I wanted to delve deeper into understanding a more complete picture of health for this area, and what interventions specifically a local hospital or clinic could institute to improve health outcomes for the residents of census tract 85.

Purpose of Project

The purpose of this capstone is to pool together the relevant resources and data necessary to guide and inform the decision making process involved in creating prevention and intervention programs tailored specifically to census tract 85. Drawing from my experience with my practicum, this capstone will also detail several interventions that would be appropriate for a large not-for-profit hospital to employ as an evidence-based method to improve the health of their given community. This capstone can be used as a tool for any group or individual who may be interested in health promotion and prevention/intervention programs specific to census tract 85. This capstone may also be used as a tentative model for future research, by which others may discover methods to reveal a picture of health for the community of their interest, in order to promote interventions that work within it.

This capstone will accomplish the following objectives to provide the necessary components essential for community intervention:

1. Produce a demographic profile of census tract 85 using data from the US Census Bureau

2. Produce a health profile of the most significant health conditions for census tract 85 using Online Analytical Statistical Information System (OASIS) data

3. Describe the existing resources and potential partners that could aid in prevention/intervention projects

4. Research and explain evidence based prevention/intervention recommendations made by the leading experts within the field

CHAPTER II- THEORETICAL FRAMEWORK

Evidence-based decision making (EBDM) involves the process of making decisions in accordance with recommendations from the best available scientific literature. Evidence-based public health seeks to narrow the margin between evidence and practice. EBDM has many benefits including increasing the efficient use of resources, maximizing program productivity, and ensuring program success (Brownson, 2009).

There are 3 categories of scientific evidence for public health practice. Type 1 evidence defines the actual causes of diseases and health conditions. Type 2 evidence states what can be done to prevent disease and other negative health conditions, by defining the relative effectiveness of interventions and prevention programs. Type 3 evidence, of which there is the least, describes the context in which the intervention was implemented, and under what conditions it is most successful. This is also known as external validity, or the translation of scientific knowledge into various practices (Brownson, 2009). The work of this capstone will strive to utilize all three of these categories of scientific evidence.

Figure 1 (below) demonstrates the seven stage cycle of evidence-based public health (Brownson, 2009). This figure provides a guideline for the application of EBDM in practice, and the cyclic progression of the figure demonstrates its continuous nature, as

one process naturally leads to the next (Brownson, 2003). The application of this

framework may also involve numerous feedback loops or iterations (Brownson, 2009).

Figure 1 The Seven Stages of Evidence-Based Decision Making
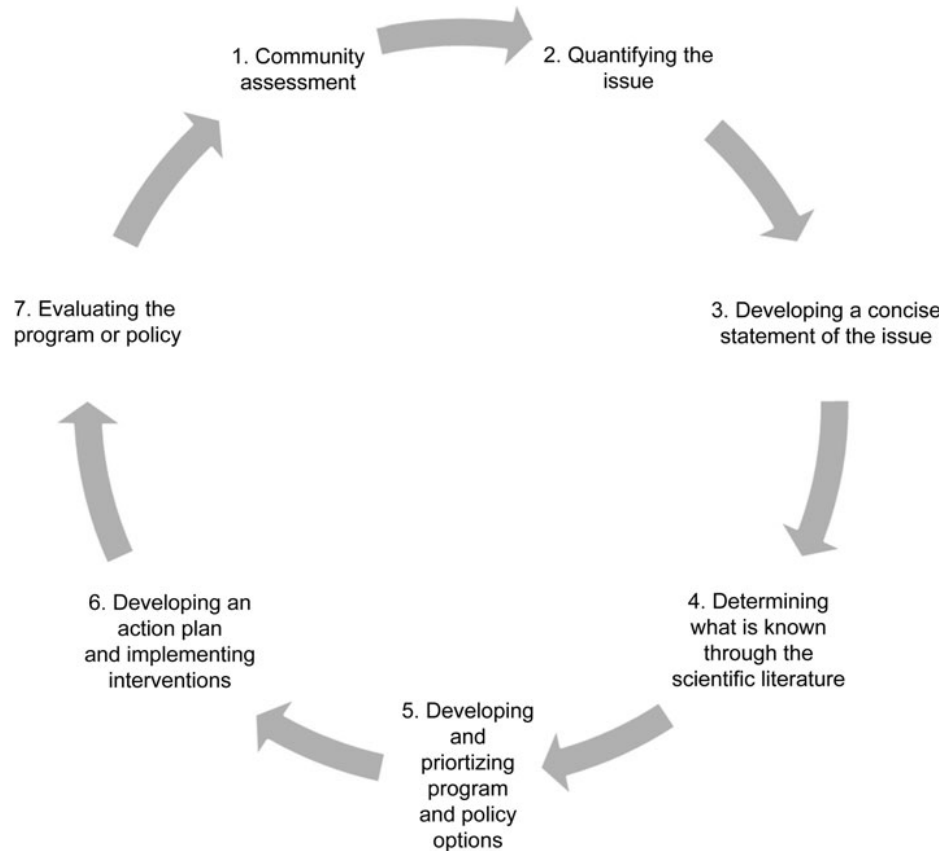
The first step of the process is the community assessment. Because it is listed as

the first step of the process, this signifies that this is an important foundation with which

to build and inform the remaining steps of the cycle. A needs assessment of the

community aids in identification of significant health problems within that population as

well as strengths, resources and assets within the community (McKenzie, 2005). Step 2,

quantifying the issue makes use of descriptive data, such as vital statistics and

surveillance systems, so that the extent of the problem becomes measurable. This allows

for the ability to compare the population in question with others, and later to determine if the intervention/prevention efforts are successful. Developing a concise statement of the issue is the third step of the cycle. This is significant in order to build support for the issue with policy makers and relevant organizations. Also a clear statement of the problem increases the likelihood of systematic and focused planning. Step 4, determining what is known through the scientific literature, can be accomplished using the issue statement to systematically identify and evaluate scientific studies pertaining to the issue at hand. The fifth step, developing and prioritizing program and policy options, could be partially informed by the review of the literature, but also there is a need to access the available resources on effective prevention/intervention programs developed by expert panels or explained in summaries of existing evidence, like systematic reviews. Step 6 is to develop an action plan and implement the interventions. This involves the development of goals related to the program and strategic planning methods to ensure that those goals are met. The final step of program evaluation analyzes the goals and objectives of step 6 to determine how well they were met (Brownson, 2003). This last step feeds back into step 1 of the cycle, as it can be utilized to modify the original process, when necessary. This capstone will utilize the first four steps of the stages of evidence-based medicine.

Figure 2 (below) shows how the significant components of evidence-based public health all come together within an environmental or organizational context to inform decision making. An overarching objective of this paper is to present the components of figure 1 relative to census tract 85, in order to allow for informed decision making by those in the position of implementing interventions within that community.

Figure 2. The Domains that Influence Evidence-Based Decision-Making

Brownson RC, et al. 2009.
Annu. Rev. Public Health. 30:175–201

This capstone makes use of EBDM by utilizing the following to search for the best available practices on which to make recommendations for prevention/intervention strategies: the Guide to Community Preventive Services, the US Preventive Services Taskforce, the CDC, and current scholarly scientific literature. *The Guide to Community Preventive Services,* created by the U.S. Department of Health and Human Services (DHHS), provides evidence-based public health recommendations regarding population based interventions to promote health and to prevent disease and negative health conditions within communities (Truman, 2000). It contains recommendations from a Task Force, which is made up of independent, volunteer, public health experts within the field, who are appointed by the director of the CDC. Task Force responsibilities include

overseeing systematic review priorities, developing innovative review methods, and considering how those findings can impact practice (CPS, 2010). *The Guide to Clinical Preventive Services* contains the U.S. Preventive Services Task Force (USPSTF) recommendations on the use of preventive services that are normally provided in primary care settings. The USPSTF consists of a panel of independent, private sector, primary care physicians who assess the scientific evidence available in order to provide recommendations to practitioners in a clinical setting (USPSTF, 2010).

CHAPTER III- CAPSTONE PROCEDURES

The main objective of this capstone is to pool together the relevant resources and data necessary to guide and inform the decision making process involved in creating prevention and intervention programs tailored specifically to census tract 85. The steps of this process include the following:

1. Creating a demographic profile of census tract 85

2. Creating a health profile of the two of the major health problems in census tract 85

3. Searching the literature to find best evidence interventions for each of those conditions

4. Identifying existing resources and potential partners within the community

5. Integrating the information in steps 1-4 to make specific recommendations as to the actions a not-for-profit hospital should take to improve the health of census tract 85

In the work that I did through my practicum, one of the challenges I faced was analyzing data at the zip code level. Zip codes are created by the US postal service, and not for the purposes of data analysis. For that reason, it is very difficult to find good data at the zip code level. I chose to use a smaller, more homogenous unit specifically created for the purposes of data analysis: the census tract. The US Census Bureau and OASIS both have data available at this level, which was another reason for selecting the census tract as the basic unit for analysis in this capstone.

I also chose to use OASIS data for this project because it allows for the ability to look at census tract level data cut by many different indicators, such as race, sex, and age. In order to make recommendations on prevention/intervention programs, it is imperative to have a picture of disease for the community, to determine exactly who should be targeted by these programs. OASIS is a standardized health data repository that pools together the following data: vital statistics, Georgia Comprehensive Cancer Registry, hospital discharge, emergency room visits, and more.

Within OASIS, I chose to further examine census tract 85 using the data category of "percentage of deduplicated discharges." This category was the closest option for a morbidity rate. OASIS once referred to this category as "percentage of morbidities" but recently changed the nomenclature in order to better reflect the true nature of the data. In reality, a true morbidity rate is difficult to come by due to the delay between disease development and clinical diagnosis, and disparities in access to healthcare.

Another procedure of this capstone was taking the data presented in OASIS and translating it into a more appropriate form for the analysis of this project. I utilized the OASIS morbidity/mortality mapping tool to obtain data for census tract 85 and Fulton County. All data was downloaded, recorded, and then reconfigured into chart form to better illustrate the comparison between the two areas, allowing the health disparities to be more clearly seen.

All census data was collected using the American FactFinder feature on the US Census Bureau website. Once under American Factfinder, Decennial Census was selected. Both Census 2000 summary file 1 and summary file 3 were further explored using geographic comparison tables. County was selected for geographic type, Georgia

for state, and then Fulton County for geographic area. County-Census Tract was selected

for table format. The following is a list of the categories of data that were reviewed,

including type of information obtained from each field, listed in parenthesis:

<u>Summary File 1</u>
- general housing characteristics 2000- (number of vacant homes)

- age and sex 2000- (median age)

- race and Hispanic or Latino 2000- (percentage African American)

- household and families 2000- (female household without husband)

- selected age groups 2000- (percent 60 years and over)

- population, housing units, area, and density 2000- (area in square miles)

<u>Summary File 3</u>
- occupancy, equipment, and utilization characteristics of occupied housing units 2000- (percent with no vehicles available)

- language, school enrollment, and educational attainment 2000- (for educational attainment percents)

- employment status and commuting to work 2000- (percent of unemployed)

- income and poverty in 1999: 2000- (percent of poverty status)

All health data was collected using the mortality/morbidity Online Analytical

Statistical Information System (OASIS) mapping tool developed by the Georgia

Department of Community Health, Department of Public Health. To gather data for

census tract 85, the measure used was percentage of deduplicated discharges, and the

mapping unit used was census tract. Fulton County was selected for geography, and

2005-2007 was selected for time. All fields, which totaled 45, were recorded for each

cause. To gather data for Fulton County, the measure was also percentage of

deduplicated discharges, and the mapping unit selected was County. Fulton County was

also selected for geography and 2005-2007 was selected as the domain for time. All

fields, also totaling 45, were recorded for each cause. The causes that were at least a full

percentage point higher for census tract 85 than Fulton County were chosen for further

examination for this project to be the conditions in greatest need of prevention/intervention actions. Of those causes, HIV/AIDS and pneumonia were eliminated for the purposes of the project, to narrow the scope and augment the depth of the interventions recommended. The two remaining categories for further investigation were the following: diabetes and stroke.

Table 1. All Health Conditions Examined Using OASIS Data for Percentage of Deduplicated Discharges (with priorities highlighted)

		Census Tract 85	Fulton County
Infectious and Parasitic Diseases	Blood Poisoning (Septicemia)	1.65	1.3
	HIV/AIDS	3.2	1.6
	TB	NR	0.1
	Meningitis	0	0
Cancers	Oral Cancer	NR	0.1
	Throat Cancer	0	0
	Stomach Cancer	0	0.1
	Colon Cancer	0.5	0.4
	Liver Cancer	NR	0.1
	Pancreatic Cancer	NR	0.1
	Lung Cancer	NR	0.3
	Skin Cancer	0	0
	Breast Cancer	NR	0.3
	Cervical Cancer	0	0
	Uterine Cancer	0	0.1
	Ovarian Cancer	0	0.1
	Prostate Cancer	0.25	0.2
	Testicular Cancer	0	0
	Bladder Cancer	0	0.1
	Kidney Cancer	NR	0.1
	Brain Cancer	0	0.1
	Lymph Cancer (Hodgkin's Disease)	0	0
	Leukemia	NR	0.1
Blood Diseases (Anemias)	Sickle Cell Anemia	0.25	0.3
Endocrine/Nutritional/Metabolic Diseases	Diabetes	4.35	1.6

Mental and Behavioral Disorders	Drug Overdoses	0.55	0.6
Nervous System Diseases	Alzheimer's Disease	0.45	0.3
	Parkinson's Disease	0	0
Major Cardiovascular Diseases	High Blood Pressure (Hypertension)	0.75	0.8
	Rheumatic Fever and Heart Diseases	NR	0.1
	Hypertensive Heart Diseases	0.65	0.3
	Obstructive Heart Diseases (Heart Attack)	3.3	3.4
	Stroke	3.1	1.9
	Hardening of the Arteries	0.3	0.4
	Aortic Aneurism and Dissection	NR	0.1
Respiratory Diseases	Flu	NR	0
	Pneumonia	5	3
	Bronchitis	1.25	0.8
	Emphysema	NR	0
	Asthma	1.45	1.3
	All other chronic lower respiratory diseases	NR	0.1
Digestive System Diseases	Alcoholic Liver Disease	0.2	0.1
Reproductive/Urinary System Diseases	Kidney Diseases	2.2	1.5
	Kidney Infections	NR	0.3
Other	Bone and Muscle Diseases	3.65	4.4

all numbers are percentage of deduplicated discharge for each cause, NR= not

reportable

The OASIS mortality/morbidity mapping tool was then used to further explore the picture of disease for each of the selected health conditions. For diabetes and stroke, all fields under the following category were individually explored and recorded for both census tract 85 and Fulton County: age, race, payor, and sex. The payor category was eliminated from the results as it would require significant research to make recommendations for interventions based on this category, which was not within the scope of this project. The data was then used to make charts for comparison of the fields between Fulton County and census tract 85. For census tract 85, the percentage of deduplicated discharges was represented as a range of percents by the OASIS mapping

tool. That range was averaged to create a whole number for the purposes of the comparison. Any data that came up as not reportable was classified as 0 for the purposes of numeric comparison via chart.

The section on evidence based recommendations utilized suggestions from: The Guide to Community Preventive Services (CPS), the US Preventive Services Task Force (USPSTF), the Centers for Disease Control and Prevention (CDC), and scholarly scientific literature. The CPS and USPSTF both have a list of evidence based recommendations for disease prevention and the promotion of healthful activities. Recommendations were omitted from this report that were not within the realm of normal healthcare provider services and expertise (such as policy changes, taxes, and mass media campaigns).

CHAPTER IV- FINDINGS

Demographic Profile of Census Tract 85

Census tract[1] 85 lies within Fulton County, and inside of the Atlanta city limits. It

can be found to the north of I-20, to the west of I-75/85, and to the east of I-285. It is

found within the zip code 30318 and it is part of neighborhood planning unit J (NPU-J).

The neighborhood that makes up most of census tract 85 is Grove Park. Donald Lee

Hollowell Parkway runs directly through census tract 85 from east to west and was

formerly known as Bankhead Highway. Census tract 85 is bordered to the northeast by

Proctor Creek, to the east by Marietta Boulevard, to the south by North Avenue, to the

west by South Eugenia Place and Mildred Place, and to the north by Alvin Drive. Some

of the major parks in the area include Gun Club Park, Grove Park, and Edwin Place Park

(City of Atlanta GIS, 2010). The total land area in square miles of census tract 85 is 1.45.

(US Census, 2010)

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[1] A census tract is a geographic unit that lies within a county and consists of a relatively
homogenous group of people as decided by a local committee of census data users.
Census tracts are designed for the purpose of presenting data because the units are similar
in regards to population characteristics, economic status, and living conditions. They
average approximately 4,000 inhabitants.

Map 1. Census Tract 85 (outlined in black)
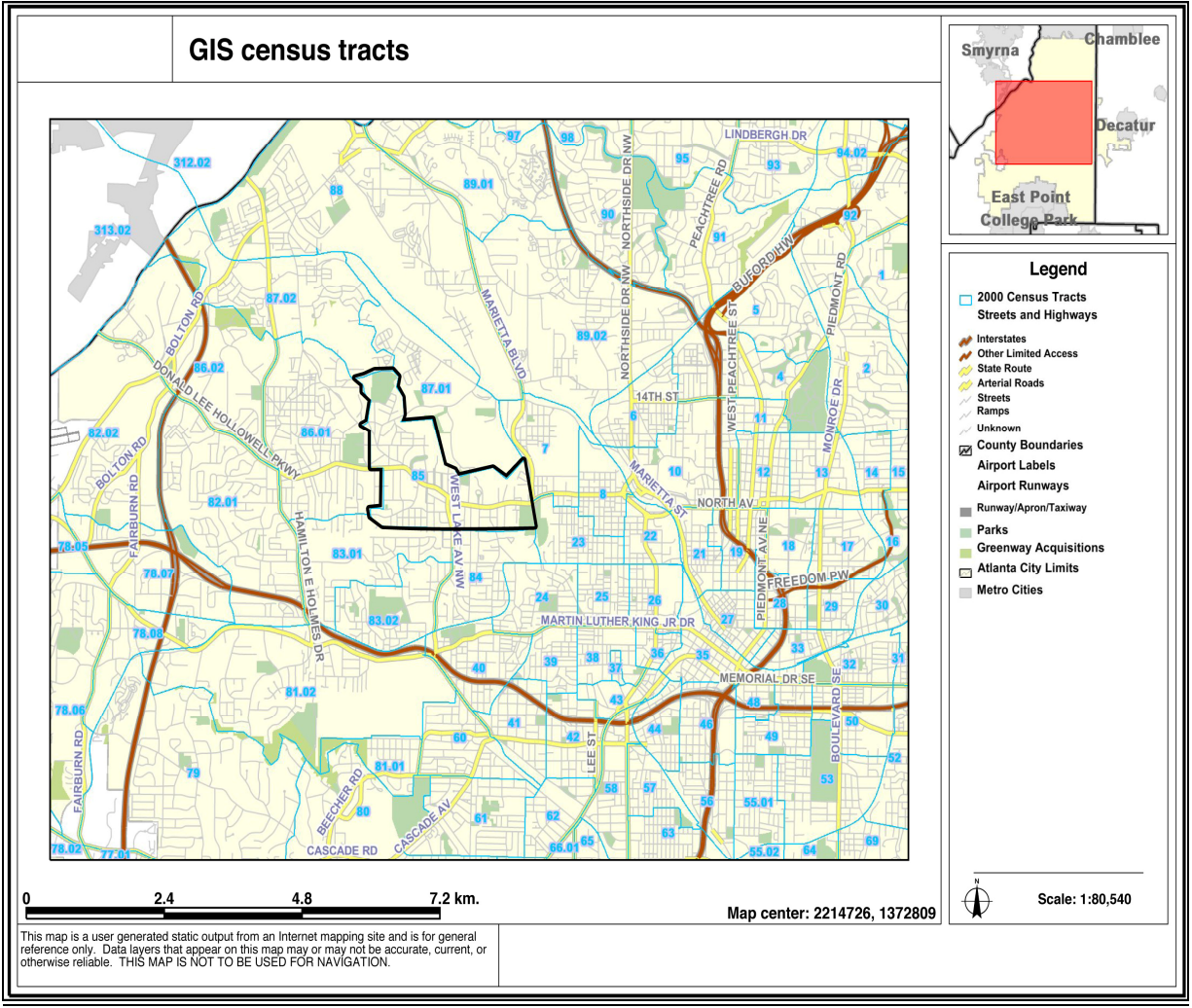
(City of Atlanta GIS 2010)

The US Census Bureau currently does not make population estimates for the geographic area of census tract, so a more accurate count of the current population, as well as current demographic information of census tract 85, will not be available until 2011 (US Census, 2010).

According to the 2000 US census, the total population of census tract 85 was 4,798, with the median age at 35. The total population of Fulton County in 2000 according to census was 816,006, and the estimated population as of July 1, 2009 is 1,033,756. The predominant race or ethnic group living in census tract 85 based on the 2000 census is African American or black, at 97.8%.

Census tract 85 had a larger percentage (17.5%) of those age 60 years and older in the year 2000 as compared with Fulton County (11.5%).

There was a larger percentage of female households without a husband present in census tract 85 as compared with Fulton County, in the year 2000, as shown in their respective percentages (35.7%) and (16.5%).

The total number of housing units in census tract 85 is 1,821, while the number of occupied housing units is 1,681. This means in 2000, there were 140 vacant homes in census tract 85. The percentage of households with no vehicles available is 24.2 in census tract 85, while it is 15.2 in Fulton County.

There was also a higher number of the civilian labor workforce unemployed in the year 2000 in census tract 85 (20%) as compared with Fulton County (8.9%).

Percentage of census tract 85 with less than a 9th grade education is 11.6, which can be compared with Fulton County's 5.1. Percents of census tract 85 and Fulton county population who are a high school graduate or higher are 59.2 and 84 respectively. Percentage with a bachelors degree or higher in Fulton County is 41.4, compared with census tract 85's 3.5. The percent of the population for whom poverty status is determined, based on 1999 income, in census tract 85 is 25.8 compared with Fulton County's 15.7 (US Census, 2010).

Based on the data provided by the US Census Bureau, it can be observed that those living in census tract 85, in general, have lower incomes and complete fewer years in school than the whole of Fulton County. The lack of financial stability and educational opportunities has the potential to create many health disparities and barriers to care within this community.

Table 2. Table of Census data

	Census Tract 85	Fulton County
2000 population	4,798	816,006
median age in years in 2000	35	32.7
total land area in square miles	1.45	534.61
ratio of vacant housing units to occupied housing units	140/1,681	27390/321,242
percent caucasian in 2000	0.9%	48.1%
percent African American in 2000	97.8%	44.6%
age 60+ years in 2000 (percent)	17.5%	11.5%
percentage of female households without husband present in 2000	35.7%	16.5%
percentage of households with no vehicles in 2000	24.2%	15.2%
percentage of civilian workforce unemployed in 2000	20.0%	8.9%
percentage with less than 9th grade education in 2000	11.6%	5.1%
percent high school graduate or higher in 2000	59.2%	84%
percent with bachelor's degree or higher in 2000	3.5%	41.4%
percentage of poverty status based on 1999 income	25.8%	15.7%

Health Profile of Census Tract 85

The percentage of deduplicated discharges[2] measure reveals what percentage of all the deduplicated discharges, for the selected measures (i.e. age, sex, race, years) is due to a particular condition (e.g. diabetes). Using the data from Chart 1 (below) as an

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[2] A deduplicated discharge is the total count of people discharged alive from non-Federal acute care inpatient facilities for a health condition or illness. Each individual is counted only once if they are readmitted for the same condition. Causes are recorded on the basis of principle diagnosis. The term deduplicted diagnosis was formerly called morbidity by OASIS but has been changed as it is a more accurate terminology for the data represented by the mapping tool

example, it can be discerned that of all the deduplicated discharges between 2005-2007,

in census tract 85, 3.1 percent was due to stroke (OASIS, 2010).

Of the data examined using the OASIS mapping device to compare the percentage

of deduplicated discharges, the two health conditions that were selected for this project

were at least a whole percentage point higher in census tract 85 than in Fulton County:

diabetes and stroke.

The raw number of deduplicated discharges per population for census tract 85 is

58/4,798 for stroke and 60/4,798 for diabetes. The number of deduplicated discharges

per population for Fulton County is 4,014/816,006 for stroke and 3,394/816,006 for

diabetes. This means that the prevalence rate of deduplicated discharges for stroke is

.005 in Fulton County and more than twice that rate in census tract 85 at .012. The

prevalence rate of deduplicated discharges for diabetes is .004 in Fulton County and more

than three times that rate in census tract 85 at .013 (OASIS, 2010).

Chart 1. Percentage of Deduplicated Discharges from the years 2005-2007 using OASIS data
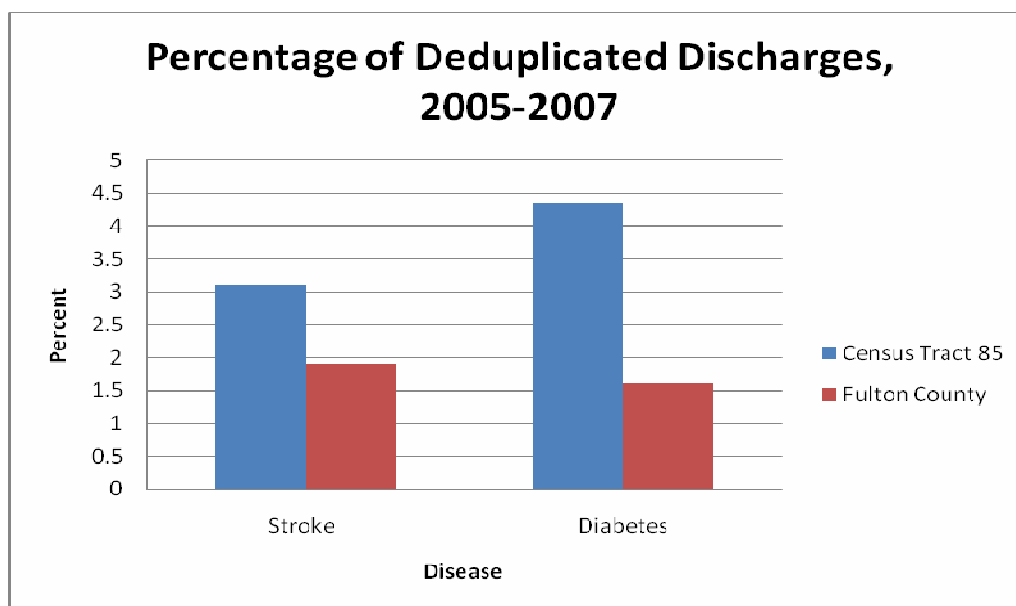
Chart 1 compares the percentage of deduplicated discharges in census tract 85 and Fulton County. The chart shows that for the conditions of stroke and diabetes, the percentage of deduplicated discharges is greater in census tract 85 than it is in Fulton County. These discrepancies in health between census tract 85 and Fulton County merited further research to better describe the picture of disease in census tract 85, and therefore, each condition was further scrutinized by age, race, and sex.

Diabetes

Chart 2. Percentage of Deduplicated Discharges for Diabetes by Age from the years 2005-2007using OASIS data
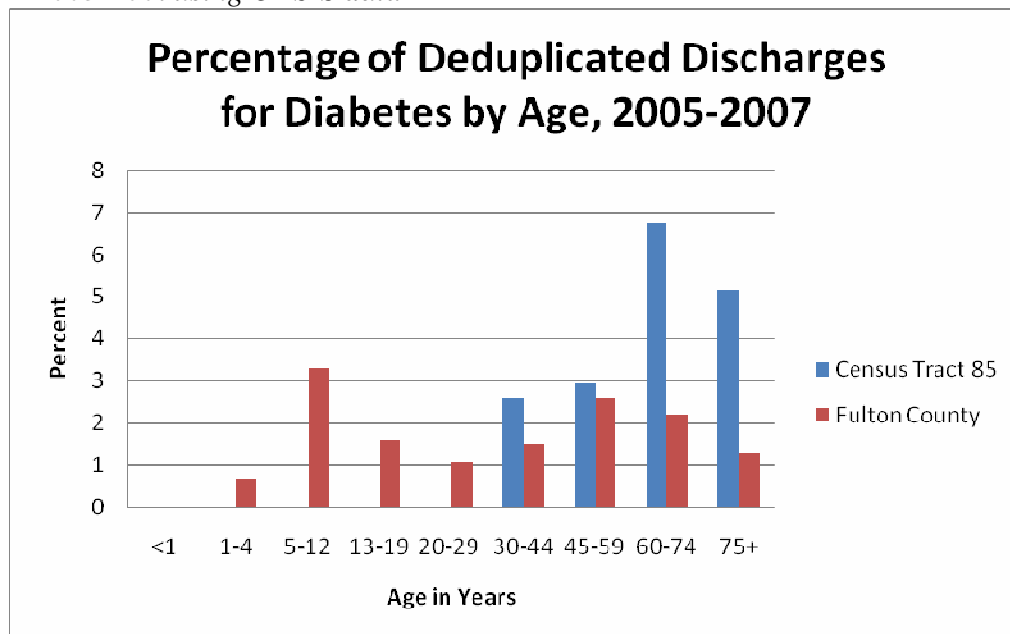
Chart 2 shows that in census tract 85, the percentage of deduplicated discharges inclines sharply between the ages 30-44, suggesting that this is the age range when the residents of census tract 85 either develop diabetes or develop complications of the disease. In comparison with Fulton County data, residents of census tract 85 between the

ages of 30-44 have almost twice the percentage of deduplicated discharges; about three times as much for the age group 60-74, and nearly four-fold the amount for age 75+. The lack of data for age 29 and under in census tract 85 could reflect either lack of diabetes diagnosis at that age range or lack of admissions to a non-Federal acute care inpatient facility with diabetes as the basis of principle diagnosis, in which case patients may have been seen by a primary care pediatrician or other doctor, and therefore would not show up in this data.

Chart 3. Percentage of Deduplicated Discharges for Diabetes by Race from the Years 2005-2007 using OASIS data
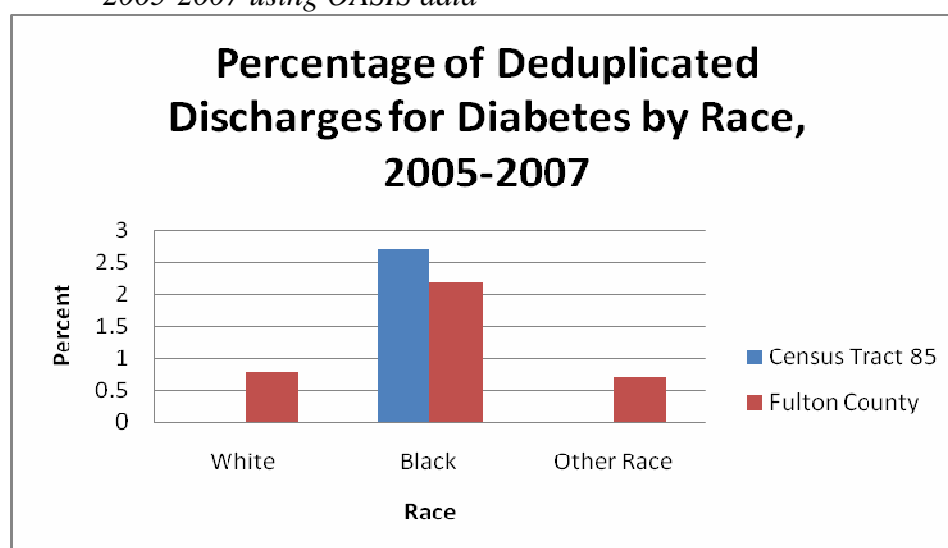
Chart 3 shows that the burden of disease for diabetes in census tract 85 between 2005-2007 was on the African American residents. This chart provides the evidence that any prevention/intervention program for diabetes in census tract 85 would need to target the African American population in order to be successful.

Chart 4. Percentage of Deduplicated Discharges for Diabetes by Sex from the Years 2005-2007 using OASIS data
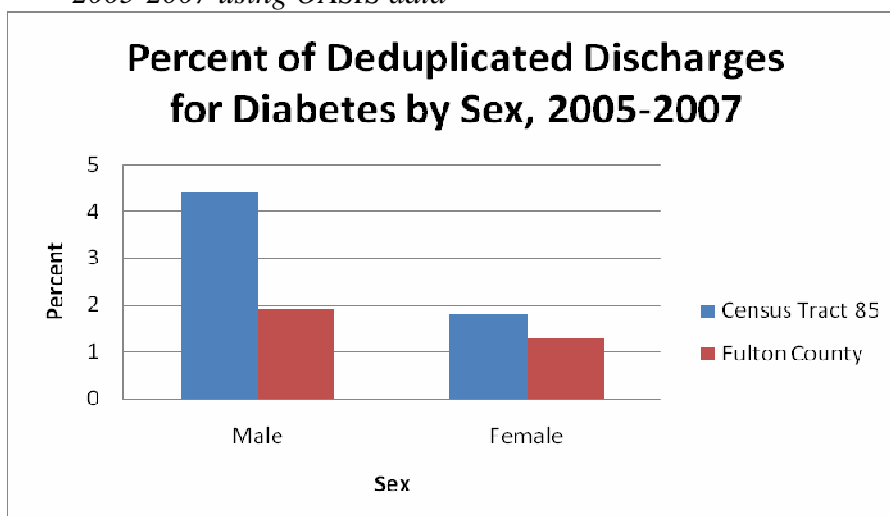
Chart 4 shows the pecentage of deduplicated discharges for both census tract 85 and Fulton County by sex for the years 2005-2007. The chart shows that both males and females have higher percentages of deduplicated discharges for census tract 85 than Fulton County. It also shows that men in census tract 85 have a higher rate for deduplicated discharges than women.

Stroke

Chart 5. Percentage of Deduplicated Discharges for Stroke by Sex from the years 2005-2007 using OASIS data
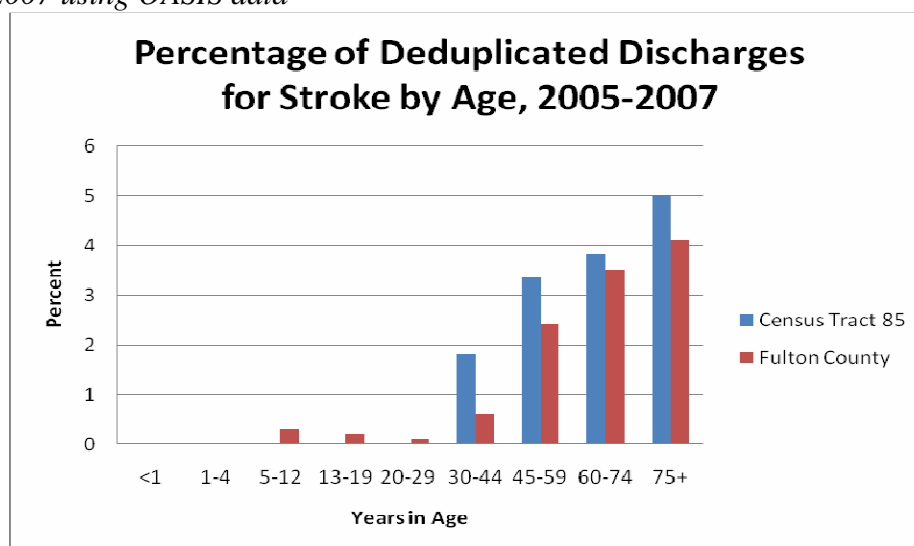
Chart 5 shows of all the deduplicated discharges between 2005-2007 for each age group listed, what percentage was for stroke for census tract 85 as compared with Fulton County. The chart demonstrates that in Fulton County, the percentage of deduplicated discharges for stroke is higher prior to age 30 than in census tract 85. The chart also shows that the percentage of deduplicated discharges was over twice as high at ages 30-44 in census tract 85 than in Fulton County. There was also a higher percentage of deduplicated discharges for stroke for each of the age groups after 30-44 in census tract 85, as compared with Fulton County, between 2005-2007. The fact that there is no data for census tract 85 prior to the age range 30-44 reflects that strokes are typically an aberration at such a young age, and for a smaller population, such as census tract 85, it would be quite rare to observe such an anomaly.

Chart 6. Percentage of Deduplicated Discharges for Stroke by Race from the years 2005-2007 using OASIS data
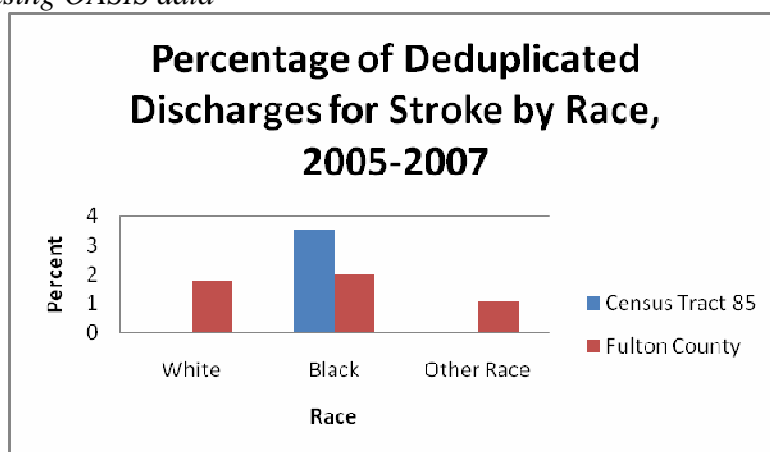
Chart 6 demonstrates that the burden of disease from strokes between 2005-2007 in census tract 85 fell on the African Americans that live there. This reflects both the fact that the majority of the population in census tract 85 is African American, and that any

prevention/intervention aimed at reducing strokes in census tract 85 should be one that is

successful in reaching the African American community.

Chart 7. Percentage of Deduplicated Discharges for Stroke by Sex from the years 2005-
    2007 using OASIS data
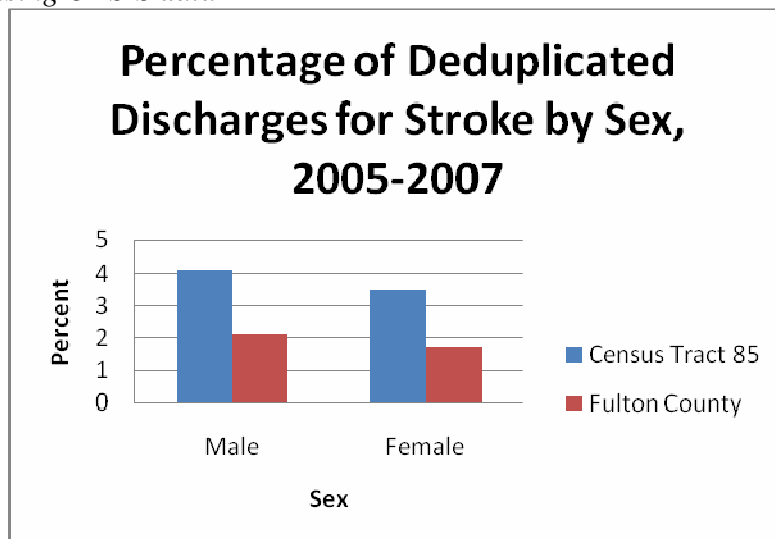
Chart 7 shows the percentage of deduplicated discharges for stroke by sex from

the years 2005-2007. It can be seen, from this chart, that the percentage of deduplicated

discharges for strokes was slightly higher for males than females in both Fulton County

and census tract 85, and that the percentage of deduplicated diseases for stroke is higher

for both males and females in census tract 85 than it is in Fulton County.

CHAPTER V- LITERATURE REVIEW

DIABETES

Public Health Impact of Type II Diabetes

Diabetes was the 7th leading cause of deaths in the US in 2006 (ADA, 2010). However, the disease is often underreported on death certificates as heart disease and stroke have the tendency to be reported as the actual cause of death, while diabetes is also a contributing factor (ADA, 2010). The World Health Organization estimates that the number of deaths due to diabetes will double worldwide between the years 2005 and 2030 (WHO, 2010).

Pre-diabetes is a condition that is becoming increasingly more common in the US. It is not only a risk factor for diabetes, but also for heart disease and stroke. In 2007, an estimated 57 million Americans had pre-diabetes (NIH, 2007). A person who is pre-diabetic has a blood glucose level that is higher than what is normal, but not high enough to be classified as diabetes. This condition is a risk factor for diabetes, and many people who develop pre-diabetes will develop diabetes within the next 10 years, unless they take steps to reverse or halt its progress (ADA, 2010). Therefore, pre-diabetes could be viewed as the last possible stage for the prevention of diabetes.

Metabolic syndrome is another health condition that is a risk factor for developing type ii diabetes. It is the co-occurrence of at least three out of the following five symptoms: waist measurements over 35 for female and 40 for male, high triglyceride levels in the blood, low HDL cholesterol, high blood pressure, or elevated fasting blood

glucose levels (Grundy, 2005). All conditions characteristic of metabolic syndrome can be controlled via changes in diet and physical activity.

There are several complications associated with diabetes including heart disease, stroke, high blood pressure, blindness, amputation, kidney disease, nervous system disease, dental disease, and complications with pregnancy (ADA and CDC, 2010). In 2007, the direct medical costs of diabetes were calculated to be $116 billion annually, not including such indirect costs associated with such things as disability and work loss which is calculated to total $58 billion a year (ADA and CDC, 2010).

Health Disparities Associated with Type II Diabetes

In the United States, African Americans are twice as likely as whites to have diabetes (CDC, 2010). They also experience more complications of diabetes, more disabilities associated with diabetes, and higher death rates due to diabetes (Walker, 2010). There are an estimated one million African Americans in the United States with pre-diabetes (Dodani, 2010).   Both education and income levels are significant determinants of the risk of death associated with diabetes (Saydah, 2010). In the National Healthcare Disparities Report in 2003, the Agency for Healthcare Research and Quality (AHRQ) found that diabetics with lower socioeconomic statuses were less likely to receive the recommended diabetes services, and more likely to be hospitalized or experience complications due to their diabetes (AHRQ, 2004).

These national findings of the health disparities associated with diabetes can be observed within the residents of census tract 85. It can be assumed by the data that not only are the inhabitants of this census tract currently suffering from diabetes and its

complications, but that they will continue to suffer from diabetes in the future, should nothing be done to intervene and reverse the progression of diabetes within the community.

Evidence-Based Recommendations for Diabetes

Lifestyle interventions within the pre-diabetic phase of insulin resistance can mitigate risk of cardiovascular disease and prevent diabetes (Faridi, 2010). The CDC recommends two activities for the prevention of type ii diabetes: eating a healthful diet and being physically active (CDC, 2007). The Diabetes Prevention Program (DPP), a major clinical research study conducted in 27 health centers across the United States, found that millions of persons at high risk for type ii diabetes can delay or avoid the development of the condition by weight loss from regular exercise and a low fat/calorie diet (NIH, 2008).

Nutrition

The research demonstrates that the effects of integrated risk counseling for nutrition-related diseases in African Americans found that patients reported significant changes in nutrition and physical activity self-efficacy following their participation in risk counseling (Halbert, 2010). However, another study examining different treatments used by primary care physicians found that for patients with hyperlipidemia, diet and nutrition counseling was either ordered or provided for white patients (40.4%) more frequently than African Americans (32.6%) (Willson, 2010). These findings reveal racial disparities in the use of behavioral dietary counseling in a population that it could greatly benefit from these services.

Research also shows that the majority of low socio-economic status, older, Southern adults, aren't meeting the recommended Food Guide Pyramid nutrition guidelines. The authors of this article recommend that nutrition counseling include strategies to increase whole grain, fruit, and vegetable consumption, and reduce fat consumption (Vitolins, 2007).

Interventions targeted at high risk populations have been found to be cost effective at slowing the incidence of diabetes (Faridi, 2010). While the US Preventive Services Task Force (USPSTF) has concluded that there is insufficient evidence to recommend behavioral counseling promoting healthy diets for the general population of patients, they do recommend intensive behavioral dietary counseling for adult patients with hyperlipidemia, elevated levels of lipids in the blood, or other known risk factors for cardiovascular disease. This service can be carried out by the primary care clinician or through referral to a dietician or nutritionist (USPSTF, 2010).

The intensive behavioral counseling must combine nutrition education with behavioral counseling so that patients can ascertain support and motivation to change their diet and learn the skills needed to prepare more healthful foods. Whitlock et. al recommend the use of the 5-A behavioral dietary counseling model as a framework with which to create effective therapies, and the USPSTF lists this in their clinical considerations for dietary counseling (Whitlock, 2002). The 5-A model is as follows:

    a. **Assess**- dietary practices and related risk factors

    b. **Advise**- to change dietary practices

    c. **Agree**- on individual diet change goals

    d. **Assist**- to change dietary practices or address motivational barriers

e. **Arrange**- regular follow up and support or refer to more intensive behavioral nutritional counseling, such as medical therapy, if needed

These interventions have demonstrated changes in the average daily consumption of the basic building blocks of a healthy diet, such as fiber, fruit, vegetables, and reduction in saturated fat among adults at increased risk for diet related chronic disease. The best results were found when patients with hyperlipidemia, hypertension, or other risk factors for diet related chronic disease participated in multiple sessions of the intervention that lasted 30 minutes or longer. The USPSTF also posits that the most effective interventions will involve a combination of education, behavior counseling, patient reinforcement, and patient follow up (USPSTF, 2010).

A systematic review conducted by The American Dietetic Association Evidence Analysis Library Nutrition Counseling Workgroup found that there is strong evidence to sustain using a blend of both behavioral theory and cognitive behavioral theory for modification of certain dietary habits, weight, and cardiovascular and diabetes risk factors (Spahn, 2010). Nutrition counseling structured through this theory may involve the following: self-monitoring (such as thoughts, emotions, food intake, behavior), problem solving, goal setting, rewards and contingency management, cognitive restructuring, social support, stress management, stimulus control, and relapse prevention (Spahn, 2010).

Physical Activity

A recent qualitative study examining influences on physical activity in a disadvantaged African American community asked the members of that community to identify a few solutions that could assist in increasing rates of physical activity of the

members of that community. The community members identified social support and having structured programs within the neighborhood as two things that would increase physical activity (Griffin, 2008).

 The TFCPS has concluded that there is strong evidence of effectiveness to maintain the use of interventions in communities that enhance the network of social support when trying to increase physical activity in participants. These interventions focus on altering physical activity behavior through the use of supportive social networks (CPS, 2010).

The intervention works by either identifying and strengthening existing social networks or creating new networks of support. Intervention strategies used include using a buddy system, making contacts with others, or setting up exercise groups. These interventions enhanced the overall level of participant fitness, decreased their percentage of body fat, increased their knowledge of exercises, and improved their belief in their own capacity to exercise (CPS, 2010).

Qualitative research has demonstrated that social support from family, friends, and neighbors is a socio-cultural enabler for physical activity. Focus groups comprised of African American women determined that group exercise classes, and walking clubs or sports teams organized within churches or other existing community organizations could enhance the social environment and promote exercise (Sanderson, 2002).

Research demonstrates that there are racial and ethnic inequalities in access to parks and recreational areas (Wolch, 2005, Moore, 2008). This can help to explain some of the reasons for racial disparities with respect to physical activity and obesity (Gordon-Larsen, 2006). The TFCPS has concluded that there is strong evidence of effectiveness

for increasing exercise and improving health through either creation of, or increased access to already existing places of physical activity. This intervention could involve a change to the physical environment through creation of parks, trails, or exercise facilities which could take a significant amount of time to implement due to policy and land use restrictions. Or it could involve reducing fees to existing facilities or changing the hours of operation to reduce barriers to exercise, which could go into effect in a much shorter amount of time, should it be a viable option (CPS, 2010).

Focus groups from the study done by Sanderson et al. identified safe, convenient places to exercise as a potential enabler to physical activity. They identified poorly maintained parks or recreation areas, and the lack of close by facilities as barriers to exercise (Sanderson, 2002). A hospital or health clinic wanting to increase exercise within this population could invest in reconstructing public parks or other venues to enhance physical activity.

Case Management

Case management has been shown to be effective in reducing the cost of care for those at high risk of diabetes related complications. It can effectively lower hospital admissions rates for those utilizing the services of case managers and can also shorten the length of their hospital stay (Cramer, 2010).

The TFCPS recommends the use of a case management based on strong evidence of effectiveness (CPS, 2010). The case manager ideally should be distinct from the healthcare providers, and should be responsible for overseeing, coordinating, and organizing all of the patient's care involving diabetes (Norris, 2002). In the case of diabetes, the case manager is usually a nurse (Norris, 2002). A recent meta-analysis

examining nurse case management of diabetes found that nurse led case management provides an effective clinical intervention for blood glucose control (Welch, 2010).

Case management has been recommended on the basis of strong evidence of effectiveness in its ability to improve glycemic control. The studies reviewed also demonstrated a decrease in glycated hemoglobin (CPS, 2010).

The TFCPS identifies the five essential components of case management as follows:

    a. Identifying eligible patients

    b. Assessing current levels of healthcare and needs of eligible participants

    c. Developing an individual care plan for each participant

    d. Putting the care plan into action

    e. Monitoring the results

Diabetes Self Management Education

The TFCPS has also concluded that there is evidence that diabetes self management education (DSME) interventions are effective. DSME strategies involve teaching people how they can best manage their diabetes. Goals of DSME include increasing metabolism, preventing possible negative health outcomes that can result from diabetes, and helping the client achieve their best possible quality of life (CPS, 2010).

The research has found that following a community based intervention, older adults in Georgia senior centers showed improvements in most diabetes self management behaviors (Speer, 2008). One study aimed at using DSME techniques with African Americans over age 40 with type ii diabetes found that the DSME intervention increased knowledge of participants about diabetes following the study, and at the 6 month follow

up assessment (Walker, 2010). The authors also noted that churches were the best place for recruiting participants (Walker, 2010).

There is sufficient evidence of effectiveness in improving glycemic control when DSME strategies are implemented in community gathering places such as faith based organizations, libraries, and other community centers. Guiding principles of group based DSME maintain that they should be patient centered, culturally relevant, problem based, evidence based, and include psychosocial, behavioral, and clinical issues (Tang, 2006).

STROKE

Public Health Impact of Stroke

Approximately 795,000 Americans have a stroke each year (ASA, 2010). Of that number, 610,000 are first ever strokes, while the remaining 185,000 are coming from people who have had a stroke before (CDC, 2010). Strokes are the 3rd leading cause of death after heart disease and cancer, and are responsible for about 137,000 deaths annually (ASA, 2010).

This year alone, Americans will spend around $73.7 billion in costs associated with stroke medical care and disability related costs (ASA, 2010). Many complications can occur as the result of having a stroke such as paralysis, speech difficulties, emotional problems, and death. Stroke is the number one cause of major long term disability. Recovery from a stroke can take months or even years, thus increasing both direct and indirect health care costs, as well as greatly affecting the person's quality of life (CDC, 2010).

Having diabetes is actually a risk factor for stroke, so anything done to prevent or delay the onset of diabetes, effectively will also prevent or delay the onset of having a

stroke. In 2004, stroke was recorded on 16% of diabetes related death certificates for those 65 and older (ADA, 2010).

<u>Health Disparities Associated with Stroke</u>

Compared with whites, African Americans have two times the risk of first ever stroke (Sallar, 2010 and CDC, 2010). Furthermore, survival rate from first ever stroke is 140% lower among African Americans (Sallar, 2010). In the US, the highest mortality rate due to stroke can be found in the southeast, also referred to as the "stroke belt" (CDC 2010). In Georgia, the mortality rate for stroke is 16% higher than it is nationally (Bell, 2009).

The risk of stroke is also increased by certain health disparities, such as low socioeconomic status and low education (Bell, 2009). Data analysis of the Behavioral Risk Factor Surveillance System (BRFSS) by the CDC found that the prevalence of having multiple risk factors for heart disease and stroke was 25.9% for college graduates, while it was 52.5% among those who had less than a high school diploma. Similarly household income greater than or equal to $50,000 annually had a prevalence of 28.8%, while those who made less than $10,000 a year had a prevalence of 52.5% of having multiple risk factors for stroke and heart disease (CDC, 2005).

It is not surprising that census tract 85 has a higher burden of disease from stroke than the rest of Fulton County based on health disparities. The findings from the demographic profile of census tract 85 reveal that its residents have lower incomes, lower education levels, and therefore lower socioeconomic statuses as compared with Fulton County. Census tract 85 basically fits the profile a population at risk for suffering from

strokes. In order to alter this trend, prevention and intervention programs that are proven to work would need to be readily accessible to this population.

Evidence-Based Recommendations for Stroke

The CDC recommends the following six actions for stroke prevention and intervention: eating a healthy diet, maintaining a healthy weight, being physically active, not smoking, limiting alcohol use, and knowing the warning signs and what to do in case of a stroke (CDC, 2010). The prevention and intervention strategies related to the first three actions can be found under the corresponding section for diabetes, since those actions are also recommended for prevention of diabetes.

Smoking

Physicians are in the unique position of having the ability to inquire about tobacco use of their patients and provide them with counseling and smoking cessation materials should they be required (McCullough, 2009). Approximately 70% of smokers visit physicians annually, and smoking is the single most preventable cause of mortality and disease or disability (von Garnier, 2010). This allows for an important opportunity for physicians to prevent disease within their patients.

The TFCPS has concluded that there is strong evidence of effectiveness to support the use of a healthcare reminder system with a healthcare provider education system to both increase the delivery of tobacco related advice to clients and also decrease client tobacco use and increase quitting. This is a multicomponent intervention, utilizing both education and a provider reminder system to maximize optimum results (CPS, 2010).

A recent systematic review of prompting clinicians about preventive care methods showed that physician prompts were most successful with smoking cessation (Dexheimer, 2008).

Provider reminders involve making efforts to identify tobacco using patients and then counsel them on methods of cessation. Provider education involves educating the providers on why it is important to get their patients to quit smoking or using other tobacco products. There was insufficient evidence to recommend provider education alone, but when paired with provider reminders as part of a multicomponent intervention, the evidence for effectiveness was strong. Methods for provision of educational information include lectures, written materials, videos, and continuing medical education seminars (CPS, 2010).

The USPSTF also recommends that clinicians ask all adults if they are tobacco users, and provide them with interventions to tobacco use if they are. They have identified a 5-A behavioral framework for tobacco interventions:

     i.   Ask about tobacco use

    ii.   Advise to quit through clear and personalized messages

   iii.   Assess willingness to quit

   iv.   Assist to quit

    v.   Arrange follow up and support

The USPSTF found convincing data that smoking cessation interventions combined with short behavioral counseling meetings (less than 10 minutes) and pharmacotherapy distributed in primary care settings, are effective in increasing the

number of smokers who quit and remain tobacco free for at least one year (USPSTF, 2010).

Research demonstrates that the provision of free medication combined with easy access to counseling can result in high levels of unplanned quit attempts, and good quitting success (Smith, 2009). Combination therapies (bupropion + lozenge or patch + lozenge) resulted in approximately 30% of patients who remained abstinent after 6 months (Smith, 2009).

The USPSTF also concludes that counseling and medications used together are more influential than either component is alone. Such medications could include nicotine replacement therapy, bupropion, and varenicline (USPSTF, 2010).

Alcohol Use

A systematic review found that brief multicontact behavioral counseling interventions can reduce risky or harmful alcohol use of primary care patients (Whitlock, 2004).

The USPSTF has found fair evidence of effectiveness for screening and behavioral counseling interventions to decrease alcohol abuse by adults in primary care settings. Adults with risky alcohol consumption behaviors can be identified using the CAGE method, which involves asking four questions, and if the patient answers "yes" to any one of them, they would be said to have risky alcohol related behaviors (Solberg, 2008). The four questions are:

     a. Have you ever felt you should **C**ut down on your drinking?

     b. Have people **A**nnoyed you by criticizing your drinking?

     c. Have you ever felt bad or **G**uilty about your drinking?

  d. Have you ever had a drink first thing in the morning (an "**E**ye opener") to steady your nerves or get rid of a hangover?

  The USPSTF also found that there is good evidence that with behavior counseling and follow up the result can be a reduction in alcohol consumption for a 6 to 12 month period or even longer (USPSTF, 2010).

  The behavior counseling intervention that is recommended follows the framework of the 5-As of behavioral counseling (Whitlock, 2004):

  a. Ask about alcohol use

  b. Advise to quit through clear and personalized messages

  c. Assess willingness to quit

  d. Assist to quit

  e. Arrange follow up and support

<u>Knowledge of Symptoms of Stroke</u>

  Despite the large contributions of stroke to death and disability in the southeast, it has been documented that many patients were not able to recognize the symptoms of a stroke (Sallar, 2010). Knowing the symptoms of a stroke and what actions should be taken in case of one, can greatly reduce the level of dysfunction and the negative effects of a stroke by getting the necessary care quickly (Sallar, 2010). A community based educational intervention with older adults in Georgia found that 65% of participants recognized all 5 symptoms of a stroke following the intervention (Bell, 2009). The CDC recommends knowing the warning signs of stroke and to call 9-1-1 immediately, should someone be suspected of having a stroke (CDC, 2010). Interventions aimed at the population at risk for stroke that provide knowledge on the symptoms of stroke and what

to do in case of a stroke could have a great impact on preventing death and other negative health effects associated with strokes. According to the American Stroke Association, if a stroke patient takes a clot bursting drug (tissue plasminogen activator or tPA) within about 3 hours of the start of stroke symptoms, it may reduce long term disability (ASA, 2010). This demonstrates the importance of knowing the symptoms of stroke.

CHAPTER VI- EXISTING RESOURCES AND POTENTIAL PARTNERS

When deciding on which kind of intervention or prevention program would best work for a community, it is important to take inventory of the existing resources in and around the community which could be useful to the project. In *Community Health Promotion Ideas that Work,* the authors identify 6 principles by which effective health promotion practitioners select intervention techniques. The third principle "don't reinvent the wheel" speaks to the importance of using any resources within the community that can assist in achieving the goals of the intervention (Kreuter, 2003). The next section lists a few of the existing resources that could be of use for census tract 85, and identifies some of the potential partners for furthering the mission.

The National Diabetes Education Program (NDEP) is a collaboration between the National Institutes of Health (NIH) and CDC. NDEP not only has material on diabetes prevention and maintenance that is tailored to the specific community being served (African Americans, Hispanics, women, etc.) but they also have information and tools that can be used by health care providers to help get their patients to take steps towards preventing diabetes. The website allows either the healthcare organization or patient to search relevant information that pertains to diabetes, such as information regarding blood pressure, cholesterol, healthy eating, and physical activity. There is also a tool on the website that allows a patient or healthcare organization select educational material based on age, diabetes status (pre-diabetes, at risk, have diabetes, etc.), race, and language spoken. This could be an invaluable resource for an intervention or prevention program that wanted to include an educational component (NDEP, 2010).

Research Tested Intervention Programs (RTIPs) take task force guidelines from the community guide and design cancer prevention and intervention programs based on the best evidence provided. While none of the three health conditions examined in this capstone are cancers, some of the same primary prevention strategies used to prevent cancer can also prevent diabetes and stroke such as proper nutrition, physical activity, quitting smoking, and use of barrier method safe sex. Therefore this tool could be useful when trying to find evidence based intervention strategies that will work for the community of census tract 85 (CPS, 2010).

Another existing resource that could be useful when implementing interventions for census tract 85 is the Stroke and Heart Attack Prevention Program (SHAPP). SHAPP is a local Georgia program for low income uninsured and underinsured Georgians with hypertension. SHAPP provides education and direct services such as blood pressure screening, referral to physicians, diagnosis, case management, and treatment. Eligible patients have income not exceeding 200% of the federal poverty guidelines and no prescription drug benefits (Constantine, 2008). At the end of 2009, SHAPP reported that over 67% of those who participated in the program had their blood pressure under control (GA DCH, 2010). SHAPP partners with faith-based organizations in the community to gain opportunities for outreach (CDC, 2010).

Several of the intervention ideas listed in the literature review identify social support and/or community reinforcement as a vehicle for prevention and intervention programs. One of the interventions for promoting physical activity uses strengthening social support networks to increase physical activity in program participants. Also, the diabetes intervention using the method of diabetes self management education (DSME)

demonstrates evidence of effectiveness when implemented in community gathering places such as faith based organizations. A review determining the effectiveness of health programs that take place in faith based organizations found that faith based programs can produce positive effects on health and improve health outcomes (DeHaven, 2004). This intervention strategy could also be used in census tract 85, since it is a community with several faith based organizations and churches. Map 2 shows the locations of churches, as denoted with red stars, within census tract 85.

Map 2. Churches in Census Tract 85
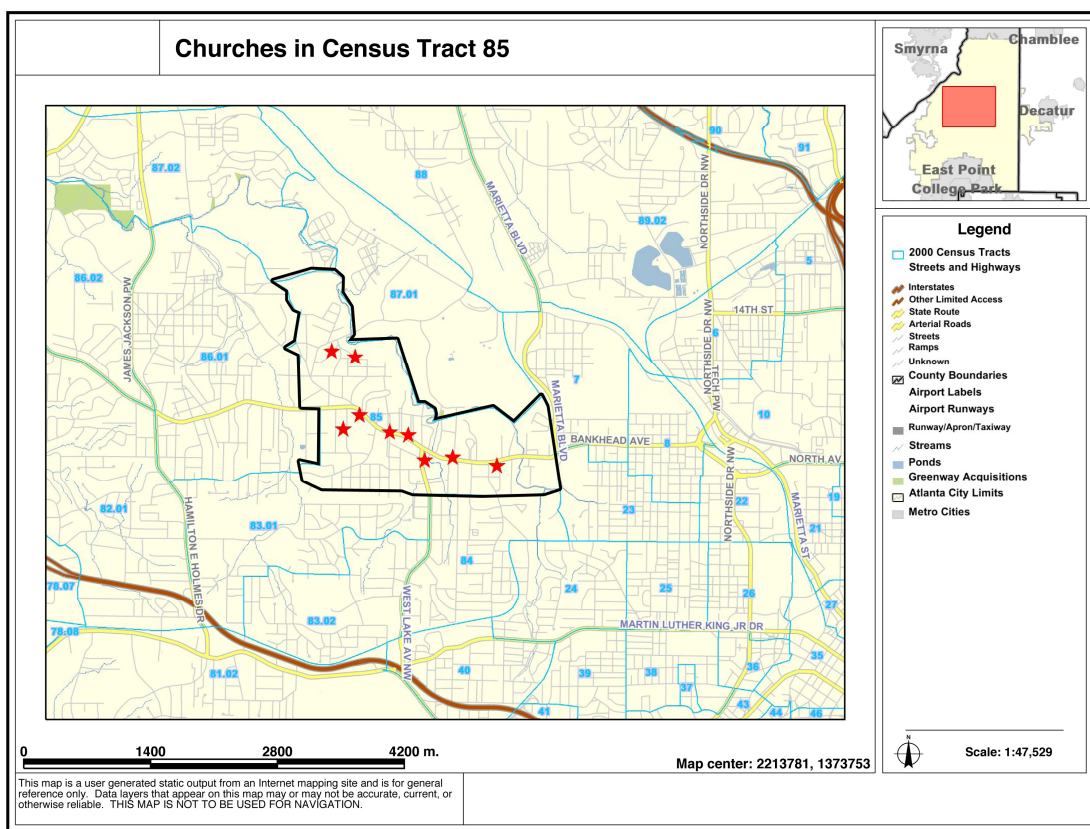
(City of Atlanta GIS, 2010)

Another important theme throughout the interventions listed is education. Within census tract 85, there is a centrally located public library, which could serve as a location

of opportunity for educational classes to be taught, and a place of potential dissemination

of health related information. Libraries are centers of community education, and

therefore dissemination of health related information would naturally be appropriate in

these venues. Libraries have the ability to empower the community by making resources

available and providing information that could be useful to the specific population

(Hicken, 2004). A study by Kreuter et. al. shows that public libraries have high

specificity, that is they have a good ability to target the priority population, for the

dissemination of cancer information (Kreuter, 2008).   Map 3 shows the location of the

Dogwood Branch Public Library in census tract 85, as denoted by a blue star. A study

utilizing GIS to identify optimal sites for prevention programs found that libraries reach a

very proximal population (Alcaraz, 2009). This ensures that resources available within

the library would naturally target the community in which it is located, since those using

the facilities typically live nearby.

Map 3 Location of the Dogwood Branch Public Library in Census Tract 85
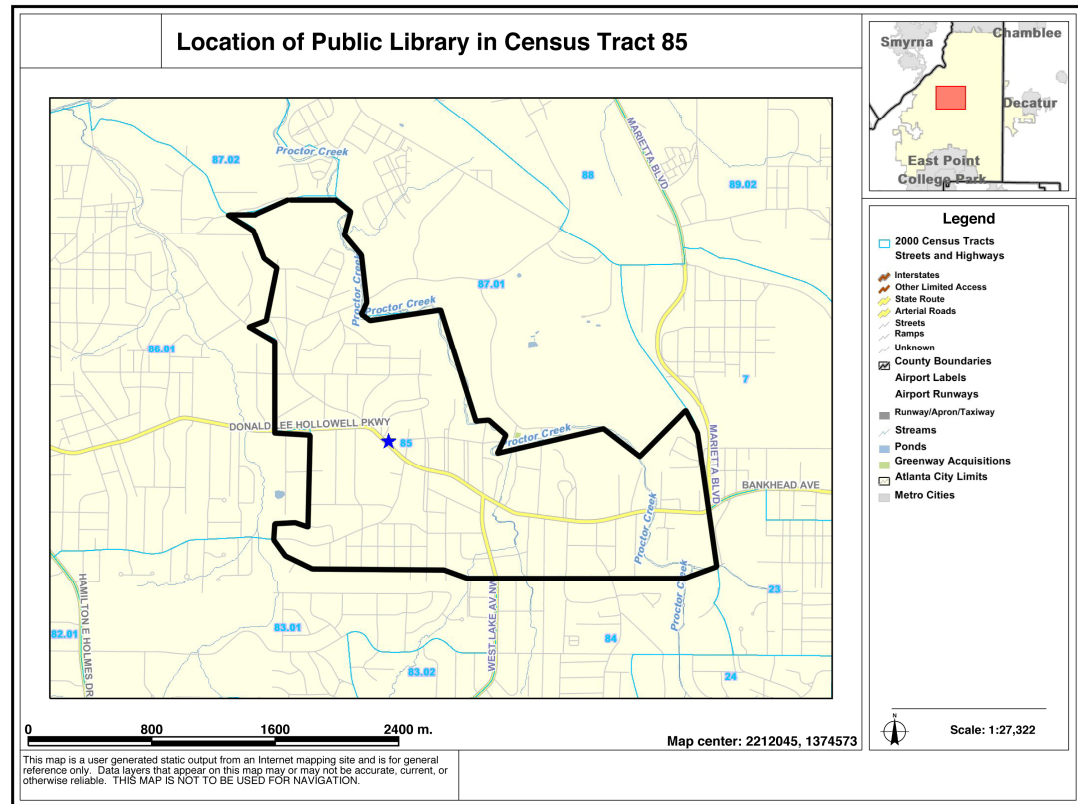
(City of Atlanta GIS, 2010)

CHAPTER VII- DISCUSSION/CONCLUSIONS

Discussion

The data in the findings section gives insight into the overall population characteristics of census tract 85, who is suffering from diabetes and stroke in census tract 85, where potential community assets are, and existing resources that could assist in prevention/intervention of those conditions within the community. The literature review provides the best evidence for diabetes and stroke prevention/interventions that have been scientifically tested and have proven efficacy. The next significant task for an interventionist would be to synthesize all of that information, and produce unique, community specific intervention and prevention programs for the community of census tract 85.

The recommendations for a not-for-profit hospital wanting to institute prevention/intervention programs to improve the health of the community of census tract 85 fall into two general categories: intra-organizational and extra-organizational. Intra-organizational recommendations include the following:

1. Primary care clinician and nurse screening for alcohol and tobacco use, with referral to necessary cessation resources

2. Nurse training in diabetes case management and referral of patients to necessary resources such as SHAPP or NDEP

3. Nutrition counseling for at-risk patients

Many simple changes could be made within the structure and basic practices of the

hospital that could greatly improve the health of not only census tract 85, but also all of

the patients seen by that hospital. While changes within the healthcare organization

would not necessarily be directed at the population of interest, it would be negligent to

fail to institute changes at this level, as a hospital has many natural resources and abilities

that shouldn't be ignored.

Within the organization, primary care clinicians and nurses should include

screening for tobacco use and alcohol misuse as part of their vital signs assessment of

each patient they see, as recommended by the USPSTF and the TFCPS. For both of these

behavioral risk factors, healthcare provider reminders would be useful to remind the

primary care physician to inquire about tobacco and alcohol use, and provide counseling,

education, and other materials to support cessation.   This can help to get these patients

the resources they need to make their lives healthier, and possibly reduce their risk for

stroke, and other negative health outcomes.

Also, at the primary care level, nurses should be trained to coordinate their

patients' case management of diabetes and refer their eligible patients to the existing

programs that could be of assistance to them, such as SHAPP. The NDEP should also be

accessed by the nurse or primary care physician to ensure culturally sensitive materials

aimed at educating their patients about diabetes.

Nutrition counseling for at-risk patients could also be carried out at the primary

care level, as a primary prevention effort for at-risk patients, or as a tertiary prevention

effort for those who already have diabetes or have had a stroke, to ameliorate their overall

health. Since a larger percentage of the population of census tract 85: 1) is in a household

with no husband present 2) lives in a household with no vehicles 3) and is classified as having poverty status, as compared with Fulton County, additional research may need to be done on the part of the primary care clinician in order to find unique ways for the patient to mitigate these factors that could potentially impact their access to healthy foods.

Extra-organizational efforts involve getting outside of the hospital and into the community in order to extend intervention/prevention programs within the community setting. This process is not always easy and that's why it's important to utilize organizations and institutions within the community who could serve as partners, and make use of the existing resources available to potentially assist in achieving the goals of the intervention. Extra-organizational recommendations include the following:

1. DSME materials provided at the local library and within churches in the community of census tract 85

2. Engaging churches or the local library to provide training on knowledge of stroke symptoms and information on what to do in case of a stroke

3. Physical activity social network strengthening through churches in the community by setting up exercise programs

Interventions involving social or community support could have great success if they utilize existing relationships within the community, such as those found in the faith-based organizations. The intervention that enhances existing social support networks to promote physical activity could be successful if held in local churches in census tract 85, because community members without vehicles would still be able to access these

resources. Should the not-for-profit hospital desire to make a more permanent contribution to the community of census tract 85, they could consider building exercise facilities within one of the parks located in the area.

Also, any intervention making use of the dissemination of educational information, such as interventions promoting knowledge of stroke symptoms or DSME, could utilize the centrally located public library of census tract 85 to reach more individuals. Research has shown that there is sufficient evidence of effectiveness of DSME interventions when instituted in either churches or libraries (CPS, 2010).

Finally, the information from the health profile should factor in to any prevention/intervention program targeting the population of census tract 85. The race category may not seem to provide much insight, but it does support the idea that any program for stroke or diabetes in census tract 85 should target and seek acceptance from the African American community living there. The percentage of deduplicated discharges for stroke by sex was almost equal for men and women, but for diabetes the percentage of deduplicated discharges for men was more than twice that of women, between the years 2005-2007. This demonstrates the need to reach men with any program implemented to reduce the incidence and prevalence of diabetes, thus aiming to reach the target population and minimize health inequalities. The age category allows for interventionists to know what ages to target with each type of prevention, i.e. primary prevention methods prior to the onset of the disease/condition, and secondary and tertiary later in life. For example, the age of onset of diabetes in census tract 85 is between 30-44, so primary prevention efforts should ideally begin before a person reaches that age range. Also, the majority of strokes occur in the 75+ age group of the residents of census

tract 85, so tertiary prevention efforts such as knowledge of stroke symptoms and what to do in case of a stroke, must reach and be tailored to this population.

The not-for-profit hospital wanting to institute these changes would have to take several factors into consideration, such as how to best implement the interventions, how to know if they are efficiently working, what it may cost to create these changes. The intra-organizational recommendations would be relatively inexpensive, as they would draw from some of the hospitals natural resources and abilities. Primary care clinician and nurse screening for alcohol and tobacco use wouldn't cost a thing, and maybe would just require a change to the vital signs assessment of the patients as they are coming into the hospital. Nurse training in case management would require the cost of training, and also an increase in salary for the extra responsibilities taken on by the nurse. If the nurse/case manager used NDEP materials, most of which are free or very low cost, that would also keep the cost of the intervention to a minimum. Nutrition counseling for at-risk patients may require the hiring of a staff dietician or nutritionist who could work closely with the patients to provide the appropriate services tailored to the individual.

The extra-organizational recommendations would also not require much expense should they make use of community assets. However, a staff person may be necessary to oversee and orchestrate all of the details involved in planning the interventions. It would be useful to hire a person with a vast knowledge of the community of census tract 85, who could make some of the partnerships happen with greater ease. Providing information packets at the local public library would only cost as much as the supplies. The hospital may want to sponsor the library through donations to help make the partnership more meaningful for the library. It would be useful for the hospital to engage

all of the heads of the churches in census tract 85 to see if their congregations would benefit, or be interested in participating in exercise programs or seminars regarding diabetes management and prevention or stroke prevention and knowledge. Health fairs set up at local churches could be an effective way to engage the community there and begin to form a relationship conducive to partnerships. Short term and long term evaluations would be useful to ensure that project goals were being satisfied.

<u>Social Factors</u>

Certain social or distal factors can also contribute to one's ability to maintain their personal health and prevent disease. This is why it is imperative that the demographic characteristics of the population be taken into account when attempting to institute prevention/intervention programs for their benefit. Since almost half of the residents of census tract 85 aren't college graduates, health literacy may be lower in this area, and any potential program should take that information into account and make the necessary adjustments to ensure that intervention materials are well understood by those for whom they are intended. Also, due to the fact that there is a higher level of low-income residents of this area, programs should be either free or low cost to participants, in order to reach more of the community. Also, low income populations are typically more limited in their daily travel, so transportation or easily accessible locations for the intervention/prevention programs should be arranged to ensure equal access (Alcaraz, 2009). The census data shows that a higher percentage of those living in census tract 85 live in a household without access to a vehicle (24.2%) as compared with Fulton County (15.2%), which means that interventions should be easily accessible for these populations.

Other social factors could have contributed to the lack of access to healthcare of the residents of census tract 85, such as the higher unemployment rate within this area. This means that those unemployed individuals would be responsible for paying for their own health insurance, should they have it, or paying out of pocket for all their personal health needs, unless they were on a spouses plan. This social factor has the potential to greatly increase the health disparities within census tract 85. Also, census tract 85 has a higher percentage of female households without a husband present (35.7%) as compared with Fulton County (16.5%) which could contribute to overall lack of finances for the household and the children, a factor that could greatly impact the health of all involved.

Limitations of Research

There are a few limitations to this research. One limitation is that the Census American FactFinder data available for census tracts is data from the year 2000. The current population count and demographic information will be out in 2011, and that would be a great improvement to the community profile of this capstone. Another limitation is that the most recent health data available through OASIS is from the years 2005-2007. While this information still provides good insight into the health of the community, more current data would be preferable.

Suggestions for Future Research

One possible direction for future research would be to examine the payor category for each condition, and create interventions and prevention programs that could be implemented at the policy level or with the specific payor category in question. OASIS has data for percentage of deduplicated discharges by payor, which shows the percents for Medicare, Medicaid, Peachcare, private insurance, self pay, and other payors. This

could give important insight into intervention strategies and methods at the level of payor, but would also require significant research to be done regarding the policies and existing efforts of each payor, which was not within the scope of this project. Another direction for future research would be to examine HIV/AIDS interventions that would work within the community of census tract 85.

Also, a true community analysis would not be complete without attempting to understand the perspectives of those living in that community. Qualitative data should be collected via focus groups and community outreach and community participatory research would be invaluable tools to directly engage the community members. An idea for future research could involve gaining ideas directly from the residents of census tract 85 regarding barriers to health, significant health problems in the community, health disparities, and what they think could be done to best improve their community's health.

Conclusion

By utilizing the information provided in this capstone, a hospital or health clinic wanting to institute prevention/intervention programs in the community of census tract 85 should have several good directions with which to begin. While more work would still need to be done regarding engaging the community and gaining insight into their individual perspectives, this capstone still brings us closer to understanding the true picture of health within the community of census tract 85, and therefore provides much of the necessary information as to what prevention and intervention programs are needed, and how to best go about implementing them.

REFERENCES

Agency for Healthcare Research and Quality (AHRQ) (2004). National healthcare disparities report: summary. Available at: http://www.ahrq.gov/qual/nhdr03/nhdrsum03.htm

Alcaraz KI, Kreuter MW, and Bryan RP. (2009). Use of GIS to identify optimal settings for cancer prevention and control in African American communities. *Preventive Medicine,* 49, 54-57.

American Diabetes Association (ADA) (2010). Available at: www.diabetes.org

American Stroke Association (ASA) (2010). Available at: www.strokeassociation.org/STROKEORG/

Bell M, Lommel T, Fischer JG, Lee JS, Reddy S, and Johnson MA. (2009). Improved recognition of heart attack and stroke symptoms after a community-based intervention for older adults, Georgia, 2006-2007. *Preventing Chronic Disease,* 6(2), 1-11.

Brownson RC, Baker EA, Leet TL, and Gillespie KN (2003). *Evidence-Based Public Health.* New York: Oxford University Press, Inc.; 12-17.

Brownson RC, Fielding JE, and Maylahn CM. (2009). Evidence-based public health: a fundamental concept for public health practice. *Annual Review of Public Health,* 30, 175-201.

Catholic Health Association (CHA) (2008). A guide for planning and reporting community benefit, 2008 edition.

Centers for Disease Control and Prevention (CDC) (2010). A closer look at African American men and high blood pressure control: a review of psychosocial factors and systems-level interventions. Available at: http://www.cdc.gov/bloodpressure/docs/African_American_Sourcebook.pdf

Centers for Disease Control and Prevention (CDC) (2007). National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2007. Available at: http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2007.pdf

Centers for Disease Control and Prevention (CDC) (2005). Racial/ethnic and socioeconomic disparities in multiple risk factors for heart disease and stroke- United States, 2003. *Morbidity and Mortality Weekly,* 54(05), 113-117

City of Atlanta Geographic Information Systems (GIS). (2010). [Map of census tracts in Atlanta] Available at: http://gis.atlantaga.gov/gishome/

Constantine R, Brownstein N, Hoover S, Wordlaw-Stinson L, Orenstein D, Jones P, and Farris R. (2008). Strategies for controlling blood pressure among low-income populations in Georgia. *Preventing Chronic Disease,* 5(2), 1-7.

Cramer JS, Sibley RF, Bartlett DP, Kahn LS, and Loffredo L. (2007). An adaptation of the diabetes prevention program for use with high-risk, minority patients with type 2 diabetes. *The Diabetes Educator*, 33(3), 503-508.

DeHaven MJ, Hunter IB, Wilder L, Walton JW, and Berry J. (2004). Healthy programs in faith-based organizations: are they effective? *American Journal of Public Health,* 94, 1030-10

Dexheimer JW, Talbot TR, Sanders DL, Rosenbloom ST, and Aronsky D. (2008). Prompting clinicians about preventive care measures: a systematic review of randomized controlled trials. *Journal of the American Medical Informatics Association,* 15(3), 311-320.

Dodani S and Fields JZ. (2010). Implementation of the fit body and soul, a church-based life style program for diabetes prevention in high-risk African Americans: a feasibility study. *The Diabetes Educator,* 36(3), 465-472.

Faridi Z, Shuval K, Njike VY, Katz JA, Jennings G, Williams M, and Katz DL. (2010). Partners reducing effects of diabetes (PREDICT): a diabetes prevention physical activity and dietary intervention through African-American churches. *Health Education Research,* 25(2), 306-315.

Georgia Department of Community Health (GA DCH) (2010). Stroke heart attack prevention program. Available at: http://health.state.ga.us/programs/shapp/index.asp

Gordon-Larsen P, Nelson MC, Page P, and Popkin BM. (2006). Inequality in the built environment underlies key health disparities in physical activity and obesity. *Pediatrics,* 117, 417-424.

Griffin SF, Wilson DK, Wilcox S, Buck J, and Ainsworth BE. (2008). Physical activity influences in a disadvantaged African American community and the communities' proposed solutions. *Health Promotion Practice,* 9(2), 180-190.

Halbert CH, Bellamy S, Bowman M, Briggs V, Delmoor E, Purnell J, Rogers R, Weathers B, and Kumanyika S. (2010). Effects of integrated risk counseling for cancer and cardiovascular disease in African Americans. *Journal of the National Medical Association,* 102(5), 396-402.

Harrison JP and Sexton C. (2004). The paradox of the not-for-profit hospital. *The Health Care Manager,* 23(3), 192-204.

Hicken M. (2004). 'To each according to his needs': public libraries and socially excluded people. *Health Information and Libraries Journal,* 21(2), 45-53.

Kreuter MW, Alcaraz KI, Pfeiffer D, and Christopher K. (2008). Using dissemination research to identify optimal community settings for tailored breast cancer information kiosks. *Journal of Public Health Management and Practice,* 14(2), 160-169.

Kreuter MW, Lezin NA, Kreuter MW, and Green LW. (2003). *Community Health Promotion Ideas that Work, Second Edition.* Sudburry, MA: Jones and Bartlett Publishers; 153.

McCullough A, Fisher M, Goldstein AO, Kramer KD, and Ripley-Moffitt C. (2009). Smoking as a vital sign: prompts to ask and assess increase cessation counseling. *Journal of the American Board of Family Medicine,* 22, 625-632.

McKenzie JF, Neiger BL, and Smeltzer JL. (2005). *Planning, Implementing, and Evaluating Health Promotion Programs: a Primer, Second Edition,* San Francisco, CA: Pearson Education, Inc.; 72-75.

Moore LV, Diez Roux AV, Evenson KR, McGinn AP, and Brines SJ. (2008). Availability of recreational resources in minority and low socioeconomic status areas. *American Journal of Preventive Medicine,* 34, 16-22.

National Diabetes Education Program (NDEP). (2010). Available at: http://ndep.nih.gov/resources/index.aspx

Online Analytical Statistical Information System (OASIS). Georgia Department of Community Health, Division of Public Health, Office of Health Information and Policy. 10/01/10. Available at: http://oasis.state.ga.us/

Sallar AM, Williams B, Omishakin A, and Lloyd DP. (2010). Stroke prevention: awareness of risk factors for stroke among African American residents in the Mississippi Delta region. *Journal of the National Medical Association,* 102, 84-94.

Sanderson B, Littleton MA, and Pulley LV. (2002). Environmental, policy, and cultural factors related to physical activity among rural, African American women. *Women and Health,* 36(2), 75-90.

Saydah S and Lochner K. (2010). Socioeconomic status and risk of diabetes related mortality in the U.S. *Public Health Reports,* 125, 377-388.

Smith SS, McCarthy DE, Japuntich SJ, Christiansen B, Piper ME, Jorenby DE, Fraser DL, Fiore MC, Baker TB, and Jackson TC. (2009). Comparative effectiveness of 5 smoking cessation pharmacotherapies in primary care clinics. *Archives of Internal Medicine,* 169(22), 2148-2155.

Solberg LI, Maciosek MV, and Edwards NM. (2008). Primary care intervention to reduce alcohol misuse: ranking its health impact and cost effectiveness. *American Journal of Preventive Medicine,* 34(2), 143-152.

Spahn JM, Reeves RS, Keim KS, Laquatra I, Kellogg M, Jortberg B, and Clark NA. (2010). State of the evidence regarding behavior change theories and strategies in nutrition counseling to facilitate health and food behavior change. *Journal of the American Dietetic Association,* 110, 879-891.

Speer EM, Reddy S, Lommel TS, Fischer JG, Stephens H, Park S, and Johnson MA. (2008). Diabetes self-management behaviors ad A1c improved following a community-based intervention in older adults in Georgia senior centers. *Journal of Nutrition for the Elderly,* 27(1/2), 179-200.

Tang TS, Funnell MM, Brown MB, and Kurlander JE. (2010). Self-management support in "real-world" settings: an empowerment-based intervention. *Patient Education and Counseling,* 79, 178-184.

Truman BI, Smith-Akin CK, Hinman AR, Gebbie KM, Brownson R, Novick LF, Lawrence RS, Pappaoianno M, Fielding J, Evans CA, Guerra FA, Vogel-Taylor M, Mahan CS, Fullilove M, and Zaza S. (2000). Developing the guide to community preventive services- overview and rationale. *American Journal of Preventive Medicine,* 18, 18-26.

U.S. Census Bureau, Census 2000, Summary File 1-4; generated by Allison Edwards; using American FactFinder <http://factfinder.census.gov>; (20 September 2010).

U.S. Intern. Revenue Serv. (IRS) (1969). IRS Ruling 69–545, 1969–2 C.B. 117

USPSTF Recommendations. U.S. Preventive Services Task Force. (2010). Available at: www.uspreventiveservicestaskforce.org/uspstf/uspstopics.htm

Vitolins MZ, Tooze JA, Golden SL, Arcury TA, Bell RA, Davis C, Devellis RF, and Quandt SA. (2007). Older adults in the rural south are not meeting healthful eating guidelines. *Journal of the American Dietetic Association,* 107, 265-272.

Von Garnier C, Meyer M, Leuppi J, Battegay E, and Zeller A. (2010). Smoking cessation counseling: impact of chart stickers and resident training. *Swiss Medical Weekly,* 140(11-12), 175-180.

Walker EA, Stevens KA, and Persaud S. (2010). Promoting diabetes self-management among African Americans: an educational intervention. *Journal of Health Care for the Poor and Underserved,* 21, 169-186.

Welch G, Garb J, Zagarins S, Lendel I, and Gabbay RA. (2010). Nurse diabetes case management interventions and blood glucose control: results of a meta-analysis. *Diabetes Research and Clinical Practice,* 88, 1-6.

Whitlock EP, Orleans CT, Pender N, and Allan J. (2002). Evaluating primary care behavioral counseling interventions: an evidence-based approach. *American Journal of Preventive Medicine,* 22(4), 267-284.

Whitlock EP, Polen MR, Green CA, Orleans T, and Klein J. (2004). Behavioral counseling interventions in primary care to reduce risky/harmful alcohol use by adults: a summary of the evidence for the U.S. Preventive Services Task Force. *Annals of Internal Medicine*, 140(7), 557-568.

Wilcox S, Dowda M, Leviton LC, Bartlett-Prescott J, Bazzarre T, Campbell-Voytal K, Carpenter RA, Castro CM, Dowdy D, Dunn AL, Griffin SF, Guerra M, King AC, Ory MG, Rheaume C, Tobnick J, and Wegley S. (2008). Active for life: final results from the translation of two physical activity programs. *American Journal of Preventive Medicine,* 35(4), 340-351.

Willson MN, Neumiller JJ, Sclar DA, and Skaer TL. (2010). Ethnicity/race, use of pharmacotherapy, scope of physician-ordered cholesterol screening, and provision of diet/nutrition or exercise counseling during US office-based visits by patients with hyperlipidemia. *American Journal of Cardiovascular Drugs,* 10(2), 105-108.

Wolch J, Wilson JP, and Fehrenbach J. (2005). Parks and park funding in Los Angeles: an equity mapping analysis. *Urban Geography,* 26, 4-35.

APPENDIX

Table of all OASIS data displayed in the charts

			Census Tract 85	Fulton County
Diabetes	Age	<1	0	0
		1-4	0	0.7
		5-12	0	3.3
		13-19	0	1.6
		20-29	0	1.1
		30-44	2.6	1.5
		45-59	2.95	2.6
		60-74	6.75	2.2
		75+	5.15	1.3
	Race	White	0	0.8
		Black	2.7	2.2
		Other Race	0	0.7
	Sex	Male	4.4	1.9
		Female	1.8	1.3
Stroke	Age	<1	0	0
		1-4	0	0
		5-12	0	0.3
		13-19	0	0.2
		20-29	0	0.1
		30-44	1.8	0.6
		45-59	3.35	2.4
		60-74	3.8	3.5
		75+	5	4.1
	Race	White	0	1.8
		Black	3.55	2
		Other Race	0	1.1
	Sex	Male	4.1	2.1
		Female	3.5	1.7