

Professor Carey

PHE 200 Intro to Public Health

Notional Grant Proposal (Final)

May 19<sup>th</sup>, 2016

## The Control and Prevention of Diabetes

### Final Paper: Notional Grant Proposal

Designated Group "Reading/Meeting/Writing" period: May 16-19

Submit completed paper no later than 11:59 pm Tuesday, May 24

5 bonus points for submitting by 11:59 PM Thursday, May 19

For your final project, pretend you are part of a non-profit organization. Your team has a great idea of how to tackle an important health problem in your neighborhood. You are going to ask a major philanthropical organization for funding to implement your idea, and you have to convince their review board that the idea is worth funding.

Students are expected to work in groups of 3 to 5 to prepare a joint final paper (a grant proposal). The paper will be posted below

Objective: Using the format of a grant proposal, this project will integrate, explore and apply concepts learned throughout the course. Concepts include community assessment, use of data, identifying at risk populations, and designing interventions.

#### **Grant Proposal Format (20 points each section):**

##### **I. Specific Aims, hypotheses/objectives** Damion

Describe the (notional) community where this project will occur: demographics, socioeconomic conditions, findings of previous community health assessments; (1 page).

##### **II. Public Health Significance** Dillon

Briefly identify the public health concern to be addressed. What is the at-risk population for the negative outcome? . What is the prevalence, incidence, and severity of the problem? What are the short term and long term outcomes of concern?; (approx. 2 pages).

##### **III. Review of the Literature** George

Critically evaluate existing knowledge about effectiveness of the proposed intervention, and identify knowledge gaps, which the project is intended to fill; (approx. 3-4 pages) (*A minimum of 10 citations not included in the page count*).

##### **IV. Design of intervention** Kelia

Discuss in detail the experimental design and the procedures to be used to accomplish the specific aims of the project. This includes the design of the proposed intervention, study settings, target population, participant identification and recruitment (e.g., sample, size, , eligibility criteria, sampling procedures, informed consent and confidentiality), and follow-up. project management plan, project timeline; (approx. 2 pages).

##### **V. Outcome Evaluation** Hugo

Describe how outcomes and effectiveness will be measured. What data will be collected (both pre-and-post intervention) and how will these data be analyzed? What are the process measures versus the outcome measures, and what are the short-term versus long term outcomes the intervention is intended to produce? Discuss the limitations of the proposed measures and identify surrogate indicators to measure success. (approx. 2 pages).

The total grant proposal is a minimum of 8 pages maximum of 12 pages. (Double-Spaced, 1 inch margins)

**Group Members:**

Damion Nicholсан [damion.nicholson@spsmail.cuny.edu](mailto:damion.nicholson@spsmail.cuny.edu)

Dillon Mathews [dillon.mathews@spsmail.cuny.edu](mailto:dillon.mathews@spsmail.cuny.edu)

Kelia Ray [kelia.ray@spsmail.cuny.edu](mailto:kelia.ray@spsmail.cuny.edu)

George Athanassiou [george.athanassiou@spsmail.cuny.edu](mailto:george.athanassiou@spsmail.cuny.edu)

Hugo Moran [hugo.moran@spsmail.cuny.edu](mailto:hugo.moran@spsmail.cuny.edu)

**I. Specific Aims Hypothesis/Objectives (Damion)**

City Academy of Public Health (CAPH) is a newly developed diabetic control and prevention non-profit organization, that seeks to work with individuals and families affected by diabetes in the Bronx, New York area. “The Bronx has an overwhelmingly large minority population consisting of 53% Hispanic and Latinos and 36% of Black or African Americans. According to the Department of Health, The Bronx is now home to 5 of the city's worst 10 neighborhoods for diabetes” (Worst Neighborhoods for Diabetes are in the Bronx 2013). Over the last several decades these communities have witnessed a huge spike in the mortality rates as this condition continues to expand into adjacent areas. “City wide the death rate for diabetes, a blood sugar problem caused by the body’s inability to produce insulin, climbed more than 25% in just a decade. In 2011, there were 5,695 deaths per 100,000 people” (Worst Neighborhoods for Diabetes are in the Bronx 2013) and since then that number has only risen, with a majority of the deaths occurring in the Bronx. Several modes of intervention including outreach programs and healthy food options have been suggested but never implemented. Our goal with the assistance of Help Now LLC., is to employ measures that will reverse the current trend of diabetes in the

Bronx. To accomplish this feat, we have a dedicated team of healthcare professionals with over 70 years of combined experience with diabetic patients, 5 community based centers which can be utilized for educational purposes in the 5 most critical areas, as well as over a hundred members of our local communities, committed to devoting their time and effort to halting this disease.

There are several factors contributing to the rise of diabetes in disenfranchised communities throughout the Bronx. The focus of CAPH is primarily towards educating and caring for the subjugated individuals in this county that are either unable to attain care due to financial barriers or ignorant of pertinent medical and public health information. According to the American Diabetes Association (ADA), individuals who lack the financial fortitude to support a healthy life style, are at a higher risk for developing diabetes; in addition, members of these communities are often incapable of attaining the level of healthcare necessary to combat this condition. At City Academy of Public Health our mission is to provide the means and the education necessary to manage and prevent this disease.

Studies by the New York State Department of Health have found that “Diabetes has become an epidemic that affects one out of every 12 adult New Yorkers. Since 1994, the number of people in the state who have diabetes has more than doubled, and it is likely that number will double again by the year 2050 (Diabetes 2016).” When considering state forecasted numbers for diabetes, please keep in mind that the projection for the Bronx is even higher, a reality residents of the Bronx live with daily. Residents of the Bronx should be educated to the benefits of eating right and exercising among other healthy habits, as well as having the medical attention that is necessary to prevent and manage diabetes.

## **II. Public Health Significance (Dillon)**

Diabetes is a serious issue in New York City, specifically in Bronx County. It's critical that immediate action be taken to both control and prevent this deadly disease at any possible cost. This growing medical problem is only going to get worse if we don't start doing something about it now. The good news is that Diabetes Type 2 has the possibility of being prevented from advancing from the pre-diabetes stage to the actual diabetes stage. Also, even though Type 1 Diabetes can't be prevented, it certainly does have the opportunity to be controlled much better through public health initiatives. There are documented statistics that have proven that Diabetes strikes certain at-risk populations over others in the Bronx, and we will briefly cover those populations here. We will also briefly address the prevalence, incidence, and severity of Diabetes, as well as its short and long term outcomes.

According to the Centers for Disease Control (CDC), there are more than 29 million people in America that have diabetes. That's over 9% of the United States population. What's even more alarming is that out of every 4 people in the U.S., one has diabetes already, and doesn't even know it. The CDC also reports that there are 86 million people in our country that have prediabetes. This means that their blood sugar levels are higher than normal, but not yet high enough to be classified as type 2 diabetes. Studies have been shown that between 15 and 30 percent of people with prediabetes advance to Type 2 Diabetes unless they improve their diets, lose weight, and increase their physical activity to at least a moderate level (Centers for Disease Control, 2016). According to [diabetes.org](http://diabetes.org), diabetes was the leading cause of death in 2010. These statistics were based on 69,701 death certificates showing that the underlying cause of death was diabetes ([Diabetes.org](http://Diabetes.org)). According to the Office of the New York State Comptroller,

the Department of Health says that diabetes “has reached epidemic proportions” in New York and “threatens to overwhelm New York’s health care system and affect an entire generation” (Office of the New York State Comptroller, 2016).

The cost of Diabetes as reported by diabetes.org in their “Economic Costs of Diabetes in the U.S. 2012” study shows that the total costs of diagnosed diabetes in the U.S. was \$245 billion.

Medical costs came up to \$176 billion and \$69 billion was lost due to reduced productivity. The final outcome of the study showed that the average medical expenditures after adjusting for population, age, sex were 2.3 times higher than what these expenditures would be had the population not had diabetes (Diabetes.org). With numbers this high, it’s obvious that developing interventions for controlling, and better yet, preventing the disease from happening in the first place, would save billions of wasted medical dollars. Although this is a nationwide problem, our focus here is specifically on Bronx County where the cost of diabetes in this area puts it at an epicenter for this epidemic. A survey conducted by the NYC Department of Health found that out of every 3 people in the Bronx, one of those people suffers from Diabetes (RiverdalePress.com, 2013). NYC’s borough of the Bronx has more reasons for a need of funding for both the prevention and control of Diabetes over the other four boroughs of the city.

It’s no secret that it’s also the unhealthiest county of the city, and is well known to be the number one destination for and over abundant amount of fast-food chains. The “State of Chains” was a study conducted by Center for an Urban Future. They discovered that the Bronx experienced the fastest growth in the number of national chain stores from 2011 to 2012. Many residents in this county don’t have to go far to get high carbohydrate, cheap, and unhealthy food which is

considered “toxic” for the diabetic, or anyone diagnosed as pre-diabetic for that matter. The Bronx boasts almost 100 Dunkin Donuts stores, and almost 50 McDonalds and Subway restaurants (Nycfuture.org, 2014). Executive director Jonathan Bowles of the Center for an Urban Future, a public policy think tank, is quoted as saying “Fast food chains are inexpensive and quick, and for a lot of working poor and low-income residents, that’s the sweet spot” (Nydailynews.com, 2012). This says a lot about why diabetes is such a big issue in this area. We also know that Diabetes is also more prevalent in certain races/backgrounds over others. This means that interventions will need to be adjusted accordingly due to the differences of prevalence of Bronx county. According to Healthny.gov, the Bronx is listed as having “Health Indicators” listed by Race/Ethnicity. During 2011-2012 both African Americans and Hispanics show the highest mortality rates and have the most need for intervention, therefore these 2 racial/ethnic categories have the most need for intervention (Healthny.gov, 2016).

Without the funding needed to build intervention programs for the control of Diabetes Type 1, as well as the control and prevention of Diabetes Type 2, residents of Bronx County are at risk for both short term effects of diabetes such as hypoglycemia, and longer term effects such as Retinopathy, Kidney disease (Nephropathy), Nerve damage (Neuropathy) and various Macrovascular complications which affect the heart, brain, and muscles. Plaque build-up in blood vessels can, and usually does lead to stroke, heart attack, and peripheral vascular disease (vessel blockage in the legs) (Endocrineweb.com, 2016).

### **III. Review of the Literature (George)**

Approximately 95 percent of people who have diabetes are afflicted with the type 2 variety (also called type 2 diabetes mellitus). “According to the Centers for Disease Control and Prevention’s National 2014 Diabetes Statistics Report, 29.1 million Americans, or 9.3% of the US population have diabetes. This number reflects the 21 million who are currently diagnosed and another 8.1 million who do not even know they have diabetes.”(5) Implementing behavioral changes to combat type 2 diabetes has been an overwhelmingly effective way to control and prevent diabetes and the complications/co-morbid conditions that accompany this disease. The potential impact of implementing such a program can positively effect up to 25.9% (8 million diagnosed and undiagnosed) (1) senior citizens. In 2012 alone diabetes cost the United States (direct and indirect) upwards of \$245 billion (3). The potential cost savings of such a program is very likely to be significant.

In order to examine the potential effectiveness of the proposed program examination of the diabetic co-morbid conditions must be performed due to the strong linkages of the two. As an example Obesity, which is a co-morbid condition is an actual causation of diabetes and examining interventions of such can indirectly lead to reduction of the former. There are some, what this paper will coin as tertiary co-morbid conditions, which are derived from a condition such as Obesity and/or Diabetes. Diabetes can damage eyes, kidneys, and nerves and cause heart disease and cause stroke (7).

Regardless of the co-morbid condition, effecting behavioral changes will be the cornerstone of the proposed program. This is especially important since these changes will be base

psychological changes to the already established patterns of an individual as well as those consisting of a communal nature. Neither education nor counselling alone can be successfully implanted alone. Rather, a combination of both is required with adequate support personnel available (nurses, nutritionists, trainers, etc.) to provide the coaching and motivation required to be successful.

"For someone who might be at high risk [for diabetes], you should know that you can prevent the disease or delay it," says Geiss. "Increase your physical activity, improve your diet, lose 5 to 7% of your body weight if you're at high risk." (2)

We see that Retail clinics offer access to health care services for conditions such as lipid screening and diabetes screening demonstrate positive outcomes of increased access to care, reduced emergency room visits in addition to reduced health care costs (8). Similarly, implementation of a Healthy Behaviors Support Program can yield similar results at a relatively lower cost than maintaining and managing an actual clinic. (9)(10) A diabetes case manager who oversees and coordinates all of the services received by an elderly person and can be delivered as part of a "multicomponent intervention" disease management plan. The case manager can perform the following functions;

- 1) Identifying all those affected by the disease that are eligible for a case manager
- 2) Assessing current levels of healthcare and needs of eligible participants
- 3) Developing an individual care plan for each participant
- 4) Putting the care plan into action, and
- 5) Monitoring of results.



Diabetes can be treated or reduced by healthful eating (6). Teaching the elderly how to properly meal plan and what to consume puts them on a path to reducing blood glucose levels simply by regulating their intake and through medications or insulin, if necessary. There are differing diabetic diet programs, however most agree that persons with type two diabetes should generally be “put on a 1,500 to 1,800 calorie diet per day to promote weight loss and then the maintenance of ideal body weight.”(6) Diets must be tailored to the person’s individual characteristics such as their age, gender, activity level, current weight, and body type.

The secondary benefit of healthful eating is the reduction of obesity. Those who are morbidly obese may need an even stricter diet in order to promote weight loss at the appropriate rate to be healthy. Obesity is a major contributor of diabetes.

In addition to controlling the diet, physical activity is a key component to combating diabetes. Promoting fitness and activity can enable senior citizens to maintain blood glucose levels in the proper ranges more effectively than diet alone. The fitness component enables the body to regulate blood glucose without over relying on insulin to manage the levels. This is especially important for individuals who tend to be insulin resistant or do not produce enough insulin.

Obesity increases insulin resistance and by increasing physical activity and improved diet ensuing weight loss is likely to make them less insulin resistant. Physical activity can help control diabetes induced necrosis as well as kidney disease. It’s been shown that diabetes rates rise in direct correlation to the increase in obesity rates. In the United States alone obesity, and by extension diabetes, has risen by alarming rates: at least a 100% increase in the prevalence of

diagnosed diabetes cases in 18 states. Forty-two states saw an increase of at least 50%.” (2)

Source: Statistics About Diabetes. (2014). Retrieved March 13, 2016 from The American Diabetes Association: <a href="http://www.diabetes.org/diabetes-basics/statistics">http://www.diabetes.org/diabetes-basics/statistics</a>	
<a href="http://www.diabetes.org/diabetes-basics/statistics">http://www.diabetes.org/diabetes-basics/statistics</a>	Emergency room visits for adults aged 18 years or older had hypoglycemia as the first-listed diagnosis and diabetes as another diagnosis.
<input type="checkbox"/>	Hypertension: In 2009 -2012, of adults aged 18 years or older with diagnosed diabetes, 71% had blood pressure greater than or equal to 140/90 millimeters of mercury or used prescription medications to lower high blood pressure.
<input type="checkbox"/>	Dyslipidemia: In 2009 -2012, of adults aged 18 years or older with diagnosed diabetes, 65% had blood LDL cholesterol greater than or equal to 100 mg/dl or used cholesterol-lowering medications. <ul style="list-style-type: none"> <li>○ CVD Death Rates: In 2003 -2006, after adjusting for population age differences, cardiovascular disease death rates were about 1.7 times higher among adults aged 18 years or older with diagnosed diabetes than among adults without diagnosed diabetes.</li> </ul>
<input type="checkbox"/>	Heart Attack Rates: In 2010, after adjusting for population age differences, hospitalization rates for heart attack were 1.8 times higher among adults aged 20 years or older with diagnosed diabetes than among adults without diagnosed diabetes.
<input type="checkbox"/>	Stroke: In 2010, after adjusting for population age differences, hospitalization rates for stroke were 1.5 times higher among adults with diagnosed diabetes aged 20 years or older compared to those without diagnosed diabetes.
<input type="checkbox"/>	Blindness and Eye Problems: In 2005 -2008, of adults with diabetes aged 40 years or older, 4.2 million (28.5%) people had diabetic retinopathy, damage to the small blood vessels in the retina that may result in loss of vision.
<input type="checkbox"/>	Kidney Disease: Diabetes was listed as the primary cause of kidney failure in 44% of all new cases in 2011. <ul style="list-style-type: none"> <li>○ In 2011, 49,677 people of all ages began treatment for kidney failure due to diabetes.</li> <li>○ In 2011, a total of 228,924 people of all ages with kidney failure due to diabetes were living on chronic dialysis or with a kidney transplant.</li> </ul>
<input type="checkbox"/>	Amputations: In 2010, about 73,000 non-traumatic lower-limb amputations were performed in adults aged 20 years or older with diagnosed diabetes. <ul style="list-style-type: none"> <li>○ About 60% of non-traumatic lower-limb amputations among people aged 20 years or older occur in people with diagnosed diabetes</li> </ul>

#### **IV. Design of Intervention (Kelia)**

##### **INTERVENTION (PROGRAM PLAN)**

##### **Diabetes Home Management Program -DHMP**

City Academy of Public Health has developed a program designed to closely monitor and identify lifestyle barriers that directly impacts the diabetic prevalence that affects the patients and hospitals in socioeconomically challenged communities. The outlined procedures are designed to accomplish the specific aims of the project. This includes the proposed intervention, study settings, target population, participant identification and recruitment, and HIPAA Related requirement. The Centers for Disease Control and Prevention (CDC) has stated that individuals with diabetes are at a greater risk of heart attack, stroke, blindness, kidney failure, nerve damage and amputations. Recognizing that many factors, including the patient's blood glucose levels and the risk of comorbidities, must be considered in the treatment of a diabetic patient while providing very specific directives relating to follow up patient care.(1) The Robert Wood Johnson Foundation listed the Bronx as the unhealthiest county in all of New York State with a 13.9% prevalence of diabetes. As a result, New York State Department of Health issued the Prevention Agenda 2013-17 as a blueprint for State and local community action to address disease and prevention and reduce health disparities. (2)

##### Design:

The Diabetes Home Management Program is our evidence-based lifestyle program that provides medical testing; monitoring, management, and patient education to homebound type 2 diabetic patients who are unable to maintain proper medical care, in a home care setting. The project management plan has an annual timeline of 12 consecutive months beginning the first day of the next month following approval. Palmetto GBA's Local Coverage Determination (LCD- L35413)

regarding monitoring glucose control in patients with Type II Diabetes Mellitus was effective  
12/30/14. (Debra J. Briggs, Program Director)(3)

Proposed intervention:

To help achieve the goals of the “Advancing the NY Prevention Agenda 2013-17”, our program intends to provide at-home clinical support, statistical analysis, and improved community education to reduce the prevalence of program participants from repeat Emergency Department (ED) visits 30% by the end of the program period.

Study settings:

Once a week at-home nursing visits are made to each participant to provide urinalysis testing, blood testing, insulin injections, and HbA1C blood monitoring would be collected and recorded.(4) Using remote access to an encrypted EHR system, the progress in each of the visit notes will be documented in a point-of-care format in order to ‘paint a picture’ of the patient to Medical Staff Director. Following an Accountable Care Organization model, any additional conditions and/or concerns relative to the patient’s functional progress will be electronically communicated to the assigned patient specialist on the date of the visit.

Target population:

DHMP will serve as the lead agency in providing the program to homebound type 2 diabetic participants residing in a Bronx County neighborhood in the middle of the city called “Morrisiana”.

Participant identification:

Utilizing a third-party community hospital registry tool, DHMP has been able to identify at risk diabetic patients who have visited the community hospital ED 2+ times within the past 6 months as the initial reference point. Working from a known baseline will provide a true measure of the

neighborhood specific improvements as we advance the Diabetes Home Management Program-DHMP.

Recruitment:

The program will employ 3 NYS licensed Diabetes Nurse practitioners from the target community familiar with the targeted neighborhoods and with the barriers that face urban, homebound, diabetic patients with type 2 diabetes. The DNP will visit six (6) identified participants two (2) days a week to be effective in reaching our program goal. The supporting ACO staff will include a Medical Doctor, (Staff Director), Cardiologist, Licensed Social Worker, Endocrinologist, Registered Dietitian, Eye Doctor, Podiatrist, and a Pharmacist. (5)

Sample-size:

A Total of 36 participants will be accepted into the program. A combination of men and women will be accepted into the program (not to exceed more than 22 of either gender).

Eligibility criteria:

To be included in the program participants must be diagnosed with Diabetes Mellitus, aged 35-60, unable to travel or homebound, and reside in zip code 10456, Bronx, NY.

Informed consent and confidentiality:

City Academy Public Health Organization adheres strictly to HIPPA of 1996, the HITECH Act, as well as the goals and guidelines of the Prevention Agenda 2013-17. All participants must have an electronically signed informed consent and confidentiality agreement on record prior to treatment and admission to the DHMP.

## **V. Outcome Evaluation (Hugo)**

In order to find out what works we need to analyze specific data elements that would be necessary to find out if something is effective or not. By supporting healthy behaviors through case management and education initiatives we can assure that the outcomes of diabetes control and prevention will be helpful in promoting positive outcomes. City Academy of Public Health's usage of data collection could lead not only to more effective medical care but also to cost savings through the elimination of unnecessary care. Also the use of this data can help us include health needs identification, analysis of problems and trends in the Bronx area, epidemiologic research, program evaluation, program planning, administrative decision making and most importantly health education. An AHRQ study examined effectiveness of measures to control blood sugar. Findings showed improvements in glycemic control over time, ultimately cutting severe inpatient hypoglycemia by more than half as well as reductions in the length of hospital stays ([ahrq.gov](http://ahrq.gov)). It is necessary to gather and collect what race and ethnicities are at more of a dangerous risk of being a diabetic as well age and gender elements. To perform program measures and metrics calculating a percentage of patients with diabetes who were counseled to eat a healthy diet vs those who weren't as well as identifying the percentage of patients who were counseled to engage in some form of physical activity. Comparing outcomes across studies relies on accurate data which has been a problem in recent years. The data has to be as accurate as possible in order to achieve an outcome that will be effective. Using a model that calculates the likelihood of being diagnosed with diabetes over a certain period of time based on age, gender ethnicity, blood glucose, blood pressure, HDL, Body Mass Index (BMI), and family history of diabetes enables us to compare the most important outcome measure, which is the reduction in risk of developing diabetes across all diabetes prevention programs. In this way we

can see how likely it is that our intervention will work. Efforts will be made to include more minority participants in these diabetes prevention programs to identify successful interventions for these at risk populations. According to a study regarding diabetes educators by the AHRQ “Researchers studied 84 patients with diabetes receiving care at a Veterans Administration Medical Center who self-selected into two groups. The first group received an empowerment approach incorporating a conceptual metaphor to foster understanding, and team-based learning methods to foster active learning. The second group received traditional diabetes education, including a didactic group session focused on self-management and educational materials about the diabetes ABCs” ([ahrq.gov](http://ahrq.gov)). The researchers believed that their findings should encourage changes in the methods used by diabetes educators to facilitate comprehension of diabetes. The limitations that might back up the processes would be in quality, usually inadequate information on the population or inadequate statistical analysis ([communityguide.org](http://communityguide.org)). Both hypo and hyperglycemia are important patient safety issues that are appropriate for analysis. According to the community guide, “For case management, evidence is strong in its effectiveness in improving glycemic control. When case management is delivered along with disease management, evidence is sufficient that it is effective in improving provider GHb”. Data collection including identifying glucose levels, completing a time study focusing on time from presentation of hyperglycemia to initiation of insulin infusion may prove critical. Findings from data collection suggest that we will need to create a team that assists with system wide changes, including initiation of educational opportunities for case managers in our case.

## References (in order by section)

### I. Specific Aims Hypotheses/Objectives (Damion)

Basics." *Centers for Disease Control and Prevention*. Centers for Disease Control and Prevention, 2015. Web. 18 May 2016. <<http://www.cdc.gov/diabetes/basics/index.html>>.

Basics." *Centers for Disease Control and Prevention*. Centers for Disease Control and Prevention, 2015. Web. 18 May 2016. <<http://www.cdc.gov/diabetes/basics/index.html>>.

"Department of Health." *Diabetes*. Web. 18 May 2016.  
<<http://www.health.ny.gov/diseases/conditions/diabetes/>>.

### II. Public Health Significance (Dillon)

Centers for Disease Control. (2016). Diabetes Latest| Features | CDC. Retrieved from <http://www.cdc.gov/features/diabetesfactsheet/>

Diabetes.org. (2016). Statistics About Diabetes: American Diabetes Association®. Retrieved from [www.diabetes.org/diabetes-basics/statistics/?referrer=https://www.google.com/](http://www.diabetes.org/diabetes-basics/statistics/?referrer=https://www.google.com/)

Endocrineweb.com. (2016). Type 2 Diabetes Complications - How to Prevent Short- and Long-term Complications. Retrieved from <http://www.endocrineweb.com/conditions/type-2-diabetes/type-2-diabetes-complications>

Nydailynews.com. (2012). With highest rates of obesity and diabetes, Bronx also has fastest growth in fast-food chains - NY Daily News. Retrieved from <http://www.nydailynews.com/life-style/health/highest-rates-obesity-diabetes-bronx-fastest-growth-fast-food-chains-article-1.1223831>

Nycfuture.org. (2014). State of the Chains, 2014 | Center for an Urban Future. Retrieved from <https://nycfuture.org/research/publications/state-of-the-chains-2014>

Health.NY.gov. (2016). Bronx County Health Indicators by Race/Ethnicity, 2011-2013. Retrieved from <https://www.health.ny.gov/statistics/community/minority/county/bronx.htm>

RiverdalePress.com. (2013). Diabetes in the Bronx: epicenter of an epidemic | The Riverdale Press | riverdalepress.com. Retrieved from <http://riverdalepress.com/stories/Diabetes-in-the-Bronx-epicenter-of-an-epidemic,52855>

Office of the New York State Comptroller. (2016). Retrieved from [http://www.osc.state.ny.us/reports/health/diabetes\\_2015.pdf](http://www.osc.state.ny.us/reports/health/diabetes_2015.pdf)



### **III. Review of the Literature (George)**

1. Statistics About Diabetes. (2014). Retrieved March 13, 2016 from The American Diabetes Association: <http://www.diabetes.org/diabetes-basics/statistics>
2. Diabetes diagnoses increasing at alarming rate. (2012). Retrieved March 13, 2016 from CNN: <http://thechart.blogs.cnn.com/2012/11/15/diabetes-diagnoses-increasing-at-alarming-rate/>
3. National Diabetes Statistics Report, 2014. (2014) Retrieved March 13, 2016 from The Center for Disease Control: <http://www.cdc.gov/diabetes/pdfs/data/2014-report-estimates-of-diabetes-and-its-burden-in-the-united-states.pdf>
4. Economic Costs of Diabetes in the U.S. in 2012. (2012). Retrieved March 13, 2016 from The American Diabetes Association: [http://care.diabetesjournals.org/content/36/4/1033.full?loc=dorg\\_statistics](http://care.diabetesjournals.org/content/36/4/1033.full?loc=dorg_statistics)
5. Type 2 Diabetes Prevention (2015) Retrieved March 13, 2016 from Endocrineweb: <http://www.endocrineweb.com/conditions/type-2-diabetes/type-2-diabetes-prevention>
6. What Works for Health (2016) Retrieved March 13, 2016 from County Health Rankings and Roadmaps: <http://www.countyhealthrankings.org/roadmaps/what-works-for-health>
7. Diabetes (2016) Retrieved March 13 2016 from the Agency for Healthcare Research and Quality: <http://www.ahrq.gov/patients-consumers/treatmentoptions/consumerdiabetes.html>
8. Retail clinics (2016) ) Retrieved March 13, 2016 from County Health Rankings and Roadmaps: <http://www.countyhealthrankings.org/policies/retail-clinics>
9. The Effectiveness of Disease and Case Management for People with Diabetes (2002) Retrieved March 13, 2016 from The Guide to Community Preventive Services: <http://www.thecommunityguide.org/diabetes/dm-AJPM-evrev-effectvn-dis-casemgmt.pdf>
10. Diabetes Prevention and Control: Case Management Interventions to Improve Glycemic Control (2001) Retrieved March 13, 2016 from The Guide to Community

### **IV. Design of Intervention (Kelia)**

NYS Health Foundation. (2016). Grant outcome reports. Retrieved on May 15, 2016 from [http://nyshealthfoundation.org/resources-and-reports/results/search&orderby=entry\\_date+desc&keywords=diabetes+&category=+9/](http://nyshealthfoundation.org/resources-and-reports/results/search&orderby=entry_date+desc&keywords=diabetes+&category=+9/)

RJWF. (October 28, 2015). Why health is trending in the Bronx. Retrieved on May 15, 2016 from <http://www.rwjf.org/en/library/articles-and-news/2015/10/coh-prize-bronx-ny.html>

Briggs, D.J. (March 24, 2015). Home care diabetic patients under the microscope. Retrieved May 15, 2016 from <http://healthcareprovidersolutions.com/home-care-diabetic-patients-under-the-microscope>

Norris, S.L. et al. (2016). The effectiveness of disease and case management for people with diabetes: A systematic review. Task Force on Community Preventive Services. *American Journal of Prevention Medicine*. Vol 22 No 4S, pp 15-38.

Diabetes Association. (2016). Your health care team. Retrieved on May 15, 2016 from <http://www.diabetes.org/living-with-diabetes/treatment-and-care/whos-on-your-health-care-team/your-health-care-team.html?referrer=https://www.google.com/>

## **V. Outcome Evaluation (Hugo)**

<http://www.ahrq.gov/news/newsletters/research-activities/13feb/0213RA12.html>

<http://www.thecommunityguide.org/diabetes/dm-AJPM-evrev-effectvn-dis-case-mgmt.pdf>