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## Impacts of the COVID-19 Pandemic on Black Americans with Diabetes

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## Impacts of the COVID-19 Pandemic on Black Americans with Diabetes

### Introduction

The impacts of the COVID-19 pandemic have been staggering with respect to the Black American population, and yet it is hardly being mentioned with the frequency it so deserves. The first case of COVID-19 being confirmed in the United States was on 20 January 2020. Sixty-three days later, on 24 March, the USA had reached 50,000 positive cases. Four months later, as of the time of writing, at 1430 (2:30 p.m. on the twelve-hour clock) on 24 July 2020, the United States alone has reached a staggering 4 million positive cases. The situation in the US is dire. Furthermore, the distribution of COVID-19 deaths is odd, and doesn't follow standard epidemiological logic, said logic being that if Caucasian people make up about 60% of a population, about the same percentage of Caucasians should have positive COVID-19 cases in a community, and about the same percentage should represent Caucasians who died from COVID-19. Reality does not follow this logic. About 42% of deaths have been Caucasians, and equally striking is the fact that despite making up only 13.4% of the population, nearly 18% of the deaths due to COVID-19 have been Black Americans. This difference is quite staggering; given that the "data set" – in this case being the total deaths – is large, these death proportions should be *far* closer to their population proportions. This begins to unveil the immense disparity between Caucasians and Black Americans.

	Non-Hispanic White	Non-Hispanic AA
Distribution COVID-19 Deaths	53.2%	22.9%
weighted distribution of pop.	42.1%	17.9%
<b>Caucasian population by percent of the US</b>	<b>Black American population by percent of the US</b>	
60.4	13.4	

Figure 1. Chart displaying the disparity between Black and Caucasian Americans. Despite only comprising just over 13 percent of the national population, Black deaths are proportionally higher than they should be. Data retrieved from The COVID Racial Tracker 1 June 2020.

The COVID-19 pandemic has unearthed many issues and inequities such as those mentioned. Not only this, but for hundreds upon hundreds of years, the medical profession has been tailored towards studying the white, male body as the standard (Halas 1979). Overall, more is known about the bodies of those people than other gender and race combinations, yielding the results that medicines work better for Caucasians than African Americans, and also the presumption that women are not educated enough to know their own bodies. From cases such as that of Henrietta Lacks finding her uterine cancer tumor, only to be disregarded by her doctor until it was too late for her, all the way to the present day where female heart attack symptoms are not focused upon as much as that of male heart attack symptoms in first aid training, this has been made abundantly clear throughout the past decades. In mentioning this, there are also the dual phenomena of medical professionals believing African Americans do not feel the same

amount of pain that Caucasians do, going hand-in-hand with medical professionals also believing that African Americans who ask for painkillers are not actually going to use them for pain reduction, but rather to get high or to sell on the street (Hoffman et. al. 2016). This happens to African Americans of all ages, puzzlingly enough. In addition, the phenomenon of iatrophobia is also quite concerning. This, among other things, has helped breed a justified distrust of the medical system.

Inequities of the healthcare system have long been studied, and the current pandemic has only exacerbated these; yet the system and those who maintain it are either unable or unwilling to patch the inequities. Part of this patching, so to speak, first starts with identifying exactly what the problems are. These problems are many, but one critical piece is the degree of chronic conditions occurring in underprivileged populations and being exacerbated by health inequities, particularly Black Americans including both types of diabetes, hypertension, heart disease, AIDS, sickle cell trait or disease. It is quite telling that for Black Americans who have died under the age of 65, the causes of death are similar those commonly associated with white people dying over 65 (Cunningham et. al. 2017). These include chronic diseases, self-reported risk factors (could include smoking, drinking excessively, etc.), and cardiovascular issues.

Many things contribute to these health disparities including – food deserts, reduced access to care and health insurance, lack of a primary care provider, and poor communication with health care providers. For example, food deserts limit access to nutritious food, in turn limiting the volume of vitamins taken in in one’s diet. This reduces the effectiveness of the immune system and harms gut microbiota, in turn negatively impacting health (Conlon and Bird 2014). Reduced access to care creates barriers to timely diagnosis and treatment of conditions until they are substantially worse and harder to treat. In addition, routine care and checkups are

vital, especially for Black Americans. In a study conducted in 2009 on residents over 65 of Allegheny County, Pennsylvania, it was found that the chance one would have a routine checkup were just over 3 times as high if trust in their primary care provider was present. Additionally, Black Americans were two thirds as likely to receive a flu shot in the preceding year, an obviously important preventative part of routine medical care. Other similar trends are noted in this study's data, such as the chance of Black women receiving mammograms simultaneously appearing with greater trust in their doctor, and PSA tests being more likely in men who trust their doctor. As would be expected, these trends continue to occur in similar patterns with having insurance. Conditions and health problems are often thus left until they are seriously threatening to patient's health possibly decreasing the efficacy of treatments due to Black people's distrust of the medical system (Musa et. al. 2009).

However, integrative problem-solving on such a massive issue, even confining the bounds of research to, say, a specific chronic conditions, and how that condition interacts with COVID-19 and systematic inequity, requires an acknowledgement of the fact that these issues exist is just the first step of many. Thus, taking it a step further and investigating how these problems can be solved at the root of the problem is just as important, possibly even more so. This review will explore how system health inequalities in the USA have led to disproportionate rates of positive cases and deaths from COVID-19 in the Black community. First, we will examine the biology of SARS-COV-2, detailing the impacts of the disease. Then, we will investigate the connection between co-morbidities and COVID-19. Then, we will examine how systemic racism can lead to chronic condition, specifically looking at the relationship between food deserts and diabetes. We will close by proposing policy changes based on theories of

backwards- and forwards-looking justice that could begin to address these issues, given careful and deliberate implementation.

## Literature Review

### Section I: COVID-19

#### Subsection a. SARS COV-2

##### Molecular biology

The pathway of an infection is, quite obviously, an important part of determining why a pandemic is affecting some people more than others, as this can help determine what areas of the body the virus attacks, and subsequently help ascertain what comorbidities might increase the severity of an infection. From what scientists have determined, SARS-COV-2 is a virus that attacks parts of the respiratory and cardiovascular systems, including outer cells of the lungs, kidneys, intestine, and blood vessels. It binds to these cells by molecules such as angiotension-converting enzyme 2, or ACE2. This molecule is increased by the presence of ACE inhibitors and angiotensin type-I receptor blockers, or ARBs; such molecules are used to treat cardiovascular complications of both types of diabetes and hypertension. As a result, those suffering from such conditions and treating them with drugs that release or increase the presence of these molecules may possibly increase the severity of a COVID-19 infection. (Fang et al 2020).

##### Cytokine Storms

One especially interesting and deadly complication of COVID-19 is called a cytokine storm. Cytokine storms are defined as an immune system reaction, or even overreaction, to an

infection in the body. Usually, in response to an infection, the immune system will release cytokines into the blood where these cytokines get directed to the site of infection, helping to signal immune cells where to go, what to do, what to attack, and so on. However, in a cytokine storm, the immune system releases too many cytokines, hence being termed a storm. This overwhelms the body, confusing it and causing more problems than it solves; these include inflammation and fever, and in some cases the cytokine storm may overwhelm the body to the point where it shuts down. This can happen in cases of COVID-19 and does so often enough to warrant concern among the scientific community and the public. As a matter of fact, more severe cases of COVID-19 are associated with cytokine storms occurring, and heightened levels of ferritin in the deceased as compared to survivors of COVID-19 suggesting that hyperinflammation due to the virus' presence is partially to blame (Mehta et. al, 2020). It is not known whether immunocompromised individuals suffer more often from cytokine storms or whether they suffer from more severe cytokine storms. At the very least, since SARS-nCOV2 attacks the respiratory and cardiovascular systems, it may be a logical conclusion that the cytokine storm focuses on these areas more than a systemwide cytokine storm, and may possibly cause faster organ failure in these areas as a result. This would be especially true in cases of individuals suffering from coronary artery disease, asthma, or diabetics with health complications due to poor control and maintenance. As a result, this might show an increased rate of mortality in Black American individuals from cytokine storms over Caucasian Americans due to Black Americans being at higher risk for developing or worsening such conditions because of systematic oppression. However, this is mostly conjecture based on biological plausibility and nothing more, as no scientific papers could be found supporting or refuting this

theory, most likely because this is all still very new research, and has yet to be expanded upon to this level of specificity.

### Subsection b. Co-Morbidity and COVID19

#### Chronic conditions

A summary of diabetes to be studied in tandem with SARS-CoV-2 is warranted, as it cannot be assumed that everyone knows what this disease is and how the virus' interactions with the body's immune system might affect the individual impacted. Diabetes is an endocrine autoimmune disease, meaning that the source of the disease occurs within the pancreas, and has definite and long lasting impacts on the immune system, some of which are caused or exacerbated by the immune system malfunctioning in some way.

#### Diabetes

Diabetes is caused by one of two things: either a lack of insulin, due to pancreatic beta cell death, which defines type I; or insulin becoming increasingly less effective, which defines type II. In both types, chronic hyperglycemia can become an issue over time if it is not monitored and maintained at a safe level (usually around 100 mg/dL or 5.6 mmol/L). This is because over time, the presence of glucose in the blood causes glycation. Glycations are molecular interactions between amino acids and monosaccharides involving these monomers creating covalent bonds with each other. The more monosaccharides present in the blood, the more glycation that happens. Since blood is everywhere in the body by an obvious necessity to transport oxygen, nutrients, and energy sources, these biochemical interactions can also, by extent, happen anywhere in the body, from the neurons of the brain down to the capillaries in the feet. As these chemical reactions occur, the collagen and connective tissue that supports the body begin to

stiffen and become less effective. Neurons start malfunctioning, and organs become less effective at their jobs. This can lead to several complications given enough time. Such complications are numerous, and quite debilitating to any unfortunate enough to suffer from their effects. These include peripheral neuropathy, numerous sexual difficulties, kidney damage, and numerous mental health conditions. Peripheral neuropathy constitutes pain or numbness in the extremities, such as the hands and feet, which can then be exacerbated by injuries if the diabetic is unaware of the injury, possibly resulting in infection and gangrene. Mentioned sexual difficulties can include erectile dysfunction in males, difficulty or even inability to become pregnant in females, decreased fertility in both sexes, and far more (Esposito, Maiorino, Bellastella 2014). Kidney damage and even kidney disease can develop as a complication of mishandled diabetes, which happens more often in minority populations (Osama et. al. 2016). Several mental health conditions occur in tandem with both types of diabetes, including major depressive disorder (MDD), generalized anxiety disorder (GAD), and a variety of eating disorders (Robinson, Luthra, & Vallis, 2013).

There is a lot of data to be had on the relationships between these diseases and the comorbidities they have. Take, for example, the phenomenon of depressive and anxiety disorders occurring in diabetics of both types, likely partially due to having to constantly deal with the disease and societal pressures. It has been shown that when diabetes and mental health issues occur simultaneously, the mortality rate rises quite significantly for impacted patients. Despite this, there was very little in terms of comprehensive, system-wide psychological support for diabetics in their support teams in the UK (Lloyd 2010). This is a likely phenomenon as well in the United States, given the fact that the healthcare system can be quite patchy depending on one's socioeconomic status (SES) and access to insurance. There is a similar phenomenon

associated with coronary artery disease; people who have the condition have a higher chance of having developed depression (Balcan et. al 2018). Similar conditions are also associated with asthma as well: those with asthma are more likely to have depressive disorders, anxiety disorders, and alcohol use disorders (Scott et al 2007).

All these diseases are linked to COVID-19 in one way or another, but on what level and how these interactions occur on a molecular level is important. Either type of diabetes can severely impact both respiratory and cardiovascular systems, due to hyperglycemia and the resulting glycation. This happens especially in cases of diabetic ketoacidosis (DKA) where hyperglycemia becomes sustained for long periods of time along with levels of ketones, incurring further damage to the human body due to pH changes caused by the presence of these ketones. The combination of these causes damage to arteries, veins, and capillaries, causing decreased ability to transport blood. Coronary artery disease also contributes to some level of damage and blockage in arteries, as it also becomes more difficult for blood to be transported through said arteries. Asthma contributes to respiratory complications due to inflammation and obesity, among other factors. SARS-nCoV-2 attacks different parts of the respiratory and cardiovascular systems, exacerbating all three conditions and amplifying their effects, especially so if pneumonia is developed as a complication of the infection. Pneumonia is but one of many complications to occur in cases of COVID-19 which increase the severity and mortality rate of cases.

## Section II: Disproportionate Impact of COVID19 on Black Community

### Subsection a: Racism and Healthcare

## Iatrophobia

Iatrophobia is defined as the fear of medical treatment; and while the Caucasian layman may be confused about why, as doctors have only ever helped them and anyone they have known, this has not always been the case. African Americans as a people experienced medical experimentation for many decades in the 18<sup>th</sup> and 19<sup>th</sup> centuries. Examples of physicians that did so include J. Marion Sims, called “the father of gynecology” for his experimentation on enslaved women, and slaveowners as famous as Thomas Jefferson, who experimented on his slaves with smallpox inoculation, among countless other examples. These experiences were burned into the African American people’s consciousness, teaching them that physicians are untrustworthy figures to be feared and avoided, lest they use African American patients for medical experimentation. As a result, this negatively impacts African American populations in multiple ways. For example, more obvious impacts would be that African Americans don’t get as much access to medical care due to distrust of the system, and when they do get care, they are less likely to follow and trust medical advice. Less obvious impacts include the fact that African Americans are less likely to participate in clinical trials, therefore limiting the amount of data that companies and governments can get on how certain medicines interact with African American bodies and how successful those treatments are (Washington, 2008). Therefore, data cannot be gathered on Black American populations until they go to the doctor for treatment and the doctor gives the regular treatment, only to find that it doesn’t work as well or as intended as compared to Caucasian patients. Subsequently, doctors may have to wait for years to acquire enough clinically significant data to suggest that the treatment in question does not work as well for African American populations, depending on the condition and its rarity. In addition, there are fears amongst the Black American community that their bodies would be experimented on,

much like Black Americans' bodies have been many times in the past. In turn, this increases the amount of time that patients would have to wait for an effective treatment. This can also be seen in organ donation; Caucasians are far more likely than Black Americans to be organ donors. As a result, this deprives Black Americans of organ donations, as not only do organ receivers need to have donations that match their blood type, they also need donations that match their race as closely as possible; otherwise, the possibility that the organ is rejected by the body increases (Mcnamara et. al. 1999).

This self-repeating cycle that iatrophobia helps create deprives African Americans of the help and treatments they so rightfully deserve as humans, but without willing participants, this becomes significantly harder. Some diseases and conditions are also simply far underfunded – for example, take sickle cell trait and sickle cell disease (SCD). Despite there being a higher number of people with sickle cell disease than cystic fibrosis (CF), there are more resources being diverted to CF (Farooq et. al. 2020). There are far more publications for CF than SCD, about twice the number, and there are many new listings of CF drugs and clinical trials, contrasted with zero drugs being approved to treat SCD between 2010 and 2013. The compounded effects of these inequities – vitamin deficiencies, limited healthcare access and insurance coverage, being required to know and advocate for oneself much more than should be necessary, dealing with a higher degree of chronic conditions, and treatments being less effective for certain diseases – confers an extreme degree of stress on the body, aging the body and stifling cell repair and growth exponentially. The molecular process by which this occurs is called oxidative stress suppression (Liguori et. al. 2018). This process takes place when free radicals are released into the body because of several reasons, among them being an unhealthy diet, increased cortisol levels due to stress, and exposure to pollutants, among several other things.

Free radicals are particles that should be neutral but have donated or accepted electrons to progress a reaction in the body – take oxygen for example. Oxygen is often touted as an electron donor in the process of producing glucose; however, after oxygen has donated electrons to progress the reaction, it needs to find electrons to replace those donated to become stable again. Free radicals will stabilize themselves by any means necessary, and this means that they could oxidize or reduce important molecules like DNA, rDNA, folate, and so on (Liguori et. al. 2018). As a result, the combination of factors causing high degrees of stress for African Americans puts their health at great risk because of systematic inequality, along with some of those stressors being cause for significant concern on their own. This perfect storm of factors has been long acknowledged, and yet, comparatively little has been achieved for African Americans in terms of the healthcare system and its inner workings. This systematic inequity, coupled with a pitifully incompetent federal response to COVID-19, has helped bring this issue into the limelight with the unfortunate and unnecessary deaths of many African Americans.

### Privilege and Healthcare

Many are familiar with the concept of privilege, especially in the context of white privilege; as such, it is often misjudged and ill-defined, often garnering the reputation that it carries a connotative meaning that one has never suffered whatsoever. This is to the contrary; a white man with type II diabetes certainly encounters suffering in his everyday life. This suffering, however, is not borne of ages-old systems built into the system to debilitate him and his family simply because of the indelible fact that he was born white. A Black man with type II diabetes, on the other hand, suffers doubly; not only does he suffer what the white man with type II diabetes suffers, he also suffers racism at the hands of systems that have been built up over time to disadvantage and wear him and his family down in several different parts of their lives.

This difference in the suffering of these two men – that one suffers doubly, not only because of his condition but also because of his skin color, while the other does not – is an example of white privilege at play that is in every facet of society.

#### Food and Medical access as an Healthcare Issue

On a similar note, there is also the idea of healthcare privilege. To explain this concept, consider the following hypothetical – a man living with type I diabetes has lived with insurance all his life. His father works at a prestigious pharmaceutical company that grants good insurance to its workers, and as a result the type I diabetic has never had a prescription denied on account of insurance. He has never had to worry about a shortage of insulin, test strips, needles, or anything else he might need. He doesn't need to worry about a lack of access to healthy food, allowing him to mitigate the bodily damage of his condition through his diet. This is healthcare privilege. On the other hand, consider the case of Alec Raeshawn Smith (Sable-Smith 2018). Alec turned 27 at the tail end of May 2017, meaning that he no longer qualified for staying on his mother's insurance plan. He was working a full-time job at this time that did not provide employer-provided healthcare, and would have to foot the bill on the massive deductible he would owe the company before starting to receive coverage, or alternatively try to pay for insulin out of pocket. Alec was found in his apartment on June 27, 2017, his body unmoving and cold, as he died from DKA (Sable-Smith 2018). This man did not have healthcare privilege, and he paid the ultimate price for being poor. One must recognize one's inherent privilege if on insurance and healthcare is readily available to effectively attempt to stymie the caste society that has developed in the United States.

#### Subsection b: Racism and COVID19

## Media Coverage Reinforcing Stereotypes

Racism occurs in all levels of the healthcare and societal structure, and it is more often casual and subtle, slipped into a statement with a shrug of the shoulders, as opposed to being outright and brazen. Examples are abundant, even with respect to such a narrow topic, and it does not help that it is being driven by the few trusted officials from the current federal administration. On April 14, 2020, Dr. Anthony Fauci summarized that while what is happening to the African American population is very sad, there's essentially nothing that the healthcare system can do with respect to these individuals other than try to supply them with the resources their bodies need to fight the infection and hope for the best. While the fact that he is advocating that at-risk populations need to be given resources is appreciated, the underlying racism certainly is not. To drive the narrative that the underlying conditions responsible affecting at-risk minority populations cannot be addressed is not only racist, it is also irresponsible and wholly ignorant of the social and health inequalities African Americans face. It is also, or at the very least should be, far below his station because tens, probably hundreds of millions of Americans trust and respect this man. That he felt comfortable saying this and faced little backlash for it is unacceptable, and yet illustrative of the problem facing the system when individuals do not actively focus on being anti-racist. Another example is that of Surgeon General Jerome Adams repeating classical racial stereotypes, despite being a self-described African American born poor the very next week after Fauci's comments. While being one of the sole Trump administration officials constantly addressing and working on understanding the impacts of COVID-19 on African American communities, he encouraged communities of color to fight the disease and avoid substances such as tobacco, drugs, and alcohol. As with Fauci's comment, this ignores the health disparities that are far more likely to affect such communities than a few drinks of alcohol or anything

comparable. That an African American man, prediabetic and struggling with hypertension, could repeat such gaslighting comments that have been used countless times to disenfranchise African Americans, almost perfectly illustrates the phenomenon of systematic racism: it doesn't need to be a Caucasian man propagating it. It certainly can be, and often is, but the fact remains that people of color can just as easily do so as well, once they have been indoctrinated into "the white life".

### Infection and Death Rates

The difference between the infection and death rates are staggering, especially in terms of who is getting infected, where, and how drastically different the death rates are for different counties and races. Looking at a New York Times dataset, accessed through [The COVID Racial Data Tracker](#) launched by *The Atlantic*, detailing each county's infection and death rates, and the highest ethnic population in each county, the difference is indeed staggering. The counties with the five highest infection rates follow common sense epidemiology, in that the most common ethnic population of the nation, being Caucasian, has the highest rates of infection. The death rate, however, is far different; the counties corresponding to the four highest death rates are predominantly African American (+60%) (COVID Racial Data Tracker 2020). Obviously, this is quite puzzling, as predominantly African American counties are far rarer than predominantly Caucasian counties, so it would make sense to have most or all the leading counties in death rates also be predominantly Caucasian. To further complicate the matter, the counties with the highest infection rates and the highest death rates are not the same. The four counties with the highest infection rates are relatively spread out – two are in Tennessee, one is in Nebraska, and one is in Minnesota. Whereas four of the counties with the highest death rates are not only predominantly African American, but they are also all in Georgia, three of which are in the southwestern portion

of the state, near the border with Alabama. The other county is in the northeastern portion of the state. The predominant question, then, is why? Why are all four in Georgia, three of which are clustered together? There are several pieces of the puzzle that factor into this puzzle across these four counties, including a higher poverty rate, being mostly high school educated, and decreases in population all around 10% from 2010 to 2019 as people try to get out. This depletes the counties of people that will participate in its economy, lower household income than the state and national averages, and more elderly in the population than is average for the state.

### Healthcare Demographics

In a cohort study, it was observed in Louisiana that not only are there disparities regarding the death rates of African Americans versus Caucasian Americans from COVID-19, there are astounding differences between both populations in terms of other data as well. Among these differences were that African American patients were three times more likely to have Medicaid as Caucasians, twice as likely to live in low-income areas, and more likely to present with symptoms of COVID-19. More African Americans had acute renal failure, possibly more commonly known as acute kidney failure, occurring when the kidneys become unable to filter toxins from the blood, and said toxins build up over time. Additionally, over 80% of patients admitted to the ICU were African American and over 80% of patients receiving ventilation were African American as well. Just over 70% of patients who died in the hospital were African American, and twice the percentage of African American patients who died received ventilation as Caucasians who died in the hospital (Price-Haywood et al 2020). So, what does this mean, exactly? Well, for one it reveals the fact that the focus in healthcare is centered entirely too much on treatment, and this has been evidenced several times over in several places all around the country, even before the COVID-19 pandemic. The healthcare system does not place the level of

priority of prevention anywhere near where it should be as a whole; the only place it is even present is in high quality private healthcare, and data even suggests that Caucasians are systematically prioritized, as after adjusting for factors relating to SES (socioeconomic status), quality of insurance, and such, African Americans still have worse outcomes (Kennedy et. al., 1998), (Rooks et. al., 2008). Therefore, it is reasonable to think that even with globalized healthcare, this problem would still exist, because there still would be a social hierarchy on a systematic level. Data out of the United Kingdom confirms this.

The data out of the UK previously referred to is from the Whitehall studies done in the late 60's by a Sir Michael Marmot. These studies followed approximately eighteen thousand men for two years, aged anywhere between forty and sixty-nine, and were divided into four classes: Administrative, Professional/Executive, Clerical, and Other. Additionally, these men were also divided up by how many years of follow-up they had. The results were staggering: Administrative had the best overall survival rate, almost by far, and survival rates went down as class status went down (Sreenivasan 2007). Even adjusting for age and other risk factors, this hierarchy of health stayed the same. Given the fact that Marmot's data set is massive and that the NHS had been in place for eighteen years by the beginning of his study, it's most likely fair to say his data are quite strong, and indicate inequities with healthcare that goes deeper than the public versus private healthcare debate here in the States. These inequities are partially explained by what are called the social determinants of health, and include several factors, among them what jurisdiction a person lives in (state, city, zip code, etc.), SES, level of education, race, ethnicity, gender identity, sexual orientation, and many, many more.

### Section III. Recommendations

#### Subsection a. CDC Guidelines

One of the easiest answers to the inequity of health society has access to in the current pandemic is strictly adhering to CDC guidelines. To specify, people should be wearing masks when in public and physically distancing, putting at least ten feet in between each person. Additionally, it is advisable to keep recreational activities to a minimum and only go outside of the house to exercise. This helps protect not only individuals, it helps keep the spread of the virus to the bare minimum and thus helps keep positive cases as low as possible; this is one of many examples of practices that contribute to “flattening the curve” in order to prevent or decrease the severity of a possible collapse of the healthcare system due to high volumes of positive cases. It also helps protect healthcare workers and essential workers, a significant portion of the latter being Black Americans. Protests should be adhering to guidelines as well, distancing people physically and having all protesters wear masks. That is not to say that protests should stop for the sake of public health; it is extremely important to keep protesting and keep putting pressure on local, state, and federal governments to do what is right and equitable. Without this pressure, there is very little guarantee that governments will freely do what is right for Black Americans.

#### Subsection b. Reparations

There are many candidate recommendations to be had regarding equitable racial justice, treatment, social adjustment, and so on. One of the many possible policies being talked about with renewed attention is reparations. This subject has been put forth in many forms: anything from cash reparations to making food and housing security more equitable across socioeconomic classes. While a noble cause, reparations in some forms may continue to contribute, or at the very least minimally stall, the systemic racism in the United States. Consider, for a moment, the metaphor of putting a butterfly bandage on a compound fracture. This illustrates what cash reparations might do to help Black Americans, conditional to how sizable the reparations are.

Small cash reparations would help in some ways, but over time, the situation will continually worsen or stay the same and it will become evident that small cash reparations did very little if at all to help fix the situation. On the other hand, large cash reparations may make improvements, but would be difficult to achieve politically and might not make as much an impact as desired. A third option that would be politically feasible and impactful is to help fund currently underfunded communities in establishing farmers' markets, equitable housing, and bringing businesses and jobs into devalued, poor Black communities. Measures such as these would go leagues farther in determining the health of poor Black Americans and their children.

#### Reparations as a long-term solution

There is evidence that turning a food desert into a food oasis has significant positive effects on the population of the area. In one study, it was found that childhood obesity rates were negatively related to the increase of grocery stores with fresh fruits and vegetables and food (Howlett, Davis, Burton, 2015). Quite obviously, this would directly reduce the number of cases of type II diabetes, as obesity directly contributes to the chance to have type II diabetes through reducing insulin sensitivity. In addition, children need as much nourishment and access to healthy food as possible to support their health and facilitate proper growth. Reparations are often talked about as an answer to issues created in the past; in this paper, reparations will both be discussed as solutions for past issues and preventative measures to avoid future issues.

#### Subsection b, Food Deserts: An Opportunity for Justice

By far, the data mentioned thus far supports turning food deserts into food oases. This would help address problems that are shared across various chronic conditions, especially both types of diabetes, as well as COVID-19. There is evidence that, in fact, turning food deserts into

food oases has positive impacts on the average population health by reducing childhood obesity rates (Howlett et. al. 2015). As a solution to the problem of food availability this is both backwards- and forwards-looking justice. This effectively means it addresses those that have been wronged in some way in the past while simultaneously improving conditions for future upcoming generations.

### Backwards-looking Justice

What does one mean by the phrase “backwards-looking justice”? It is essentially what the colloquial meaning of justice is; righting a wrong done to someone and attempting to repair damage done. Take, for instance, the plight of a Black American diabetic; this individual may live in an economically depressed area, having little access to healthy food and any semblance of decent quality healthcare. The nearest healthcare facilities are understaffed, undertrained, and underfunded, leaving resources stretched thin, and as a result, people must make do with what they have available – for both patient and provider. Mental illness takes a backseat as dealing with the “essentials” alone becomes a monumental task for this facility and others nearby in similar situations. This individual is forced to either go without or get cheap, inferior brands of the medicine they need to survive, whether it be insulin for a type I diabetic or various pills for a type II diabetic, and as a result, this individual’s short- and long-term health is endangered. Backwards-looking justice for this individual would constitute making every attempt humanly possible to right the damage done to their life and family. Examples might include some of the interventions proposed above to address food inequality, lowering the prices of medication overall, and actively taking steps to address racism in each of the areas affecting this person’s life and improving it going forward. Examples specifically tailored to reduce the impacts of the food desert specifically should include ensuring that multiple options for public transport to food

markets are available and feasible for residents to use with little to no difficulty; community gardens; locally owned grocery stores and farmer's markets, and incentives for establishing and using them, and many more (Mader, Busse et. al. 2011).

### How to fund these Interventions

Of course, the money to fund these sorts of ventures must inevitably come from somewhere, and the idea that the money should come from individuals whose families have benefited from these racist systems is quite fitting. Specifically, there should be higher estate taxes on those who have lived in the same place in those cities for more than 40 years and have continually made an income exceeding \$175,000 for at least 20 years at a rate of 3.5% the current market value of all possessions to be transferred upon death. This would apply to anyone who lists a mailing address within the city limits. However, this would have to be implemented on a city-by-city basis, by city officials intimately familiar with the city and its history. It is to be expected that there would be individuals that will somehow slip through the cracks, so to speak, in one way or another. This is, unfortunately, unavoidable, and it is possible that trying to address such situations could possibly negatively impact the middle class and increase the gap between the poor and the wealthy. This would try to ensure that the families who have lived in these cities for a long time and benefited off the hard work of these communities would have to start paying those communities back. Such a measure would go towards helping push equity and equality as a necessary value in society, which are necessary for a healthy and functioning society. In this case, the full sum of these taxes would go towards funding the measures proposed.

### Forwards-looking Justice

What does one mean by the phrase “forwards-looking justice”? Put simply, forwards-looking justice is a form of justice often associated with utilitarian ideals, that one ought to get the most out of a preventative solution to a problem as possible. While one is solving a problem that will impact others in the future, one might as well do so for as many people as possible. Take the previous hypothetical of a Black American diabetic. An example of forward-looking justice is to implement community-wide interventions like investing and bringing businesses into this community, building up its economy and bringing jobs into the area. Thus, fewer people will have been negatively impacted like this individual by a system built to take advantage of them. However, there are many problems with this theory of justice. It may leave behind those that are in the minority, those that have been wronged in the past or been given far less than they deserve, and as a result this possibility of leaving minorities behind obviously has to be addressed. To continue with the hypothetical about the Black American diabetic, consider a Black American diabetic in that situation already, while the community implements the forwards-looking justice solution. The Black American diabetic already in this situation gets no justice and is not paid any dues for having been so taken advantage of. Obviously, this would not be fair to those who have already been disadvantaged by the systems driving society – healthcare, the service industry, etc. However, there are positive effects to be had as well from forward looking justice. For example, reducing or even preventing future suffering before it happens is the best way to fix a problem. Furthermore, interventions using this theory have made a lot of positive impacts across a community. Thus, there are debates on where the focus should be put in terms of backwards-versus forwards-looking justice. The ideal scenario, then, is one where both types of justice can be simultaneously enacted, as the result would be a solution that satisfies both parties and thus garners far more support.

### Subsection c. A Combination of the Types of Justice

The intervention of turning food deserts into food oases is one that combines both forwards- and backwards looking justice. This is so because of the immutable fact that an improved diet will help everyone. From an otherwise healthy teen, to a middle-aged prediabetic, to an elderly cancer survivor, a healthier diet will improve all their lives going forward. In this way, it is both forwards- and backwards-looking. It is forwards-looking in the sense that it takes a community currently deprived of healthy food and supplies that need, improving the average health of that community and getting the most improvement per individual. It is also backwards looking in that it acknowledges the pain and suffering older generations in the community have come to know as a result of being deprived of healthy food. Those with access to healthier food and higher incomes are overall healthier than those who do not have access to either (Gordon et. al. 2010). Furthermore, interventionist strategies improve the health of a community overall in terms of both short- and long-term health (Howlett et. al. 2015).

### Addressing Objections

#### Objection a. Justice Should Not Address Past Deficient Receipt

One of the objections that need to be addressed is the view that justice should not and does not address deficient past receipt. Take socialized healthcare, for instance; there is pushback on the suggestion of supporting the impoverished, one of the many arguments being that the government, and by extension, society, has not wronged them by giving them a lower position in the class system. Regardless of how true this might be, it argues against addressing past deficient receipt for effectively lower-class populations, continuing the trend of this population being given less access to multiple necessary resources for a healthy lifestyle. These individuals do in

fact deserve justice, as not only are they impacted, but generations following them are negatively impacted as well, including the possible infliction of type 2 diabetes on following generations as a result of an unhealthy diet (Barrès, Zierath, 2016). In this example, one can see that many individuals, including but not limited to those initially affected, are greatly impacted by this past deficient receipt, possibly even more than a direct wrong. The notion that this issue is as bad as or worse than a direct wrong is supported by the history of redlining. Redlining was the US governmental practice of legally segregating neighborhoods by race throughout most of, if not the entirety of, the twentieth century by continually and systematically denying minorities, especially Black Americans, of goods and services in order to separate and confine them to certain areas of cities. After redlining continues to occur in a certain area, the estate value of houses in the area stagnates and even possibly goes down. Family wealth does the same, and as a result businesses in the area start relocating to other neighborhoods in order to continue profiting. Not only this, but there are also many examples of services than Caucasians could take advantage of far more than Black Americans, of which mortgage support, the GI Bill, and healthcare are only a few. It was no unintentional mistake of the system that these economic benefits were far more available to Caucasian Americans. Furthermore, interventions that would help a food desert turn into a food oasis would help Black American diabetics more than non-Black diabetics or non-diabetic Black Americans. Thus, these people deserve recompense for having been systematically disadvantaged and taken advantage of.

#### Objection b. Creating Food Oases Does Not Do Enough

Another objection is that turning food deserts into food oases does not address backwards-looking justice enough; that in terms of truly backwards-looking justice, individuals wronged in the past should receive more benefits than those who have not, alluding to the

possibility that the above recommendations do not do this. As a matter of fact, it is logical to deduce that the individuals wronged in this situation that have diabetes and are Black do receive more benefits than non-Black diabetics and non-diabetic Black Americans. There are two reasons. For diabetes, recall a paper used above that references childhood obesity. This paper finds that childhood obesity rates go down after implementations to turn food deserts into food oases (Howlett 2015). A reduction in childhood obesity across a community would directly reduce the mortality from all types of diabetes. As for Black Americans, logic should follow that if these populations are supplied with the availability of healthier food, the means to buy that healthier food, and the education and knowledge for why that food is healthier, then in theory, food insecurity rates should drop for Black Americans. Thus, Black diabetics would benefit the most from interventions built around these core concepts.

#### Objection c. Availability vs. Culture

Another objection is that the diets of impoverished individuals have more to do with their home culture and less to do with food availability. This assertion falls quite flat once one has realized that diets based on the ancestral culture of impoverished individuals were usually based off of gathering and harvesting fruits and vegetables along with a good deal of hunting and possibly fishing based off the availability of nearby bodies of water (Jablonski 2012). This stands in stark contrast to the diets of impoverished individuals high in starchy carbohydrates and processed foods which remove a large deal of vitamins, fiber, and protein from food groups such as wheat and grains. This is thereby an ignorant, racist, and wholly foolish assertion based off nothing more than an absence of knowledge and a lack of drive for it.

#### Objection d. Not Worth It

Another objection is that this intervention is not worth the trouble, or that the time, effort, and money required would be better spent elsewhere. Quite to the contrary, actually; data supports that the lives of those impacted by an intervention to turn food deserts into food oases would be improved overall. Also, there are several communities across the United States in which this happens, from Philadelphia, to Atlanta, Houston, Phoenix, and Milwaukee, so there are ample places where this could be implemented.

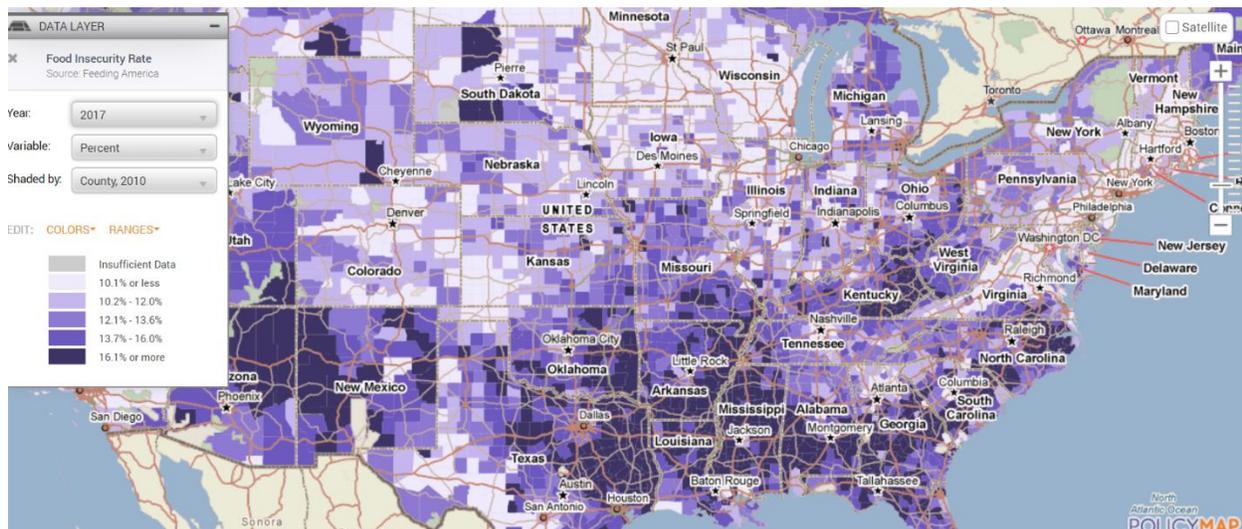


Figure 4. A map detailing food insecurity throughout the United States broken down by county. Retrieved from the website [policymaps.com/maps](http://policymaps.com/maps) on 22 July 2020.

Furthermore, completing such an implementation across several communities could revitalize the economy in each, making such an intervention almost a sort of investment. This is in the fact that although completing this intervention may not have immediate, tangible impacts beyond health, over time, the improved average health across communities helps them to work more productively and lead better lives. Not only do these interventions do so, it's also possible that future health crises similar to COVID-19 could be mitigated by these measures.

## Conclusion

Addressing food deserts across the country is a difficult, although not insurmountable, goal to reach. However, much can be done in near- and long-term health for Black Diabetics across the country if actions are immediately taken to implement these interventions in food deserts. Furthermore, other health challenges will also likely be addressed to some degree by improving the availability of healthier food in food deserts. These future challenges could be quite varied; particularly bad influenza seasons, national health crises, national disasters, or even the struggle of living in a food desert and that wearing down the body are all possibilities. It is inevitable that the United States will without fail face another epidemic, pandemic, or similar health crisis, and having no improvement in food deserts across the country will result in negative impacts for future individuals. Fortunately, these negative impacts are preventable to some degree, but action must be taken promptly and quickly.

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