GRAND RAPIDS
African American
Health Institute

Real Reasons and Solutions to Better Prevent and Manage ***Diabetes*** Among African Americans in West Michigan

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Grand Rapids African American Health Institute

Letter from GRAAHI's Clinical Director

The Grand Rapids African American Health Institute (GRAAHI) in Grand Rapids, Michigan focuses on improving health equity for African Americans and other high-need groups in West Michigan. GRAAHI strives to achieve this goal by implementing education, advocacy and research efforts at the grassroots and policy levels. Recently, GRAAHI focused its energies on four areas to maximize its impact in those capacities. Those areas were hypertension, infant mortality, diabetes, and healthy lifestyles that all negatively impact African Americans at greater rates than other demographic groups. Thus, GRAAHI seeks to educate and encourage West Michigan citizens to take charge of their health today.

This white paper focuses on diabetes and its debilitating impact on African Americans in Grand Rapids and across the country. Diabetes is clearly devastating, as it is the 7th leading cause of death in the United States, afflicting over 29 million Americans. In addition, about 86 million Americans are prediabetic, where 90% of them are unaware of their status. Concerning risk factors for diabetes, genetics, unhealthy lifestyles, and stress represent a few of the culprits. Living in poverty, being uninsured, and having poor access to healthy foods are additional factors that can influence the development of diabetes. Therefore, new ideas and approaches are needed to remedy the diabetes problem in this country.

Besides illustrating data, disparities and risk factors for diabetes, this white paper also provides recommendations and solutions for diabetes at the individual, community and policy levels. As with any resolution, it requires the efforts of many, including individuals, community health organizations, healthcare centers and the media, to achieve their collective goal. Overall, GRAAHI hopes this white paper raises awareness and sparks actions to fight against diabetes, so everyone can achieve health equity in West Michigan and across the country.

Khan Nedd, MD
GRAAHI's Clinical Director

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Executive Summary

GRAAHI's Research Department prepared this white paper on diabetes to examine and discuss current research, data, strategies, programs and policies existing for diabetes in the United States (US). In addition, this white paper reviews and highlights disparities and inequities pertaining to diabetes and its associated conditions, especially for Blacks and other high-need groups in the US. After reviewing this white paper, readers will have a better understanding of diabetes from the following aspects—clinical definitions, impact on the general population, impact on West Michigan/Kent County residents, impact on disparate population groups such as Blacks, current programs and policies, and proposed strategies for diabetes prevention at the community and policy levels. Moreover, this comprehensive presentation of information on diabetes may inspire readers to conceive, suggest and/or develop additional strategies (not stated in this white paper) that may effectively combat diabetes in our society.

Background and Clinical Measurements for Diabetes

Diabetes is a chronic disease that develops in people whose bodies have higher than normal blood glucose levels. Glucose or sugar derives from much of the food people consume in their daily routines. When people consume food, their pancreas uses a hormone called insulin to convert that food into glucose or sugar. Insulin then moves that glucose or sugar into the cells of people's bodies. When people's bodies cannot produce insulin or use their insulin to sufficiently move their glucose into their cells, glucose builds up in their blood. This building up of sugar in people's blood is the culprit resulting in the development of diabetes and its assortment of symptoms and complications. Some of these symptoms/complications include—extreme hunger, sudden vision problems, dry skin, numbness in the hands or feet, frequent urination, excessive thirst and exhaustion. These symptoms and other complications are discussed later on in this paper.

Clinically, diabetes is diagnosed using a blood glucose test. Depending on the person's recent food consumption habits, the results of blood glucose tests may mean different things. Below are explanations of blood glucose tests for diabetics, prediabetics and non-diabetics.

To be diagnosed with diabetes, a person must meet the following criteria:

1) Their blood glucose level must be 200 mg/dl or above for a random test, meaning that the person has consumed food within the past two hours.

2) Their blood glucose level must be 126 mg/dl or above for a fasting test, meaning that the person has not consumed food within the past 8-10 hours.

To be considered a non-diabetic, a person must meet the following criteria:

1) Their blood glucose level must be below 200 mg/dl for a random test, meaning that the person has consumed food within the past 8-10 hours.

2) Their blood glucose level must be below 108 mg/dl for a fasting test, meaning that the person has not consumed food within the past 8-10 hours.

3) Their blood glucose level must be below 140 mg/dl, if the person has consumed food within the past two hours.

To be considered prediabetic, a person usually meets the following criteria:

1) Their blood glucose level must fall between 108-125 mg/dl for a fasting test, meaning that the person has not consumed food within the past 8-10 hours.

2) Their blood glucose level must fall between 140-199, if the person has consumed food within the past two hours.

Types of Diabetes

Despite the detrimental impact of diabetes and its complications, it does not arrive in the same form for everyone. There are three, different types of the diabetes including—Type 1, Type 2 and gestational. *Type 1 diabetes*, often called juvenile diabetes, is mostly genetic and develops from people's inability to make insulin or their body's sabotaging nature of destroying insulin-producing cells. This diabetes type usually manifests itself in young people, but older people can also exhibit this form of diabetes too. *Type 2 diabetes*, often called adult-onset diabetes, cultivates from the body's inability to sufficiently use insulin to move glucose into cells. This form of insulin resistance occurs, when fat, liver and muscle cells stop transporting glucose into cells efficiently. This causes the pancreas to produce more insulin to overcompensate, but this overcompensation and raised glucose levels take their toll on the pancreas, resulting in type 2 diabetes.

Aside from someone's genetic predisposition to diabetes, poor behaviors such as unhealthy eating or inactivity can also increase someone's chances of developing type 2 diabetes too. *Gestational diabetes* is another form of diabetes that occurs in pregnant women, resulting from their ability to make insulin-resistant hormones. Like in type 2 diabetes, victims of gestational diabetes are incapable of processing glucose efficiently in their cells. This form of diabetes usually resolves postnatally, but women who experience gestational diabetes have a higher propensity of developing diabetes later in life compared to pregnant women without the illness.

Risk Factors for Diabetes

Many *risk factors* influence a person's development of diabetes. First, *genetics* or *having a family history of diabetes* increases one's likelihood of developing the illness. This causal link between genetics and diabetes has been proven in several studies. Secondly, *race* is another risk factor for diabetes, as Blacks are more likely than other racial groups to suffer from the condition. However race does not exclusively determine someone's diabetes risk, as genetic determinants for diabetes are not significantly different between Blacks and Whites. This leads the conversation towards *social determinants* that hinder Blacks such as *unemployment, poverty, inadequate housing, and poor access to healthy foods and beverages*. More than likely, these social determinants are influencing the diabetes disparities between Blacks and Whites in this country. Thirdly, *having a disease of the pancreas* or any condition limiting the pancreas' ability to utilize insulin effectively can increase someone's diabetes risk. Thus, the pancreas is an integral organ that plays a huge role in diabetes.

Fourthly, *being obese* or *overweight* is another risk factor for diabetes, especially type 2-diabetes. This is the case, since obese or overweight bodies work harder to convert glucose in the body effectively, inflicting more pressure and stress on that person's insulin levels. When that person's insulin levels cannot properly manage the higher levels of glucose, diabetes manifests itself in that person. This is a critical risk factor to highlight, since obesity rates in this country surged over the last fifty years. Therefore lowering obesity rates in this country will profoundly benefit diabetes rates in this country too. This leads to the fifth risk factor for diabetes in this paper, *physical inactivity*. Obviously, being physically inactive enhances people's risk of being overweight or obese, significantly increasing their diabetes risk too. Sixthly, *smoking* is a huge risk factor for diabetes, as smokers are 30-40% more likely to develop diabetes than nonsmokers. In addition, diabetics who smoke experience more complications with insulin dosing and with managing their illness compared to nonsmoking diabetics.

To shed even more light on some of the aforementioned factors influencing the development of diabetes, view the following statistics that were reported in a 2010 CDC study on diabetes:

1) 19.9% of US adults with diabetes smoked;

2) 36.1% of US adults with diabetes reported being physically inactive[8];

3) 56.9% of US adults with diabetes were obese;

4) 84.7% of US adults with diabetes were either overweight or obese;

Seventh, *having hypertension* is another risk factor for diabetes, as 57.1% of diabetics in the US also had hypertension in 2009. This leads to another blood marker and risk factor for diabetes, *high cholesterol*. In

2009, 58.4% of US adults with diabetes also had high cholesterol. This is interesting, since associations between diabetes, hypertension and high cholesterol are not scientifically clear, but common knowledge understands that obesity and/or physical inactivity can incite all three conditions independently and/or simultaneously. These social determinants (along with many others) create conditions within and around individuals that support the development of diabetes and its complications.

Impact of Diabetes in the General Population

Diabetes is a chronic illness that harms millions of people every day. As the 7th leading cause of death in the US, diabetes currently plagues about 29.1 million Americans or 9.3% of the general population. About 1.4 million Americans are diagnosed with the illness every year. Among diabetics in the US, about 8.1 million of them are undiagnosed and suffer in silence. In addition, about 86 million Americans are pre-diabetic, where 9 out of 10 of them are unaware of their status, a condition that has been growing in this country. For example, 79 million Americans (20 years and older) were diagnosed with prediabetes in 2010, compared to 2012, where 84 million Americans were categorized with the disease. Sadly, these statistics exclude children or Americans under 20 years of age who are also experiencing high rates of diabetes.

Diabetes and those who experience it encounter many *complications* throughout their lives. Frequently visiting the hospital is one of those complications, as nearly one third of diabetics get hospitalized 2 to 3 times per year due to a diabetes-related symptom. Some of these diabetes-related symptoms include—kidney disease (diabetic nephropathy), eye disease (diabetic retinopathy), strokes, heart attacks, high cholesterol, hypertension, and hypoglycemia (extremely low blood glucose levels). The amputation of lower limbs (non-traumatic), deriving from poor diabetes control, is the leading cause of diabetic hospitalizations in this country. For example, 73,000 non-traumatic lower limb amputations were performed in 2010 for diabetic adults aged 20 years and older. Of those amputations, around 60% of them were conducted on diabetics who were spontaneously hospitalized. Therefore, this phenomenon of hospitalizations for diabetes-related complications demonstrates the physical and psychological challenges with the illness along with the economic burden it places on the US healthcare system.

The *economic impact* of diabetes is clearly apparent in this country. In 2012, the American Diabetes Association (ADA) reported that diagnosed diabetes costs the nation roughly $245 billion, where $175 million of that money directly related to medical costs and $70 million to lost workdays, restricted activity, disability, and premature death. This is disturbing, since diabetes cost the nation roughly $43 billion in 2007, so its presence and monumental impact have truly magnified in recent years. In 2012, ADA also discovered that

diabetics spend, on average, 2.3 times more money on their health compared to non-diabetics. This money spent by diabetics on their health equates roughly to $13,700 per person, where $7,900 of that amount is spent directly on diabetes-related treatments per year. In conjunction, diabetics (who experience multiple hospitalizations) spend nearly three times more money on healthcare costs compared to non-diabetics who stay one day in a hospital. Thus, these figures truly reflect the immense weight and burden of diabetes on the US healthcare system.

As mentioned earlier, many *social determinants of health* affect the development of diabetes in individuals. Determinants such as *health insurance coverage*, *healthcare costs*, *income status*, *poverty*, *unemployment* and *eating habits* can all create conditions that are conducive for or against the incidence of diabetes. With Blacks experiencing the worst aspects of these determinants, their high rates of diabetes are understandable to many in the public health arena. For example, the unemployment rate for Blacks in this country is 15.3% compared to 8.3% for Whites, which is nearly twice as high for Blacks. Moreover, Blacks are more likely to hold blue-collar employment that usually lacks health insurance coverage. Due to these higher rates of unemployment for Blacks, they are more likely to earn less income, have less access to health insurance through their employer, and be incapable of purchasing healthier foods that are usually more expensive.

The higher unemployment rates among Blacks in the US also attribute to their higher poverty rates, where 25.4% of Blacks live in poverty compared 12.2% of Whites. This leads to income status, where the median household income for Blacks in 2012 was $33,321 versus $57,009 for Whites and $68,636 for Asians. Thus, it can be postulated that these determinants are interrelated and impact Blacks from an array of different angles, leading to poor health choices, behaviors and outcomes, including diabetes.

Other determinants that Blacks encounter include—*severe housing problems* and *living in neighborhoods with high rates of crime or violence*. By living in these dire and unfavorable situations, Blacks are more likely to experience depression (a major risk factor for diabetes) and lack essential access to exercise facilities, parks, and places that offer affordable, healthy food and beverage options. Depressed individuals and those who do not have sufficient access to healthy choices will be more likely to engage in unhealthy behaviors such as physical inactivity, consumption of unhealthy foods, and high rates of screen viewing.

This leads to another culprit for diabetes in the Black community, *the culture of eating unhealthy foods*. Historically, many Blacks were raised in families and communities, where eating foods high in fat, sugar, butter and sodium was normal. This behavior of consuming unhealthy foods and beverages continues to occur in the Black community, as these family gatherings to partake in unhealthy foods are forms of social support

among family and friends. Thus, changing or modifying this part of Black culture will be challenging but beneficial, if the detrimental rates of diabetes in the Black community are to improve.

Impact of Diabetes in Kent County, Michigan

Kent County, Michigan is located in West Michigan and is home to Grand Rapids, Michigan's second largest city. Currently, around 636,000 people reside in Kent County, Michigan. In 2012, Kent County's overall diabetes rate was 7.3%, which was lower than the diabetes' rates for the state of Michigan *(10.4%-2013)* and the US *(9.8%-2013)*. Despite these favorable diabetes' rates for Kent County, a different story exhibits itself when reviewing diabetes rates by race. From 2012-2014, Blacks had a substantially higher diabetes' rate of 14.2% compared to 8.4% for Whites. This significant disparity between Blacks and Whites is the true story of this white paper and why additional efforts are needed to alleviate this problem. Moreover, prediabetes should be another concern for Kent County, as nearly 150,000 adults (aged 21 years and above) are classified as prediabetics in the area. Therefore, Kent County should closely monitor diabetes, as diabetes rates could potentially skyrocket in the area in the near future for several populations.

Current Strategies to Prevent and/or Manage Diabetes

The following, *recommended strategies* are geared towards everyone—diabetics and non-diabetics. For people to avoid the onset of diabetes and/or the occurrence of diabetes-related complications, following these recommendations is highly encouraged:

For everyone:

1) Know the signs and symptoms of diabetes that were discussed earlier in this paper.
2) Know your family's history of diabetes by asking your family members about it.
3) Get 150 minutes of moderate physical activity per week (e.g., brisk walking).
4) Consume healthy foods and beverages such as fruits, vegetables, lean meat, fish, dry peas or beans, whole grains, and low-fat skim milk and cheese.
5) Stay at a healthy weight. Consult your doctor to learn about a healthy weight for you.
6) If you are pre-diabetic, try to lose 5%-7% of your body weight.
7) Avoid smoking or using tobacco products.

8) Minimize alcohol consumption, since alcohol contains calories that significantly increase one's blood glucose levels. Furthermore, alcohol also contributes to hypoglycemic events when consumed in excess.
9) Maintain a healthy support system with your family, friends and healthcare providers.
10) Remember the ABCs of diabetes control to maintain a healthy, diabetic lifestyle. **A** stands for "A1c test" that measures a person's blood glucose levels. Most people's A1c goal is below 7. **B** represents "blood pressure," since those with hypertension are more likely to experience diabetes-related complications. Maintaining a healthy blood pressure below 140/90 will help keep one's diabetes in check. **C** signifies "cholesterol," as LDL or bad cholesterol can build up in one's arteries or blood vessels, causing heart attacks and strokes. Managing someone's cholesterol will also improve their diabetic symptoms and prevent them from having a major episode.

For diabetics:

11) If diabetic, take your medication (i.e., insulin) as prescribed by your doctor.
12) Get educated on diabetes-related complications, when diabetes is controlled poorly. Individuals who are aware of these complications are more likely to take action to control them.
13) Gain a basic understanding of the medications and treatments for diabetes. This understanding can be obtained by visiting the following websites—www.diabetes.org, www.webmd.com/diabetes/, and www.cdc.gov/diabetes/home/.
14) Visit a doctor 2-4 times a year and get your feet and vision tested during these visits.
15) Ask a doctor and/or dietician to design a personal health plan for you regarding medications, an eating plan and a workout regime.
16) Consult a doctor to determine the amount of times to check your blood glucose levels. Type 1 diabetics may need to check their blood glucose levels 4-8 times a day, while type 2 diabetics can do so 2 or more times day. Most doctors recommend for diabetics to check their levels before meals and snacks, before bed, and before and after exercise.
17) Consult a doctor and/or dietician about a meal plan that is healthy for you. Some health practitioners provide medical nutrition therapy (MNT) to their patients to meet their dietary needs. MNTs are proven to improve a person's A1c levels while slowing down any diabetes-related complications.

If followed, the recommendations above can truly prevent the incidence and/or severity of diabetes and its associated conditions. Obviously, these recommendations were individually based, placing the vast majority

of responsibility on individuals to combat diabetes. However, *policy, systems and environmental (PSE) approaches* to prevent and/or manage diabetes are also promoted throughout public health to influence people's behaviors and outcomes in favorable ways. Below are PSE and programmatic approaches (many from The Community Guide) that could be adopted and implemented to combat diabetes from a variety of angles:

1) Utilize community health workers to engage community members, connecting them with pertinent healthcare information and services. This strategy is proven to improve glycemic control and weight related outcomes among those with an increased risk of developing type 2 diabetes. GRAAHI's Care Connect Program currently uses community health workers.
2) Implement case management strategies (or case managers) to assist diabetics with gaining the appropriate medical care for their illness. This strategy is proven to improve glycemic control among diabetics.
3) Adopt diabetes self-management education (DSME) strategies that teach people the proper ways to manage and control their diabetes in community gathering places (such as homes, churches, barbershops, schools and worksites). Project POWER is an example of this strategy that utilizes churches in the Black community to disseminate diabetes awareness and prevention messages throughout their services.
4) Institute diabetes disease management programs to help diabetics with glycemic control, screening for diabetic retinopathy, monitoring of lipid concentrations and several other biological markers.
5) Promote "combined diet and physical activity" programs or policies using trainers in the clinical or community setting. These trainers would encourage participants to improve their diet and physical activity for at least three months using quality resources.
6) Educate providers and practitioners on cultural and psychosocial factors that hinder Blacks from seeking medical treatment. Improving the cultural sensitivity of providers will help them better relate and treat patients, since patients would feel more comfortable with them.
7) Collaborate with other programs (such as heart disease or stroke programs) that share the same goal of diabetes prevention. Some of these programs may already have strategies that can be assisted or adopted.
8) Examine the local, political environmental for current policies or strategies that may be preventing Blacks or other high-need groups from engaging in healthy behaviors.
9) Advocate for policies that help reduce people's diabetes risk such as policies limiting the availability of sugary beverages in certain settings (such as schools and work sites) or policies providing incentives to employees who participate in worksite wellness programs.

Innovative Strategies to Prevent and/or Manage Diabetes

GRAAHI's Research Department proposes the following, *innovative strategies* to assist the individual, programmatic and policy strategies that are recommended in this paper. Most of these innovative recommendations seek to combat social determinants or factors that may influence the onset of diabetes in indirect ways:

1) Develop and/or better promote recipe books, instructing people how to prepare foods that are friendly for diabetics. Examples include—Eating Soulfully and Healthfully with Diabetes and The New Soul Food Cookbook for People with Diabetes.
2) Create a gaming app with an objective of choosing healthy behaviors and choices to gain points or prizes throughout the game. This game could be targeted towards school-aged children, priming them from an early age to make healthy choices.
3) Develop a social media video to raise awareness and funds for diabetes research and development, requesting people to videotape themselves throwing away unhealthy foods and beverages in their homes.
4) Partner with West Michigan companies and conduct job fairs to employ Blacks who experience the highest unemployment rates in West Michigan. This could consequently reduce unemployment rates among Blacks, giving them a source of income to support their healthcare needs.
5) Advocate for policymakers to improve the safety and infrastructure in low-income neighborhoods. These community improvements could potentially influence the establishment of more businesses and employment in those areas.
6) Develop a culturally-tailored phone app or media campaign that provides community members with visibility to food options that are healthy and affordable in Grand Rapids, Michigan.
7) Create catchy campaigns (using social media sites like Facebook or Twitter) to educate Blacks on diabetes, potentially using personal stories of those who died from diabetes-related complications. This sort of scare campaign is used frequently within smoking cessation campaigns.
8) Use mHealth (or mobile health) technologies to connect Blacks to health information in their homes. This strategy could provide Blacks with educational information on diabetes, including places where blood glucose or A1c levels could be measured.

Closing Remarks and Next Steps

This white paper showcased the real issue of diabetes in this country and Kent County, Michigan, especially for Blacks who experience the illness the worst. Even though many people know the signs, symptoms and complications associated with diabetes, many more individuals lack sufficient information on its deadly nature. As GRAAHI continues its passion and purpose to improve health equity for Blacks and other high-needs groups, it must continue to illuminate key issues such as diabetes to West Michigan citizens, encouraging them to take action to improve their health and the health of others around them. This research strategy is truly important and even more effective, when other organizations (such as nonprofits, healthcare institutions, churches, schools, etc.) institute similar strategies, messages and recommendations to tackle a health issue such as diabetes. Therefore, each individual and/or organization can join the fight and utilize the recommendations in this white paper to better prevent and/or manage diabetes in their surroundings. In closing, GRAAHI plans to develop and disseminate a policy brief on diabetes, providing policymakers with fresh ideas and solutions to prevent diabetes in West Michigan.

Andrae Ivy, MPH | Andrae.Ivy@graahi.org
Emmanuel Gyimah
*Sources for stated findings or data in this paper are available upon request.