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George Rice

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COVID-19 & FOOD INSECURITY: HOW THE COVID-19 PANDEMIC HAS EXACERBATED FOOD INSECURITY AND WILL DISPROPORTIONALLY AFFECT LOW INCOME AND MINORITY GROUPS

GEORGE RICE*

INTRODUCTION

The COVID-19 pandemic has highlighted several health disparities that exist between primarily White, affluent populations and low-income and minority communities.¹ While diet-related health disparities have come to the forefront during the pandemic, they have existed for generations, and can be attributed, in part, to systemic inequality in food access across demographic groups.² This comment will examine the elements that create food access problems, and provide insight as to why low-income and minority groups struggle most with food insecurity.³ As this comment will demonstrate, the health conditions associated with food insecurity have caused the COVID-19 pandemic to disproportionately impact low-income and minority communities when compared to more food secure populations.⁴ Black and Hispanic Americans, and low income households, are disproportionately food insecure when compared to the general population;⁵ and as a result, the disparate health effects associated with food insecurity will cause low-income and minority groups to bear greater burdens during the COVID-19 pandemic.⁶

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*JD Candidate 2022, University of Maryland Francis King Carey School of Law. I dedicate this comment to my mother and father Laura and John Rice. It is thanks to both of you that I have become the man I am today. You both have shaped my curiosity and yearning for truth. I also dedicate this to my fiancé Caroline Pritchard. You have shown me the beautiful world beyond my own small bubble and that everyone needs compassion, care and kindness. I love you.

¹ Gianna Melillo, *Combating COVID-19 Racial Disparities*, (Dec. 23, 2020), AM. J. MANAGED CARE (ajmc.com).

² *Food Justice*, FOOD PRINT, <https://foodprint.org/issues/food-justice/> (last visited Dec. 30, 2020).

³ *Id.*

⁴ See *supra* note 2; see *infra* notes 13, 15, 16 & 128.

⁵ ALISHA COLEMAN-JENSEN ET AL., HOUSEHOLD FOOD SECURITY IN THE UNITED STATES IN 2019 310 (2020).

⁶ Eleanor Bird, *Food insecurity in the US increasingly linked to obesity*, MEDICAL NEWS TODAY, (Sep. 24, 2020), <https://www.medicalnewstoday.com/articles/food-insecurity-in-the-us-increasingly-linked-to-obesity#A-critical-public-health-concern>; Danielle Xiaodan Morales et al., *Racial/Ethnic Disparities in Household Food Insecurity During the COVID-19 Pandemic: A Nationally Representative Study*, 7 J. RACIAL & ETHNIC HEALTH DISPARITIES 2 (2020).

In addition, the pandemic and food insecurity have a reciprocal relationship in that both have an exacerbating effect on each other — food insecurity amplifies the effects of COVID-19 on certain communities,⁷ and at the same time, COVID-19 drives more people into food insecurity.⁸

Food insecurity is defined “as a lack of consistent access to enough food for an active, healthy life,”⁹ and is associated with obesity and other diet-related illnesses.¹⁰ Food insecurity can be attributed to food deserts and food swamps, which tend to correlate strongly with communities of color and poverty rates.¹¹ Food deserts are areas that have a lack of healthy food options, while food swamps are areas where there might be healthy food options available, but these healthy options are choked out by an overabundance of unhealthy food sources.¹² Cities across the United States are struggling with food access, as large grocery stores have been replaced by small corner or convenience stores and fast food restaurants, which provide necessary, albeit less nutritious, service to urban communities.¹³ The lack of healthy food options for residents of many American cities has led to elevated health issues in low-income or minority communities, including obesity, heart disease and diabetes.¹⁴ These food-related health complications fall hardest on minority and low-income populations, especially during the COVID-19 pandemic.¹⁵ People with hypertension, obesity, diabetes, and heart

⁷ See *infra* Part III.

⁸ See *infra* Part IV.

⁹ *Understand Food Insecurity*, FEEDING AM., <https://hungerandhealth.feedingamerica.org/understand-food-insecurity/> (last visited Dec. 23, 2020).

¹⁰ Liping Pan et al., *Food Insecurity is Associated with Obesity among U.S. Adults in 12 States*, 112 J. ACAD. NUTRITION & DIETETICS 1403, 1404 (2012).

¹¹ Kristen Cooksey-Stowers et al., *Food Swamps Predict Obesity Rates Better Than Food Deserts in the United States*, 14 INT’L J. ENV’T RSCH & PUB. HEALTH 1366, 1366–67 (2017) (stating that “Food Deserts” are defined as residential areas with limited access to affordable and nutritious food, whereas a “Food Swamp” describes neighborhoods where fast food and junk food inundate healthy alternatives).

¹² Jessica Caporuscio, *What are food deserts and how do they impact health?*, MEDICALNEWS TODAY (June 22, 2020), <https://www.medicalnewstoday.com/articles/what-are-food-deserts>.

¹³ Sarah Treuhaft & Allison Karpyn, *THE GROCERY GAP: WHO HAS ACCESS TO HEALTHY FOOD AND WHY IT MATTERS*, at 7 (2010).

¹⁴ Kristie Lancaster, *Beginning a Discussion of Nutrition & Health Disparities*, 93 AM. J. CLINICAL NUTRITION 1161S, 1161S (2011).

¹⁵ See also CDC, *Coronavirus Disease 2019 (COVID-19) Hospitalization and Death by Race/Ethnicity*, at 1 (2020), <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html>. Compared to White, Non-Hispanic Persons, African Americans are over two and a half times more likely to be diagnosed with COVID, over four and a half times more likely to be hospitalized for COVID and have

conditions are all listed as being at increased risk of severe illness from COVID-19.¹⁶ Many studies¹⁷ point to poor diet as the leading cause of obesity, diabetes, and heart disease, meaning a person's diet can have major implications for how their body copes with COVID-19.¹⁸ Food insecurity, which has driven the high rate of diet-related illness in low-income and minority communities,¹⁹ should therefore be considered a major contributor to the disparity in COVID-19 death rates among those same communities.²⁰

Food insecure communities and populations will likely struggle with COVID-19's impact the most, so it is crucial to closely analyze the problem of food insecurity and understand its underlying causes. Part I of this comment will examine food insecurity by studying food access problems presented by food deserts and swamps, including lack of adequate public transportation, reliance on public assistance, and complications in certain zoning codes.²¹ Part II of this comment will examine the health issues presented by food insecurity or food access problems.²² Part III of this comment will discuss COVID-19's medical complications and their interaction with the health conditions caused by food insecurity.²³ Finally, Part IV of this comment will reflect on how the COVID-19 pandemic has exacerbated an already out of control food

slightly more than twice the death rate. *Id.*; see also CDC, *Adult Obesity Facts* (2020), (last visited Oct. 4, 2020), <https://www.cdc.gov/obesity/data/adult.html>. African Americans have the highest obesity rates when compared to other races. *Id.*

¹⁶ See CDC, *Coronavirus Disease 2019 (COVID-19): People with Certain Medical Conditions* (Sep. 11, 2020), <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html>.

¹⁷ Dariush Mozaffarian, *Dietary and Policy Priorities for Cardiovascular, Diabetes, and Obesity*, 133 *CIRCULATION* 187, 189 (2016); see also Mario Kratz et al., *The relationship between high-fat dairy consumption and obesity, cardiovascular, and metabolic disease*, 52 *EUROPEAN J. NUTRITION* 1, 1 (2013).

¹⁸ Maryanne Damasi, *COVID-19 and metabolic syndrome: could diet be the key?*, 26 *BMJ EVIDENCE-BASED MED.* 1, 1 (2021).

¹⁹ See Pan et al., *supra* note 10, at 1405; see also U.S. DEP'T OF HEALTH AND HUMAN SERVICES, OFFICE OF MINORITY HEALTH, *Obesity and African Americans*, <https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=25>, (last visited Mar. 22, 2021) (stating that "African American women have the highest rates of obesity or being overweight compared to other groups in United States[;] [a]bout 4 out of 5 African American women are overweight or obese").

²⁰ Samantha Artiga et al., *Communities of Color at Higher Risk for Health and Economic Challenges due to COVID-19*, KFF (Apr. 7, 2020), <https://www.kff.org/coronavirus-covid-19/issue-brief/communities-of-color-at-higher-risk-for-health-and-economic-challenges-due-to-covid-19/>.

²¹ See *infra* Part I.

²² See *infra* Part II.

²³ See *infra* Part III.

insecurity crisis in low-income and minority communities across the United States.²⁴

I. FOOD INSECURITY & ACCESS- THE PROBLEMS OF FOOD DESERTS & FOOD SWAMPS

A. *Food deserts: lack of healthy foods in low income and minority communities*

The term “food desert” encapsulates the phenomenon shared in many low-income and minority communities, where there is an absence of full-service grocery stores or farmers’ markets and limited access to fresh produce or non-processed foods.²⁵ Unfortunately, food deserts often have an abundance of convenience stores and fast-food restaurants that mainly sell cheap, high-fat, high-sugar, processed foods and offer few healthy options.²⁶ Many low-income and minority communities have also been labeled food swamps, as areas that might have some access to healthy food options but an over-abundance of unhealthy high fat, processed food options.²⁷ Food deserts and swamps are underlying components of a larger issue regarding food access in general.²⁸ Studies have identified five key dimensions of food access as including: (1) availability (adequacy of the supply of healthy food); (2) accessibility (location of the food supply); (3) affordability (food prices and perception of cost); (4) accommodation (adaptation to local needs); and (5) acceptability (people’s attitudes about their local food environment).²⁹ Food access problems have contributed to a disparity of health complications in low-income and minority communities, therefore it is important to understand what ultimately creates the barriers to food access.³⁰

²⁴ See *infra* Part IV.

²⁵ Treuhaft & Karpyn, *supra* note 13, at 7.

²⁶ Treuhaft & Karpyn, *supra* note 13, at 7.

²⁷ Jessica Caporuscio, *What are food deserts and how do they impact health?*, MEDICALNEWSTODAY (June 22, 2020), <https://www.medicalnewstoday.com/articles/what-are-food-deserts>.

²⁸ Kristen Cooksey-Stowers, *Food Swamps, Obesity & Health Zoning Restrictions on Fast Food Restaurants* 16, 17 (2016) (Ph.D. dissertation, Duke University) (on file with Duke Space, Duke University).

²⁹ *Id.* at 18.

³⁰ Kristina Messina, *Barriers in Food Access Contribute to Inequitable Risks of Obesity and Food Insecurity Among Food Pantry Clients*, UCONN TODAY (Oct. 21, 2020), <https://today.uconn.edu/2020/10/barriers-food-access>.

i. *Food access—the food environment and lack of healthy retail options*

A community's food environment can be determined by economic, social, and physical factors, and can influence where people shop for food, as well as the types of food purchased and consumed.³¹ Unfortunately, as a Johns Hopkins study indicates, there are large disparities in the quality of food environments across different income brackets.³² For example, Baltimore City has the highest poverty rate of any jurisdiction in Maryland, and about eighteen percent of Baltimore's population experiences food insecurity, compared to the eleven percent statewide average, while the city surpasses the state wide average in diet-related health outcomes including diabetes, obesity, and high blood pressure.³³ Furthermore, the study indicates that Black Americans are the most likely of any group to live in food deserts or "Healthy Food Priority Areas" (HFPAs) as compared to Whites and Hispanics.³⁴ Food insecurity, however, is not a problem unique to Baltimore, as *Feeding America* estimates over thirty-seven million people in the United States are living with food insecurity, which is about 11.5% of the country's population.³⁵ Locations of food retailers can be a major determinative factor in the overall health of a particular food environment.³⁶

Supermarkets carry the largest amount and variety of food options and as such, their presence indicates a healthier food

³¹ Caitlin Misiaszek et al., *Baltimore City's Food Environment: 2018 Report*, JOHNS HOPKINS CTR. FOR A LIVABLE FUTURE 1 (Jan. 1, 2018), <https://clf.jhsph.edu/publications/baltimore-citys-food-environment-report-2018-report>.

³² *Id.*

³³ *Food Insecurity in Maryland, Map the Meal Gap*, FEEDING AM., <https://map.feedingamerica.org/county/2018/overall/maryland> (last visited Dec. 23, 2020); see also Misiaszek et al., *supra* note 31, at 1 (defining food insecurity as households that lack access, at times, to enough food for an active, healthy life for all household members, and limited or uncertain availability of nutritionally adequate foods).

³⁴ Misiaszek et al., *supra* note 31, at 17. Thirty-one and a half percent of African Americans live in Healthy Food Priority Areas, compared to 11.4% of Hispanics, and just 8.9% of Whites. *Id.* The study refers to food deserts as "Healthy Food Priority Areas" (HFPA). *Id.* at 11. A Healthy Food Priority Area is an area where: 1) The average Healthy Food Availability Index score for all food stores is low, 2) The median household income is at or below 185% of the Federal Poverty Level, 3) Over thirty percent of households have no vehicle available, and 4) The distance to a supermarket is more than 1/4 mile. *Id.* HFPAs are measured by four factors: (1) Supply of healthy food; (2) Household income; (3) Vehicle availability; (4) Distance to supermarkets. *Id.* at 12–13.

³⁵ *Food Insecurity in Maryland, Map the Meal Gap*, FEEDING AM., <https://map.feedingamerica.org/county/2018/overall/maryland> (last visited Dec. 23, 2020) The interactive map shows that food insecurity is highest in the south, particularly Mississippi, Arkansas, Alabama and Louisiana have the highest percentage of citizens living with food insecurity. *Id.*

³⁶ Misiaszek et al., *supra* note 31, at 5.

environment.³⁷ According to the Hopkins study, food deserts or HFPA, are tracts where, among other things, the distance to a supermarket is more than a quarter mile.³⁸ 23.5% of Baltimore City's population lives in a HFPA, meaning access to supermarkets and healthy foods are limited for a significant portion of the City's residents.³⁹ On average, small grocery and corner stores score significantly lower than supermarkets on the Healthy Food Availability Index,⁴⁰ and comprise about ninety-four percent of all stores located in food deserts or HFPA.⁴¹ This study illustrates the dual problem facing many food deserts, which is both a lack of healthy food options and a surplus of unhealthy food options.⁴²

ii. *Food access issues as a result of limited transportation to grocery stores or vendors with healthy food options*

Limited availability of transportation options can be a significant contributor to food access barriers.⁴³ Studies show that people of color are least likely to have access to vehicles, particularly in highly urbanized states like New York and Massachusetts, but also more rural ones like Wyoming and Idaho.⁴⁴ Studies indicate that in almost all

³⁷ Misiaszek et al., *supra* note 31, at 13.

³⁸ Misiaszek et al., *supra* note 31, at 11. Healthy Food Priority Areas are areas where: The average Healthy Food Availability Index (HFAI) score for all food stores is low (0-9.5); The median household income is at or below 185 percent of the Federal Poverty Level; Over 30 percent of households have no vehicle available, and the distance to a supermarket is more than a quarter of a mile.

³⁹ Misiaszek et al., *supra* note 31, at 17. About 146,000 people in Baltimore live in High Priority Food Areas. Misiaszek et al., *supra* note 31, at 17.

⁴⁰ Misiaszek et al., *supra* note 31, at 9 tbl.3. "The availability of healthy foods in food retail stores is one aspect of food access." Misiaszek et al., *supra* note 31, at 7. The Healthy Food Availability Index (HFAI) tool is derived from the "Nutrition Environment Measures Survey for Stores" to measure and assess healthy foods in stores. Misiaszek et al., *supra* note 31, at 7. "The HFAI tool awards points to stores based on the presence of a market basket of basic staple food items, as well as whether there are healthy options available including lean protein, whole wheat grains, low-fat dairy, and produce." Misiaszek et al., *supra* note 31, at 7. "Scores can range from 0 to 28.5, with a higher score indicating a greater presence of healthy foods." Misiaszek et al., *supra* note 31, at 7.

⁴¹ Misiaszek et al., *supra* note 31, at 25.

⁴² See *supra* notes, 40, 41. 94% of all stores located in Healthy Food Priority Areas are small grocery or convenience stores, which offer less healthy foods. So not only is there a lack of healthy food options, but there is an overabundance of less healthy food options.

⁴³ CDC, *Transportation and Food Access*, <https://www.cdc.gov/healthyplaces/healthtopics/healthyfood/transportation>. (Mar. 7, 2014). "A poor transportation system cuts off access to many food outlets—especially for those who do not own a car or have no access to reliable and affordable public transportation." *Id.*

⁴⁴ *Car access: Everyone needs reliable transportation access and in most American Communities that means a car*, NAT'L EQUITY ATLAS, https://nationalequityatlas.org/indicators/Car_access#/ (last visited Oct. 2, 2020).

metropolitan areas, individuals without reliable access to automobiles can reach far fewer opportunities within a reasonable travel time compared with those who have automobile access.⁴⁵ For individuals living in communities struggling with food access barriers, an absence of transportation alternatives ultimately limits the menu to the closest available options, which are often unhealthy foods with low nutritional value.⁴⁶ Transportation access plays a key role in food accessibility, and low-income communities that tend to have lower car ownership rates or only have access to public transportation systems suffer the consequences.⁴⁷

Several cities across the U.S. have insufficient public transit systems to meet the dietary needs of all their residents.⁴⁸ Urban areas, such as Charlotte, North Carolina;⁴⁹ Indianapolis, Indiana;⁵⁰ Baltimore, Maryland;⁵¹ and Washington, D.C.,⁵² all have public transit systems that fail to address the problems presented by food deserts; with bus stations often more than a quarter mile away from thousands of residents, and the travel time to the nearest grocery store exceeding a ten minute bus ride.⁵³ Indianapolis has approximately 236,000 people living in transit food

⁴⁵ Rolf Pendall et al., *Driving to Opportunity: Understanding the Links Among Transportation Access, Residential Outcomes, and Economic Opportunity for Housing Voucher Recipients*, URBAN INST. 3 (Mar. 2014), <https://www.urban.org/sites/default/files/publication/22461/413078-Driving-to-Opportunity-Understanding-the-Links-among-Transportation-Access-Residential-Outcomes-and-Economic-Opportunity-for-Housing-Voucher-Recipients.PDF>.

⁴⁶ *Transportation and Food: The Importance of Access*, CTR. FOR FOOD & JUST. (Sept. 2002), http://foodsecurity.org/policy_trans03_brief/.

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ Xavier Gomez, *Foods Deserts and Transit*, SUSTAIN CHARLOTTE (Aug. 3, 2020), https://www.sustaincharlotte.org/food_deserts_and_transit.

⁵⁰ See Unai Miguel Andres et. al, *Getting Groceries: Food Access Across Groups, Neighborhoods, and Time*, SAVI, 17 (May, 2019), <https://www.savi.org/wp-content/uploads/2019/11/SAVI-Talks-2019-Final-Draft-Digital.pdf>.

⁵¹ Misiaszek, *supra* note 31, at 10, 13, 40.

⁵² ; Randy Smith, *Food Access in D.C. is Deeply Connected to Poverty and Transportation*, D.C. POL'Y CTR. (Mar. 13, 2017), <https://www.dcpolicycenter.org/wp-content/uploads/2019/10/Food-deserts-Randy-Smith-2017.pdf>.

⁵³ See Unai Miguel Andres et. al, *Getting Groceries: Food Access Across Groups, Neighborhoods, and Time*, SAVI, 17 (May, 2019), <https://www.savi.org/wp-content/uploads/2019/11/SAVI-Talks-2019-Final-Draft-Digital.pdf>; Xavier Gomez, *Foods Deserts and Transit*, SUSTAIN CHARLOTTE (Aug. 3, 2020), https://www.sustaincharlotte.org/food_deserts_and_transit; Misiaszek, *supra* note 31, at 10, 13, 40; Randy Smith, *Food Access in D.C. is Deeply Connected to Poverty and Transportation*, D.C. POL'Y CTR. (Mar. 13, 2017), <https://www.dcpolicycenter.org/wp-content/uploads/2019/10/Food-deserts-Randy-Smith-2017.pdf>.

deserts and about 10,500 households living without a car.⁵⁴ For communities without access to public transportation, access to healthy food options is significantly deterred.⁵⁵ Public transit has not successfully solved the food access problems because most existing transit systems are designed to meet commuter needs rather than urban shopping patterns.⁵⁶ Until cities approach public transit systems with an eye toward food access, public transit will continue to underserve the needs of residents in urban centers across the country.⁵⁷

iii. *Food insecurity, Supplemental Nutrition Assistance Program, and reliance on school lunch programs*

Federal programs, such as the Supplemental Nutrition Assistance Program (SNAP) and the National School Lunch Program (NSLP), have sought to eradicate food insecurity.⁵⁸ An estimated 88.9% of U.S. households were food secure throughout the entire year in 2018, meaning they had access at all times to enough food for an active, healthy life for all household members.⁵⁹ The remaining households (11.1%) were food insecure at least some time during the year, including 4.3% with very low food security, meaning food intake of one or more household members was reduced and disrupted because the household lacked money and other resources for obtaining food.⁶⁰ Food insecurity leads low-income households to rely on cheap, low nutritional value foods, which contribute to an increased prevalence of diabetes and obesity among these communities.⁶¹ In 2018, the prevalence of food insecurity declined, for the first time, to pre-recession levels (2007).⁶² Government initiatives such as the SNAP program, designed to combat food

⁵⁴ Andres et al., *supra* note 50, at 17. A transit food desert is defined as areas that require a quarter mile walk to the nearest bus station, and at least a ten minute or 2.33-mile bus trip to the nearest grocery store. Andres et al., *supra* note 50, at 17.

⁵⁵ Andres et al., *supra* note 50, at 17.

⁵⁶ CTR. FOR FOOD & JUST., *supra* note 46.

⁵⁷ CTR. FOR FOOD & JUST., *supra* note 46.

⁵⁸ See generally *Supplemental Nutrition Assistance Program (SNAP)*, USDA, <https://www.fns.usda.gov/snap/supplemental-nutrition-assistance-program> (last visited Dec. 30, 2020); see also *National School Lunch Program*, USDA, <https://www.fns.usda.gov/nslp> (last visited Dec. 30, 2020).

⁵⁹ Alisha Coleman-Jensen et al., *Household Food Security in the United States in 2018*, at i (2019), <https://www.ers.usda.gov/webdocs/publications/94849/err-270.pdf?v=5244.2>.

⁶⁰ *Id.*

⁶¹ Messina, *supra* note 30 (finding that those burdened by food insecurity are known to be at an increased risk of obesity due to a lack of affordable, healthy options, and that long term users of food pantries are at a greater risk of suffering from health problems such as obesity).

⁶² COLEMAN-JENSEN ET AL., *supra* note 59, at i.

insecurity, fail to address barriers to food access.⁶³ Despite a wide variety of grocery stores participating in the SNAP program, many low income individuals lack any realistic means of obtaining access to healthy food vendors, and a significant portion of SNAP program applicants redeem their food stamps at convenience or drug stores selling low nutritional value food items.⁶⁴

Food insecure families also rely on the National School Lunch Program.⁶⁵ In 2016, over thirty million children relied on the NSLP.⁶⁶ In the same year, about 14.5 million children relied on the School Breakfast Program (SBP).⁶⁷ Congress made healthy school lunches a priority with the passage of the Healthy, Hunger-Free Kids Act of 2010, which updated nutrition standards for school meal programs by requiring more whole grains, fruits and vegetables, fat-free and low-fat milk, and less sodium, saturated fats, and added sugars.⁶⁸ However, in January 2020, the USDA proposed rollbacks that would permit schools to offer fewer fruits, limit the variety of vegetables, and offer more processed foods that are high in calories, fat, and sodium.⁶⁹ With many children consuming up to half of their daily caloric intake from school breakfast and lunch programs, it is essential that these meals are healthy and

⁶³ *Where Can I Use SNAP EBT?*, USDA, <https://www.fns.usda.gov/snap/retailer-locator> (last visited Nov. 14, 2020). While most grocery stores accept food stamps, individuals living in food desert communities often have to travel long distances to reach grocery stores with healthy foods. *Id.* Meanwhile, those individuals spend their food stamps at one of the many convenience stores that accept food stamps but offer unhealthy foods. *Id.*

⁶⁴ *SNAP Retailers Database*, CTR. ON BUDGET & POL'Y PRIORITIES, <https://www.cbpp.org/snap-retailers-database> (last visited Nov. 14, 2020). Ten percent of SNAP participants' redemptions are at grocery stores which includes independent drug stores, dollar stores and general stores and six percent of redemptions are at convenience stores. *Id.*

⁶⁵ See *National School Lunch Program Factsheet*, USDA (Mar. 20, 2019), <https://fns-prod.azureedge.net/sites/default/files/resource-files/NSLPFactSheet.pdf>. The National School Lunch Program (NSLP) is a federally assisted meal program operating in public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or no-cost lunches to children each school day.

⁶⁶ *Id.*

⁶⁷ *The School Breakfast Program Factsheet*, USDA (Nov. 11, 2017), <https://fns-prod.azureedge.net/sites/default/files/resource-files/SBPfactsheet.pdf>. The School Breakfast Program (SBP) is a federally assisted meal program operating in public and non-profit private schools and residential child care institutions. It offers breakfast meals meeting Federal nutrition requirements, and offer free or reduced prices on breakfast meals to participating school districts and eligible children.

⁶⁸ *School Meals and Snacks*, STATE OF CHILDHOOD OBESITY, <https://stateofchildhoodobesity.org/policy/school-meals> (last visited Nov. 14, 2020); see also 77 Fed. Reg. 4088-4167 (Jan. 26, 2012).

⁶⁹ STATE OF CHILDHOOD OBESITY, *supra* note 68 (“[The proposal would] adversely affect student’s health and academic performance, and that students from low-income families attending schools in Black and rural neighborhoods are most likely to be impacted by the proposed changes.”); see also, 85 Fed. Reg. 4094-4134 (Jan. 23, 2020).

nutritious.⁷⁰ If the Food and Nutrition Service continues to implement the NSLP under the new regulations with lower standards, children across the country may be more susceptible to health issues, such as obesity and diabetes.⁷¹

B. Food Swamps: High Prevalence of Convenience Stores & Fast Food Chains

Food swamps refer to neighborhoods with a surplus of unhealthy dining options or food vendors.⁷² While primarily white, suburban neighborhoods enjoy a plethora of healthy dining options, including organic supermarkets or farmers markets, low-income and minority communities are often overwhelmed by fast food restaurants or convenience stores that offer substantially less healthy foods.⁷³

i. History

The origins of food swamps date back to the 1960s and 70s, when white, middle-class families left urban centers for homes in the suburbs, and supermarkets fled with them.⁷⁴ Over the past several decades, the structure of the grocery industry has changed dramatically, with significant growth in discount stores and supercenters as well as specialty natural food retailers.⁷⁵ Unfortunately, as the grocery industry has shifted to primarily serve white suburban communities, low-income and minority communities are saturated with unhealthy food options.⁷⁶

⁷⁰ STATE OF CHILDHOOD OBESITY, *supra* note 68.

⁷¹ STATE OF CHILDHOOD OBESITY, *supra* note 68.

⁷² Cooksey-Stowers et al., *supra* note 11, at 1366.

⁷³ Cooksey-Stowers, *supra* note 28, at 3–4, 54–55; Cooksey-Stowers et al., *supra* note 11, at 1366–67.

⁷⁴ Treuhaft & Karpyn, *supra* note 13, at 11.

⁷⁵ Treuhaft & Karpyn, *supra* note 13, at 11.

⁷⁶ Cooksey-Stowers, *supra* note 11, at 1367 (“Low-income and racial-ethnic minorities are more likely than Whites to live near unhealthy food retailers, which has been associated with poor diet. In a review of the research on fast food access, 10 out of 12 studies provided evidence that fast food restaurants are more likely to locate in areas where there are higher concentrations of ethnic minorities than Whites.”).

ii. *Continued absence of healthy food options in low-income communities*

Despite extensive efforts at the federal level to combat lack of access to food,⁷⁷ there has been little improvement in alleviating the problem of food swamps.⁷⁸ When drugstores, like CVS and Walgreens, have a larger share of the grocery market than major grocery store chains, like Trader Joes and Whole Foods, the government cannot just mandate local communities increase their vendors of healthy food.⁷⁹ Fourteen studies examined 216 census tracts in Maryland, North Carolina, Mississippi, and Minnesota, and reported a higher prevalence of fast-food restaurants among low-income neighborhoods.⁸⁰ Low-income communities are not the only population surrounded by fast-food chains, as studies show that “predominantly black neighborhoods” have 2.4 fast-food restaurants per square mile compared to 1.5 restaurants in “predominantly white neighborhoods.”⁸¹ Other studies show that fast-food restaurants in minority and low-income communities target children by advertising “kids meals” that include toys and play areas.⁸²

C. *How zoning schemes implicate food access issues*

Local and municipal governments are the bodies that adopt zoning codes and ultimately make the final decision in land use outcomes.⁸³ Traditional zoning codes divide land by use (residential, commercial, industrial, civic/institutional), or by density (light, medium, heavy), best

⁷⁷ See *supra* notes 58, 65 and 67 for examples of federal programs aimed at improving access to food.

⁷⁸ See Gabrielle Canon, ‘Food deserts’ become ‘food swamps’ as drugstores outsell major grocers, THE GUARDIAN (Jun. 4, 2019), <https://www.theguardian.com/us-news/2019/jun/04/food-swamps-cvs-outsells-trader-joes-whole-foods-processed-shopping>.

⁷⁹ *Id.*

⁸⁰ Angela Hilmers et al., *Neighborhood Disparities in Access to Healthy Foods and their Effects on Environmental Justice*, 102 AM. J. PUB. HEALTH 1644, 1649 (2012).

⁸¹ Jason P. Block et al., *Fast Food, Race/Ethnicity, and Income*, 27 AM. J. PREVENTATIVE MED. 211, 211 (Oct. 1, 2004).

⁸² Roberto Ferdman, *The Disturbing Ways Fast Food Chains Disproportionately Target Black Kids*, WASH. POST (Nov. 12, 2014), <https://www.washingtonpost.com/news/wonk/wp/2014/11/12/the-disturbing-ways-that-fast-food-chains-disproportionately-target-black-kids/> (referencing a University of Illinois and Arizona State University study that examined the practices of 6,700 fast food restaurants across the United States).

⁸³ Anna Haines, *What Does Zoning Have to do With Local Food Systems?*, 8 J. AGRIC. FOOD SYS. & CMTY. DEV., 175, 175–76 (Oct. 17, 2018) (“[T]here are more than 25,000 local jurisdictions in the US that have the power to adopt zoning laws . . . codes are the basis for public decision-making to the built environment.”).

known as “base zoning.”⁸⁴ The Center for Disease Control (CDC) recognizes that zoning policies can be an effective way for local governments to limit commercial food retail and fast-food businesses as a method of controlling the food environment.⁸⁵ Some municipal codes, such as in Concord, Massachusetts, expressly prohibit fast-food restaurants.⁸⁶ While some municipalities have adapted “healthy zoning,” critics argue: “[m]ost of the communities where efforts to zone out fast food have been successful are predominantly white and affluent.”⁸⁷ Municipal zoning regulations are a systemic barrier to food access because the regulations have the effect of prohibiting urban agriculture, limiting access to grocery stores with a supply of fresh produce, and permitting an abundance of fast-food restaurants or convenience stores.⁸⁸

Many urban areas are too densely populated to accommodate large supermarkets, and as a result, small grocery stores, drug stores, and convenience stores with smaller footprints vastly outnumber supermarkets in low-income communities.⁸⁹ In 2019, the median total store size of supermarkets was 42,415 square feet,⁹⁰ while the average convenience store was 2,425 square feet.⁹¹ Zoning codes that establish strict requirements on retail food stores prevent healthier food options like supermarkets or grocery stores from occupying certain districts of urban

⁸⁴ Allison Bustin, *Zoning For Obesity: Incorporating Context-Based Strategies for Improved Health in Municipal Zoning Codes* 31–32 (May 2015) (M.A. thesis, Georgia Institute of Technology) (on file with Georgia Tech Library, Georgia Institute of Technology).

⁸⁵ CDC, *Healthy Places Zoning*, (June 3, 2010), <https://www.cdc.gov/healthyplaces/healthtopics/healthyfood/zoning.htm>.

⁸⁶ Haines, *supra* note 83, at 177.

⁸⁷ Cooksey-Stowers, *supra* note 28, at 3.

⁸⁸ Haines, *supra* note 83, at 177 (“In urban areas, small grocery stores and urban agriculture can be inhibited by zoning, including prohibitions on the sale of fruit and vegetables in outdoor stands or markets, gardening or farming in residential districts, and limitations on the type and number of farm animals.”).

⁸⁹ See Caitlin Misiaszek et al., *Baltimore City’s Food Environment: 2018 Report*, JOHNS HOPKINS CTR. FOR A LIVABLE FUTURE, 1, 25 (Jan. 2018), <https://clf.jhsph.edu/publications/baltimore-citys-food-environment-report-2018-report> (explaining that in Baltimore, small grocery and corner stores are the most common type of food retail store, with over 500 locations surveyed across the city, and only 47 Supermarkets. Small Grocery and Convenience Stores account for “94% of all stores located in Food Deserts or Priority Areas. This may be due in part to zoning regulations”); Canon, *supra* note 78.

⁹⁰ *Median Total Store Size- Square Feet*, THE FOOD INDUS. ASS’N., <https://www.fmi.org/our-research/supermarket-facts/median-total-store-size-square> (last visited Apr. 21, 2021).

⁹¹ *Average Area of Convenience Stores in the United States in 2019*, STATISTA, <https://www.statista.com/statistics/1016023/convenience-store-square-footage-us/> (last visited Nov. 22, 2020).

communities.⁹² Dallas, for example, requires “retail food stores”⁹³ falling between 10,000 and 60,000 square feet, to have at least one space for off-street loading, and at least one space of off street parking for every 200 square feet of floor area in the store.⁹⁴ In densely populated areas of Dallas, this zoning provision could prove difficult to meet, as a median sized supermarket of 42,415 square feet would need about 212 spaces for off-street parking.⁹⁵ Baltimore limits the maximum “Retail Goods Establishment (Food Store)”⁹⁶ to 20,000 square feet in two commercial districts, and 15,000 square feet in another commercial district, which represents nearly a quarter of the commercial zoning districts in the city.⁹⁷ At the same time, the Baltimore zoning code puts maximum square footage requirements on restaurants⁹⁸ in only one commercial district.⁹⁹ In two out of six Baltimore Industrial Districts, “all uses” are limited to a maximum of 20,000 square feet while another industrial district limits “all uses” to 10,000 square feet and yet another district to merely 5,000 square feet, meaning significant max square footage requirements are imposed on two-thirds of all industrial districts in the city.¹⁰⁰ Similar to Dallas, Baltimore’s strict zoning requirements make it easy for small convenience stores to proliferate, while constraining larger sized grocery stores to very limited locations and impossible to meet size requirements.¹⁰¹

⁹² See DALLAS, TEX., REV. ORDINANCES art. IV, § 51-4.211(3)(C)-(D) (2020).

⁹³ *Id.* § 51-4.211(3)(A). “Retail food stores are an establishment for the display and retail sale of foods and associated items.” *Id.* This would include supermarkets, grocery stores and other markets that sell food for consumption off site. *Permitting Information-Retail Food Establishments*, TEX DEP’T. OF STATE HEALTH & HUM. SERVS., <https://dshs.texas.gov/foodesablishments/permitting.aspx#:~:text=A%20retail%20food%20store%20is,in-tended%20for%20off%2Dpremise%20consumption> (last visited March 1, 2021).

⁹⁴ *Id.* § 51-4.211(3)(C)-(D).

⁹⁵ *Id.* § 51-4.211(3)(D); *Median Total Store Size- Square Feet*, THE FOOD INDUS. ASS’N., <https://www.fmi.org/our-research/supermarket-facts/median-total-store-size-square-feet> (last visited 2019).

⁹⁶ BALT. CITY, MD. art. 32, §§1-312(u)(1)-(2) (2020). “‘Retail goods establishment’ means an establishment that sells goods, wares, or other merchandise directly to consumers[,]” and applies to “a delicatessen, bakery, grocery, or similar establishment that sells ready-to-eat food products,” and “includes incidental seating areas for consumption of food on the premises.” *Id.*

⁹⁷ BALT. CITY, MD. art. 32, tbl. 10-401(C-1 to C-4) (2020).

⁹⁸ BALT. CITY, MD. art. 32, §1-312(s)(1)(i) (2020). “[E]stablishment at which food and drinks are provided to the public, primarily for on-premises consumption by seated patrons.” *Id.*

⁹⁹ BALT. CITY, MD. art. 32, tbl. 10-401(C-1 to C-4) (2020).

¹⁰⁰ BALT. CITY, MD. art. 32, tbl. 11-401 (2020).

¹⁰¹ DALLAS, TEX., REV. ORDINANCES, *supra* note 92; see also DALLAS, TEX., REV. ORDINANCES, *supra* notes 93 and 94.

II. HEALTH CONDITIONS CAUSED BY FOOD INSECURITY OR FOOD ACCESS ISSUES

Research suggests that the food environment is associated with diet and health because people more frequently consume produce like fruits and vegetables, and are less likely to be obese if they live near a grocery store.¹⁰² In contrast, fast-food meals have been linked to increased caloric intake, higher consumption of sweetened beverages, lower intake of fruits and vegetables and an increased risk of obesity.¹⁰³ Cardiovascular disease, diabetes, and obesity are a few of the health problems associated with food deserts and swamps.¹⁰⁴ Low-income and minority communities suffer from elevated levels of obesity, diabetes, and cardiovascular disease, all of which are diet-related diseases.¹⁰⁵ Research suggests that many low-income and minority communities lack an availability of healthy dining options and suffer from a proliferation of unhealthy food options, which has driven higher rates of obesity, diabetes, and heart disease among those groups.¹⁰⁶ Obesity, diabetes, and heart disease are most severe in communities facing obstacles to food access, such as a lack of transportation, a lack of healthy food stores, affordable and nutritious options, or an overabundance of unhealthy foods.¹⁰⁷ This is troubling considering that in the U.S., heart disease is the leading cause of death, while diabetes is a top ten cause of death, and obesity is a known contributor to both diseases.¹⁰⁸

¹⁰² Cooksey-Stowers, *supra* note 28, at 16.

¹⁰³ Cooksey-Stowers, *supra* note 28, at 16.

¹⁰⁴ PAULA T. WHITACRE ET AL., THE PUBLIC HEALTH EFFECTS OF FOOD DESERTS 37 (2009), https://www.ncbi.nlm.nih.gov/books/NBK208019/pdf/Bookshelf_NBK208019.pdf.

¹⁰⁵ CDC, *Heart Disease Facts*, <https://www.cdc.gov/heartdisease/facts.htm> (last visited Nov. 22, 2020); *Statistics About Diabetes*, AM. DIABETES ASSOC., <https://www.diabetes.org/resources/statistics/statistics-about-diabetes> (last visited Nov. 22, 2020); Brian P. Dunleavy, *Study finds income disparity in prevalence of heart disease*, UPI (Sept. 25, 2020), https://www.upi.com/Health_News/2020/09/25/Study-finds-income-disparities-in-prevalence-of-heart-disease/8261601047124/; *Diet Related Diseases*, 4-H OF PURDUE UNIV. EXTENSION, <https://www.four-h.purdue.edu/foods/Diet-Related%20Diseases.htm> (last visited Nov. 22, 2020); *Symptoms & Causes of Diabetes*, NAT'L INST. OF DIABETES & DIGESTIVE & KIDNEY DISEASE, <https://www.niddk.nih.gov/health-information/diabetes/overview/symptoms-causes> (last visited Nov. 22, 2020).

¹⁰⁶ Cooksey-Stowers et al., *supra* note 11, at 1.

¹⁰⁷ Cooksey Stowers, *supra* note 28, at 16–17.

¹⁰⁸ CDC, *Leading Causes of Death* (Jan. 12, 2021), <https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>; *Three Ways Obesity Contributes to Heart Disease*, PENN MED. (Mar. 25, 2019), <https://www.pennmedicine.org/updates/blogs/metabolic-and-bariatric-surgery-blog/2019/march/obesity-and-heart-disease>.

According to CDC data, 42.4% of Americans are obese, with that number expected to grow in 2020.¹⁰⁹ In addition, statistics from 2017-2019 show there is a significant racial disparity in the prevalence of obesity, as thirty-four states had an obesity prevalence of thirty-five percent or higher among Black adults, fifteen states had an obesity prevalence of thirty-five percent or higher among Hispanic adults, and only six states had an obesity prevalence of thirty-five percent or higher for White adults.¹¹⁰ Overall, Black adults have the highest prevalence of obesity at 39.8%, while the prevalence of obesity is 33.8% in Hispanic adults, and 29.9% in White adults.¹¹¹ Racial disparities in the prevalence of obesity can be attributed in part to food insecurity, as minority communities lack access to healthy food options and cannot maintain a diet sufficient to avoid the consequences of obesity.¹¹²

Interestingly enough, heart disease kills a slightly larger share of the white population than it does Blacks, Hispanics, or other racial groups.¹¹³ According to the CDC, heart disease accounts for 23.7% of deaths in Whites, 23.5% of death in Black Americans and 20.3% of Hispanics.¹¹⁴ This statistic illustrates the fact that heart disease, like food insecurity, is not exclusive to one race or even a group of races, rather heart disease is the leading cause of death across all demographic groups in the United States.¹¹⁵ Black Americans have the highest death rate for heart disease and are most likely to suffer from hypertension or high blood pressure, which are key risk factors for both heart disease and COVID-19.¹¹⁶ Studies suggest heart disease is not only a health problem, but an economic one as well, with elevated risks of heart disease among lower income groups.¹¹⁷ While the CDC has found that heart

¹⁰⁹ *Adult Obesity Facts* (2020), (last visited Oct. 4, 2020), <https://www.cdc.gov/obesity/data/adult.html>; CDC, *New CDC data finds adult obesity is increasing* (2020), <https://stacks.cdc.gov/view/cdc/93879>.

¹¹⁰ *New CDC data finds adult obesity is increasing*, *supra* note 109.

¹¹¹ *Adult Obesity Prevalence Maps* (Feb. 11, 2021), <https://www.cdc.gov/obesity/data/adult.html>.

¹¹² Pan et al., *supra* note 10, at 1403–04.

¹¹³ *Heart Disease Facts*, *supra* note 105.

¹¹⁴ *Heart Disease Facts*, *supra* note 105.

¹¹⁵ See *Leading Causes of Death*, *supra* note 108; see also *Understand Food Insecurity*, HUNGER & HEALTH, <https://hungerandhealth.feedingamerica.org/understand-food-insecurity/>.

¹¹⁶ CDC, *United States Spotlight- Racial and Ethnic Disparities in Heart Disease*, HEALTH, UNITED STATES, 1–2 (2019), https://www.cdc.gov/nchs/hus/spotlight/HeartDiseaseSpotlight_2019_0404.pdf; CDC, *supra* note 15.

¹¹⁷ See generally Salma M. Abdalla et al., *Trends in Cardiovascular Disease Prevalence by Income Level in the United States*, JAMA NETWORK OPEN, Sep. 25, 2020; Am. Heart Ass'n. News, *Economic issues drive disparities in heart disease, stroke*, AM. HEART ASS'N. (May 4, 2018), <https://www.heart.org/en/news/2018/05/10/economic-issues-drive-disparities-in-heart-disease-stroke>.

disease rates have declined across several demographic groups in the period from 1999-2017,¹¹⁸ according to the Journal of the American Medical Association, reductions were significantly higher for the top twenty percent of income brackets as compared to the remaining eighty percent.¹¹⁹ This indicates that wealth plays an integral role in determining an individual's heart health in the United States.¹²⁰

There is a large racial disparity in the prevalence of diabetes in the United States.¹²¹ White Americans have the lowest rates of diagnosis at 7.5%, while Black Americans' rate of diagnosis is 11.7% and Hispanics is 12.5%.¹²² American Indians have the highest rate of diagnosis, nearly double the White American rate, at 14.7%.¹²³ Diet-related illnesses have been a primary health concern in the U.S. long before COVID-19.¹²⁴ Recently, COVID-19 has brought new attention to the health complications associated with heart disease, diabetes, and obesity.¹²⁵

III. COVID-19'S HEALTH IMPLICATIONS, COMORBIDITIES AND INTERACTION WITH THE HEALTH CONDITIONS CAUSED BY FOOD INSECURITY

COVID-19 is especially acute for persons living with obesity, heart disease, or diabetes.¹²⁶ According to the CDC, at-risk groups include those with obesity, diabetes, or hypertension.¹²⁷ While new information about COVID-19 is constantly emerging, *Obesity Reviews*,

¹¹⁸ CDC, *United States Spotlight- Racial and Ethnic Disparities in Heart Disease*, HEALTH, UNITED STATES, 1-2 (2019), https://www.cdc.gov/nchs/spotlight/HeartDiseaseSpotlight_2019_0404.pdf.

¹¹⁹ See generally Salma M. Abdalla et al., *Trends in Cardiovascular Disease Prevalence by Income Level in the United States*, JAMA NETWORK OPEN, Sep. 25, 2020.

¹²⁰ *Id.*

¹²¹ *Statistics About Diabetes- Diabetes by race/ ethnicity*, AM. DIABETES ASS'N., [https://www.diabetes.org/resources/statistics/statistics-about-diabetes_\(last visited Dec. 24, 2020\)](https://www.diabetes.org/resources/statistics/statistics-about-diabetes_(last%20visited%20Dec.%2024,%202020)).

¹²² *Id.*

¹²³ *Id.*

¹²⁴ PAULA T. WHITACRE ET AL., *supra* note 104.

¹²⁵ See e.g., Dara K. Lee Lewis, *COVID-19 and the heart: What have we learned?*, HARV. HEALTH BLOG (Jan. 6, 2021, 10:30 AM), <https://www.health.harvard.edu/blog/covid-19-and-the-heart-what-have-we-learned-2021010621603>; Norbert Stefan et al., *Global pandemics interconnected — obesity, impaired metabolic health and COVID-19*, NATURE REV. ENDOCRINOLOGY (2021); Kimberly E. Ng & Joshua P. Rickard, *The Effect of COVID-19 on Patients With Diabetes*, U.S. PHARMACIST (Nov. 13, 2020), <https://www.uspharmacist.com/article/the-effect-of-covid19-on-patients-with-diabetes>.

¹²⁶ CDC, *supra* note 16.

¹²⁷ CDC, *supra* note 16.

formed an international study of 399,000 patients.¹²⁸ Researchers found that people with obesity who contracted COVID-19 were 113% more likely than people of a healthy weight to be admitted in the hospital, seventy-four percent more likely to be admitted to an Intensive Care Unit (ICU), and forty-eight percent more likely to die.¹²⁹ These statistics do not bode well for low-income and minority communities struggling with food access that tend to disproportionately share the health burdens of food insecurity.¹³⁰

A. How the health effects of food insecurity complicate the COVID-19 Pandemic

Food deserts and food swamps have been linked to elevated levels of obesity, diabetes, cardiovascular disease, and other diet-related illnesses in low-income and minority communities.¹³¹ COVID-19 has a devastating effect on the obese, or those suffering with diabetes, or cardiovascular disease.¹³² Food insecurity has led to extremely high levels of chronic diet-related disease amongst low income and minority groups, which has subsequently led to tremendous suffering in these same communities during the COVID-19 pandemic.¹³³

Obesity disproportionately affects low-income and Black American groups, and has been identified as putting patients at risk of serious illness with COVID-19.¹³⁴ COVID-19 can cause acute respiratory distress syndrome, which often requires invasive mechanical ventilation (IMV).¹³⁵ A study conducted by the Lille University Hospital in France found that elevated Body Mass Index (BMI) (typically those who are overweight) was found to be statistically significant with the need for

¹²⁸ Meredith Wadman, *Why COVID-19 is more deadly in people with obesity—even if they're young*, SCI. MAG. (Sep. 8, 2020, 6:00 PM), <https://www.sciencemag.org/news/2020/09/why-covid-19-more-deadly-people-obesity-even-if-theyre-young>.

¹²⁹ *Id.*

¹³⁰ *Id.*

¹³¹ See Treuhaft & Karpyn, *supra* note 13, at 13, 18.

¹³² See Wadman, *supra* note 128.

¹³³ *Obesity, Race/Ethnicity, and COVID-19*, CDC, <https://www.cdc.gov/obesity/data/obesity-and-covid-19.html>.

¹³⁴ *Id.*; see also *People with Certain Medical Conditions*, CDC (March 15, 2021), <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html>.

¹³⁵ Mikael Chetboun & Violeta Raverdy, *Association of Body Mass Index and Other Metabolic Risk Factors with Pneumonia Outcomes in Critically Ill Patients with Coronavirus Disease-19*, THE LANCET PREPRINTS, at 6 (Sept. 17, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3667634. *Disclaimer: “The findings should not be used for clinical or public health decision making and should not be presented to a lay audience without highlighting that they are preliminary and have not been peer-reviewed.”

IMV, and *severe* obesity was associated with a sixty-eight percent increase in mortality, as compared with lean patients.¹³⁶ What is particularly troubling is that the CDC has found that Black Americans have the highest prevalence of *severe* obesity at 13.8%,¹³⁷ which means there is a significant portion of the Black American population at risk of falling into the sixty-eight percent mortality rate increase from COVID-19 identified by the study performed by Lille University.¹³⁸ Food insecurity has contributed to the elevated obesity rate in the U.S., and low-income or minority populations have higher rates of obesity as a result.¹³⁹ COVID-19 is problematic for food insecure groups because of the high mortality rate for those living with obesity,¹⁴⁰ a condition commonly associated with food insecure populations.

Another at-risk group for COVID-19 identified by the CDC are those suffering with heart disease, a diet-related illness exacerbated by problems of food insecurity.¹⁴¹ COVID-19 is a respiratory disease, meaning the lungs of an infected patient are not able to function at full capacity and the heart therefore must pick up the slack to pump oxygen rich blood around the body.¹⁴² The additional stress on the heart induced by COVID-19's debilitation of the lungs makes COVID-19 particularly dangerous for those suffering with any type of heart disease.¹⁴³ Low-income groups suffer elevated levels of heart disease as a result of food insecurity, and are generally at higher risk when it comes to COVID-19, while all Americans are at risk during the pandemic, considering heart disease is the leading cause of death in the U.S.¹⁴⁴

Diabetes, another diet-related illness, has been identified as a risk factor for developing severe and critical forms of COVID-19.¹⁴⁵

¹³⁶ *Id.* at 12, 14. Severe obesity was defined as patients having a BMI of 40 or more, whereas lean patients defined as having a BMI of less than 25. *Id.* at 9, 13.

¹³⁷ Craig M. Hales et al., *Prevalence of Obesity and Severe Obesity Among Adults: United States, 2017-2018*, CDC: NAT'L CTR. FOR HEALTH STAT. (Jan 12, 2021), [NCHS Data Brief, Number 360, February 2020 \(cdc.gov\)](https://www.cdc.gov/nchs/data/brf/2017-2018/number-360-february-2020-cdc.gov)

¹³⁸ Chetboun & Raverdy, *supra* note 135, at 14.

¹³⁹ *Adult Obesity Facts*, *supra* note 15; Cynthia L. Ogden et al., *Prevalence of Obesity Among Adults, by Household Income and Education*, 66 CDC MORBIDITY & MORTALITY WKLY. REP. 1369 (Dec. 22, 2017).ad

¹⁴⁰ Chetboun & Raverdy, *supra* note 135, at 14; *see supra* note 111.

¹⁴¹ CDC, *supra* note 16. Paula Whitacre et al., *supra* note 104 at 5.

¹⁴² *What Heart Patients Need to Know About COVID-19*, CLEVELAND CLINIC (May 6, 2020), <https://health.clevelandclinic.org/what-heart-patients-need-to-know-about-covid-19/>.

¹⁴³ *Id.*

¹⁴⁴ Abdalla et al., *supra* note 117, at 1; Paula Whitacre et al., *supra* note 104, at 5; CDC, *Heart Disease Facts*, <https://www.cdc.gov/heartdisease/facts.htm> (last visited Nov. 22, 2020).

¹⁴⁵ Laura Orioli et al., *COVID-19 in Diabetic Patients: Related Risks and Specifics of Management*, 81 ANNALES D'ENDOCRINOLOGIE 101 (May 12, 2020).

Diabetics are at increased risk of requiring admission to the ICU or needing a ventilator.¹⁴⁶ A recent study of patients from the U.S., France, Italy, Belgium and China found that 21.2% of hospitalized COVID-19 patients also had diabetes, which is more than three times higher than the general population, of which only six percent has diabetes.¹⁴⁷ The study also found that diabetic patients are twice as likely to progress to a severe form of COVID-19 or die from it than non-diabetic patients, with a sub-study in China finding the mortality rate of diabetics with COVID-19 is 7.3% compared to 2.3% for the general population.¹⁴⁸ COVID-19 can cause serious medical complications for diabetics, including death or coma, because of hypoglycemia (elevated blood sugar levels), and ketoacidosis (a life threatening condition caused by elevated blood sugar levels).¹⁴⁹ Of course, a complicating factor in examining the impact of food insecurity on COVID-19 is that many of the health effects caused by food insecurity are interconnected.¹⁵⁰ For instance, food insecurity is known to increase the prevalence of obesity, while obesity itself is known to cause heart disease, diabetes, and hypertension.¹⁵¹ Often patients suffering severe illness or death as a result of COVID-19 have more than one underlying health issue, and might be classified as obese and diabetic for example.¹⁵² Food insecurity can cause serious negative health effects for vulnerable populations, therefore COVID-19 will likely have the most severe impact in food insecure communities.¹⁵³

IV. THE COVID-19 PANDEMIC'S EXACERBATION OF FOOD INSECURITY

COVID-19 has infected tens of millions of people in the U.S. alone, causing state ordered quarantines, major downsizing in public transportation sectors, extreme levels of unemployment, and mass

¹⁴⁶ *Id.*

¹⁴⁷ *Id.* at 102–03.

¹⁴⁸ *Id.* at 103–04.

¹⁴⁹ *Id.* at 104–05.

¹⁵⁰ T.H. Chan, HARVARD SCHOOL OF PUBLIC HEALTH, *Obesity Prevention Source*, (last visited May 9, 2021), Food and Diet | Obesity Prevention Source | Harvard T.H. Chan School of Public Health; CDC, *The Health Effects of Overweight and Obesity*, (Sept. 17, 2020), The Health Effects of Overweight and Obesity | Healthy Weight, Nutrition, and Physical Activity | CDC; CDC, *Obesity, Race/Ethnicity, and COVID-19*, (Mar. 22, 2021), Obesity, Race/Ethnicity, and COVID-19 | Overweight & Obesity | CDC.

¹⁵¹ Orioli et al., *supra* note 145, at 101; CDC, *The Health Effects of Overweight and Obesity*, (Sept. 17, 2020), The Health Effects of Overweight and Obesity | Healthy Weight, Nutrition, and Physical Activity | CDC;

¹⁵² Orioli et al., *supra* note 145, at 103.

¹⁵³ *See supra* Part III.

disruptions to the global food supply chain.¹⁵⁴ Everyone has been affected by the COVID-19 pandemic in some manner, perhaps unsurprisingly, low-income and minority communities have struggled most with financial and health related burdens.¹⁵⁵ Low income and minority groups are most reliant on public transit services, which as a result of the COVID-19 pandemic, have drastically reduced services.¹⁵⁶ In addition, COVID-19's disruption of global food supply chains and general social restrictions have shaped food consumption habits, leading to a rise in consumption of fast foods or processed foods, both of which have been linked to diet-related illnesses.¹⁵⁷ Finally, COVID-19 has led to a massive uptick in unemployment, which has left thousands of Americans without the ability to afford a healthy diet.¹⁵⁸ The COVID-19 pandemic has further entrenched those already struggling with food insecurity by raising more obstacles to food access, while also causing thousands more Americans to experience food insecurity for the first time as a result of a global recession.¹⁵⁹

¹⁵⁴ Forum News Service, *COVID-19 Exposes Problems in Food Supply Chain*, CAPITAL JOURNAL (Dec. 28, 2020) https://www.capjournal.com/news/covid-19-exposes-problems-in-food-supply-chain/article_75c6631a-491a-11eb-8b82-bfa17db1aacc.html; CDC, *COVID Data Tracker*, <https://covid.cdc.gov/covid-data-tracker/#datatracker-home> (Feb. 14, 2021, 8:00 PM); *How Coronavirus is Disrupting Public Transit*, TRANSIT APP, <https://transitapp.com/coronavirus> (Feb. 14, 2021, 5:23 PM); National Governors Association, *Status of State COVID-19 Traveler Quarantine*, <https://www.nga.org/traveler-quarantine-order-guidance-covid-19/> (Feb. 12, 2021, 12:27 PM).

¹⁵⁵ Melissa Jenco, *COVID-19 Pandemic Exacerbated Hardships for Low-Income, Minority Families*, AM. ACAD. OF PEDIATRICS (June 3, 2020), <https://www.aappublications.org/news/2020/06/03/covid19hardships060320>; Michael Karpman, Dulce Gonzalez, and Genevieve M. Kenney, Urban Institute, *Parents Are Struggling to Provide for Their Families during the Pandemic*, (May 2020), *Parents Are Struggling to Provide for Their Families during the Pandemic: Material Hardships Greatest among Low-Income, Black, and Hispanic Parents* (urban.org)

¹⁵⁶ TRANSIT, *Who's Left Riding Public Transit? A COVID Data Deep-Dive*, MEDIUM (Apr. 27, 2020), <https://medium.com/transit-app/whos-left-riding-public-transit-hint-it-s-not-white-people-d43695b3974a>.

¹⁵⁷ *Packaged Food Market Set to Rise by 377%; COVID-19 Lockdown Creates Immense Demand for Processed, Canned and Frozen Foods*, RSCH. & MKTS. (Apr. 28, 2020), <https://www.prnewswire.com/news-releases/packaged-food-market-set-to-rise-by-377-covid-19-lockdown-creates-immense-demand-for-processed-canned-and-frozen-foods-301048364.html>; Heather Haddon, *McDonald's, Chipotle and Domino's Are Booming During Coronavirus While Your Neighborhood Restaurant Struggles*, WALL ST. J. (Oct. 12, 2020), <https://www.wsj.com/articles/mcdonalds-chipotle-and-dominos-are-feasting-during-coronavirus-while-your-neighborhood-restaurant-fasts-11602302431>.

¹⁵⁸ *Tracking the COVID-19 Recession's Effects on Food, Housing, and Employment Hardships*, CTR. BUDGET & POL'Y PRIORITIES (Dec. 18, 2020), <https://www.cbpp.org/sites/default/files/atoms/files/8-13-20pov.pdf>.

¹⁵⁹ Morales et al., *supra* note 6, at 2.

A. *COVID-19's impacts on transportation and the effect on food insecurity*

Transportation plays a major role in food insecurity or access, as people who lack access to reliable transportation cannot travel to areas with fresh produce or avoid food swamps, which contain processed foods that are high in fat.¹⁶⁰ As a result of COVID-19, several U.S. cities are limiting or closing public transit services, not because of health concerns, but because of a lack of financial capacity to stay afloat.¹⁶¹ For instance, in Baltimore, the MTA has announced that they will be discontinuing service for twenty-five local bus routes and limiting service to eleven other links.¹⁶² New York City's Metropolitan Transportation Authority recently announced they will be cutting service to subways and buses by forty percent, and rail service by fifty percent.¹⁶³ Boston's Massachusetts Bay Transit Authority announced reductions in bus and train frequencies across most of the city, including eliminating rail service after nine p.m., and weekend commuter rail trips.¹⁶⁴ The cut backs in public transportation services as a result of COVID-19 will likely have a disproportionate effect on low-income or minority communities, because according to a recent survey, Black American and Hispanic ridership replaced Whites as the majority groups using public transit, and the essential workers still riding public transit have been disproportionately low income riders, with over seventy percent making less than \$50,000 a year.¹⁶⁵ The survey also found that women of color overwhelmingly outpace other groups in ridership percentages.¹⁶⁶ As more cities experience decreased ridership, it is likely that further public

¹⁶⁰ Rolf Pendall et al., *supra* note 45.

¹⁶¹ *MDOT MTA Proposes Service Realignment as Part of MDOT-Wide Response to COVID-19 Revenue Impacts*, MDOT MTA (Sept. 1, 2020), <https://www.mta.maryland.gov/articles/288>; Michelle Kaske, *Next Stop? New York's MTA Warns of 40% Service Cut, 9,300 Layoffs*, BLOOMBERG (Nov. 18, 2020), <https://www.aljazeera.com/economy/2020/11/18/bnnext-stop-new-yorks-mta-warns-of-40-service-cut-9300-layoffs>.

¹⁶² MDOT MTA, *supra* note 161.

¹⁶³ Kaske, *supra* note 161.

¹⁶⁴ Adam Vacarro, *Across the Region, Officials and Passengers Seek to Put Brakes on MBTA Service Cuts*, BOSTON GLOBE (Nov. 16, 2020, 7:04 PM), <https://www.bostonglobe.com/2020/11/16/metro/across-region-officials-passengers-seek-put-brakes-mbta-service-cuts/>.

¹⁶⁵ TRANSIT, *supra* note 156.

¹⁶⁶ TRANSIT, *supra* note 156. During the COVID-19 pandemic, women have comprised fifty-six percent of the total ridership on public transit services, while before the pandemic there was a 50-50 gender split. TRANSIT, *supra* note 156. African American women comprise seventy percent of the total African American ridership and therefore claim the highest ridership percentage of any group. TRANSIT, *supra* note 156.

transit cuts will result.¹⁶⁷ This will ultimately become yet another barrier to food access for low-income or minority communities whom more frequently rely on public transit services.¹⁶⁸

B. Impacts on Food Supply Chains

COVID-19 has disrupted food supply chains across the globe, as the restaurant industry has virtually collapsed, and changes in grocery shopping patterns have led to empty shelves or rotting food stockpiles in grocery stores.¹⁶⁹ Pre-pandemic spending patterns revealed that restaurants and other “Food Away From Home” (FAFH) accounted for over fifty percent of Americans’ dietary spending, however, as a result of COVID-19, from March to June 2020, American spending in restaurants fell by thirty-five percent compared to the same time period in 2019.¹⁷⁰ The disruption of the restaurant industry has serious repercussions for food supply chains, as several farmers plowed over crops or slaughtered entire herds of livestock.¹⁷¹ The marked decrease in restaurant spending as a result of COVID-19 coincides with a dramatic increase in grocery store spending for American households, which translates to higher demands put on meat packing plants or other food suppliers that are currently experiencing labor supply shortages.¹⁷² Low-income or minority communities that were already struggling to access healthy foods have yet another obstacle to deal with when it comes to finding the requisite amount of nutritious food in their local grocery

¹⁶⁷ Stephen Loiaconi, *Pandemic Could Force Drastic Public Transit Cuts Across US, Officials Warn*, WJLA ABC 7 (Dec. 1, 2020), <https://wjla.com/news/coronavirus/transit-agencies-weigh-dramatic-service-cuts-as-they-look-for-aid-from-congress>.

¹⁶⁸ *The Impact of COVID-19 on Food Deserts*, FOODBANK OF SE. VA. AND THE EASTERN SHORE (June 2, 2020), <https://foodbankonline.org/2020/06/02/the-impact-of-covid-19-on-food-deserts/>.

¹⁶⁹ Megan Durisin, Elizabeth Rembert, and Tatiana Freitas, *A Tenth of the World Could Go Hungry While Crops Rot in Fields*, BLOOMBERG (Aug. 31, 2020, 12:01 AM), <https://www.bloomberg.com/news/features/2020-08-31/hunger-is-threatening-to-kill-more-people-than-covid-this-year>.

¹⁷⁰ *U.S. food spending in June 2020 was \$12 billion less than in June 2019*, USDA (Aug. 28, 2020), <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=99193>. Food Away From Home includes things like restaurants, school cafeterias, sports venues, and other eating places; *Eating-out expenditures in May 2020 were 37 percent lower than May 2019 expenditures*, USDA (Aug. 7, 2020), <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=99064>.

¹⁷¹ Forum News Service, *COVID-19 Exposes Problems in Food Supply Chain*, CAP. J. (Dec 28, 2020), https://www.capjournal.com/news/covid-19-exposes-problems-in-food-supply-chain/article_75c6631a-491a-11eb-8b82-bfa17db1aacc.html.

¹⁷² *Id.*

stores.¹⁷³ Global supply chain disruptions have meant grocery stores generally have less fresh produce, while the market for processed, packaged, and frozen foods has sharply increased since the start of the pandemic.¹⁷⁴ The increase in processed food sales is alarming because processed and frozen foods have been linked to diabetes, obesity, and heart disease.¹⁷⁵

C. COVID-19's Impact on the Economy, Employment, and Food Insecurity

COVID-19 has led to record unemployment rates and an unstable economy.¹⁷⁶ In April 2020, the unemployment rate soared to 14.8%, before gradually coming back down to 7.8% in September.¹⁷⁷ Many Americans have lost their jobs and are struggling to put food on the table during the pandemic.¹⁷⁸ Nearly twenty-five percent of households in the U.S. have experienced food insecurity in the past year, a dramatic increase from about eleven percent in 2019.¹⁷⁹ Furthermore, the rise in food insecurity is not shared equally across different demographic groups, as thirty-six percent of Black Americans and thirty-two percent of Hispanics have experienced food insecurity in 2020, compared to eighteen percent of White Americans.¹⁸⁰ In addition, half of those who lost a job since the pandemic remain unemployed, and lower income adults are fifteen percent less likely to have regained employment than

¹⁷³ *FOODBANK OF SE. VA. AND THE EASTERN SHORE*, *supra* note 168.

¹⁷⁴ *Packaged Food Market: COVID-19*, RSCH. & MKTS. (last visited Dec. 4, 2020), https://www.researchandmarkets.com/issues/packaged-food-to-rise-by-377pct?utm_source=dynamic&utm_medium=CI&utm_code=6tcf7t&utm_campaign=1381646+-+Packaged+Food+Market+Set+to+Rise+by+377%25%3b+COVID-19+Lockdown+Creates+Immense+Demand+for+Processed%2c+Canned+and+Frozen+Foods&utm_exec=joca220cid.

¹⁷⁵ Lisa Rapaport, *Ultra-processed foods linked to diabetes risk*, REUTERS, (Dec. 16, 2019, 5:03 PM), <https://www.reuters.com/article/us-health-diabetes-ultraprocessed-food/ultra-processed-foods-linked-to-diabetes-risk-idUSKBN1YK24B>.

¹⁷⁶ Press Release, The World Bank, *COVID-19 to Plunge Global Economy into Worst Recession since World War II* (June 8, 2020) (on file with author).

¹⁷⁷ *US Unemployment*, DEP'T OF NOS. (last visited Oct. 4, 2020), <https://www.deptofnumbers.com/unemployment/us/>.

¹⁷⁸ Christianna Silva, *Food Insecurity In The U.S. By The Numbers*, NPR (Sept. 27, 2020, 4:30 PM), <https://www.npr.org/2020/09/27/912486921/food-insecurity-in-the-u-s-by-the-numbers>.

¹⁷⁹ *Id.*; Diane Schanzenbach & Abigail Pitts, *How Much Has Food Insecurity Risen? Evidence from the Census Household Pulse Survey*, NW. INST. FOR POL'Y RSCH. 7 (2020), <https://www.ipr.northwestern.edu/documents/reports/ipr-rapid-research-reports-pulse-hh-data-10-june-2020.pdf>.

¹⁸⁰ Schanzenbach & Pitts, *supra* note 179, at 7.

middle and upper income adults.¹⁸¹ COVID-19 has thrown more Americans into food insecurity as a result of unemployment.¹⁸²

V. CONCLUSION

Food insecurity in the U.S. has led to disproportionately high levels of diet-related illness amongst low-income and minority groups compared to the general population.¹⁸³ COVID-19 has been particularly hard on low-income and minority groups, in part, because of the higher levels of diet-related illness they carry.¹⁸⁴ Furthermore, COVID-19 has thrown more Americans into food insecurity, putting more Americans at risk of developing health issues moving forward.¹⁸⁵

¹⁸¹ Kim Parker, Rachel Minkin, & Jesse Bennett, *Economic Fallout From COVID-19 Continues to Hit Lower-Income Americans the Hardest*, PEW RSCH. CTR. (Sept. 24, 2020), <https://www.pewsocialtrends.org/2020/09/24/economic-fallout-from-covid-19-continues-to-hit-lower-income-americans-the-hardest/>.

¹⁸² *Tracking the COVID-19 Recession's Effects on Food, Housing, and Employment Hardships*, CTR. ON BUDGET & POL'Y PRIORITIES 1 (2021), <https://www.cbpp.org/sites/default/files/atoms/files/8-13-20pov.pdf>.

¹⁸³ See TREUHAFT & KARPYN, *supra* note 13, at 7–8.

¹⁸⁴ See *supra* Part III.

¹⁸⁵ CTR. ON BUDGET & POL'Y PRIORITIES, *supra* note 182, at 1.