How Food Deserts in Georgia Are Kept Dry

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the the Honor Guidelines for Thesis-Related Assignments

Advisor

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Introduction

My STS research paper relates to my capstone project because food deserts have a higher prevalence of congenital heart disease than the rest of the United States. Receiving the Supplemental Nutrition Assistance Program (SNAP) was associated with a higher rate of congenital heart defects (Klein, et al, 2023). The association between these factors is related to nutritional trends with mothers in these communities.

Technical Project

Pediatric and congenital heart disease is a heterogeneous field with complex medical anatomy, surgical procedures and catheter based interventional care. There are around 40,000 babies born every year with congenital heart disease (CDC, 2023). These patients hardly ever have the same treatment course and thus the surgeons, cardiologist and interventional doctors must tailor their treatments and procedures to the individual patient. Rather than using patients as test subjects our group believes that we can better utilize cross sectional imaging to design patient specific models. Currently, doctors rely heavily on subjective judgment when looking at computed tomography (CT) angiogram scans and various other imaging techniques to determine further steps of care for patients, specifically when it comes to catheterization procedures.

The current standard to determine if a procedure was successful is a nuclear lung perfusion scan. For this scan radioactive contrast is injected intravenously, and a gamma camera is used to take scans at multiple angles (Mirza & Hashmi, 2023). Doctors are able to see the percentage of blood perfusion to each part of the lung based on this scan. The issue is two of these scans have to be done before and after the catheterization procedure in order to confirm the efficacy of results. This project aims to eliminate the need for Nuclear Lung Perfusion Scans by using a machine learning algorithm on a CT scan that can output the percentage of blood flow occurring in different parts of the lung.

The result of this project will allow clinicians to determine the success of a procedure without the use of another nuclear perfusion scan, which is usually done a couple of weeks after catheterization.

STS Paper

This research project aims to identify underlying infrastructure that has led to the creation and continued presence of food deserts in American communities. The research question guiding this paper is: what socioeconomic factors have perpetuated food desserts in Georgia since 2000? Looking at this issue using the ethnography of infrastructure technique will help reveal causes that are built into our culture. It was expected to find that areas without supermarkets that are accessible either by walking or public transportation, have the highest incidence of food deserts. This paper will focus on availability of healthy foods based on the percentage of residents' proximity to supermarkets, and methods of transportation available for getting to the supermarkets. The positive effects the presence of supermarkets have on a community reach past nutritional factors and influence the economics of the community. The paper also investigates factors that dissuade new supermarkets from opening in urban environments. This is a relevant topic in the field of STS because it investigates how transportation networks unintentionally further damage low income communities based on engineering or city planning decisions previously made.

Conclusion

Working on a solution to improve the care of patients with congenital heart disease has given perspective to some of the issues that communities designated as food deserts can face. Shadowing my advisor, who is an interventional cardiologist, has given me first-hand experience with the treatments that people affected by this disease need to receive. Performing research on food deserts has also had the benefit of opening up a larger perspective of people who might

benefit from my technical project. It helps put the project into a wider context, showing one

group of people affected by the disease my team is attempting to remedy.

References:

CDC. (2023, August 15). *Data and Statistics on Congenital Heart Defects | CDC*. Centers for
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