

Increasing Preventive Care Through Increased Access to Healthy Foods

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Food deserts are areas that lack the availability of fresh, affordable, and nutritious foods. Almost half of the food in the United States of America is wasted every year, yet somehow there are thousands of food deserts. This lack of nutritious food for people of all ages negatively impacts health outcomes as chronic diseases like obesity, diabetes, and heart disease are rising quickly. Preventive care is a practice in which patients take the initiative to make healthier choices in life to prevent the onset or progression of chronic illness. An example of such initiatives is eating and preparing more nutritious food. Trying to practice preventive care with little to no access to the appropriate resources makes it difficult to achieve for underserved communities. Our design research led to an initiative called Movin' Grocers. Movin' Grocers is a mobile grocery truck bringing fresh produce from local gardens to various food desert locations. Accessible healthy groceries to community members at a discounted price, allows them to eat better and practice preventive care to reduce chronic diseases.

Keywords: *food desert; preventive care; healthy foods*

1 Introduction

119 billion pounds of food is equivalent to approximately 130 billion meals (Feeding America). This is how much food is wasted in the United States every single year, nearly 40%. With such a large amount of food being discarded in the country, one would assume food insecurity is non-existent, unfortunately that is not the case. Within the United States of America there are over 6,000 food deserts, most of which are in the Midwest. The number of Americans living in an area without access to healthy food options is equivalent to the population of Australia; nearly 25 million people (pbs.org). Food deserts are classified as an area where there is little to no access to healthy, affordable, and fresh food. Specifically looking at the city of Chicago, over 500,000 individuals on the city's south and west sides are living in a food desert, with an additional 400,000 living in a neighbourhood with a variety of fast-food institutions but no near grocery stores (Gallagher, 2009). The impact unhealthy eating has on an individual's health is the focus as the food that is consumed directly impacts human health. With



nearly 130 million adults suffering from at least one chronic disease in the U.S., there is approximately 300,000 obesity related deaths which add up to a 177-billion-dollar cost (American Hospital Association). Just a short 15 years ago, the number of individuals struggling with chronic diseases were about 15 million less, but within the next decade they are expected to increase by more than 35 million people (American Hospital Association). With such issues only worsening, the accessibility between people and healthy foods must be increased. Preventive medicine is the prevention and/or reduction of disease and disability through primary, secondary, and tertiary measures. Primary measures include, the stopping of tobacco and alcohol use, updated vaccination status, or in this case, healthy lifestyle campaigns. The food items consumed on a daily basis can either promote or reduce the chances of many health issues such as heart disease, high blood pressure, diabetes, obesity and even cancer. Honing into specific communities who are struggling with residing in a food desert through specific design frameworks allows solutions to be implemented.

In the city of Chicago, Fox32 News (2021) showcased protests as they erupted when the city announced the closure of a west side neighbourhood Aldi's. Concerns grew for the community as that was the last grocery store in that specific neighbourhood, leaving its 16,000 citizens to travel more than 10 minutes to another grocery store chain. This unexpected closure sparked four-week long emergency food distributions at the Aldi parking lot (Sabino, 2021). Through the years, Chicago south and west side neighbourhoods have turned into the largest food deserts in the city (Quinn, 2020). The academic health system this study was conducted in collaboration with is located in the city's west side, so it felt most appropriate to conduct this research in that neighbourhood.

This paper describes a project at an academic health system where the idea is to improve overall health of individuals who have otherwise been neglected of equitable access to wellness and food security in particular. The project integrated human-centred design methodology with principles from preventive medical sciences. Design frameworks were utilized to study the correlation between lack of nutritious foods and health outcomes in a marginalized Chicago community and solutions were explored from a preventive medicine perspective. The respective proposed solution consisted of accessibility and affordability. After extensive research, an entrepreneurial venture with social consciousness was developed called the "Movin' Grocers." The proposed concept provides *access to healthy foods to eat better and worry less* about how they can access and afford food. The concept recreates a mobile grocery truck, similar to a food truck, carrying healthy foods (i.e., fruits, vegetables) to residents living in food deserts. Movin' Grocers was inspired by the community and its needs. The main initiatives taking place focused only on finances and logistics and have not dug deeper to mould a solution based off a specific community. This inspired the researchers of this study to cater to the specific needs of the West Side but also create a solution that is malleable to be applied to other communities around the country and world.

With such issues arising in cities all over the country and not just Chicago, the goal of this research paper is to inform and inspire those who struggle with large food deserts and food-insecure populations. There is no one good solution to eradicate this problem for any city, but what is possible is the combination of multiple different solutions, initiatives, and data to create a long-lasting effect.

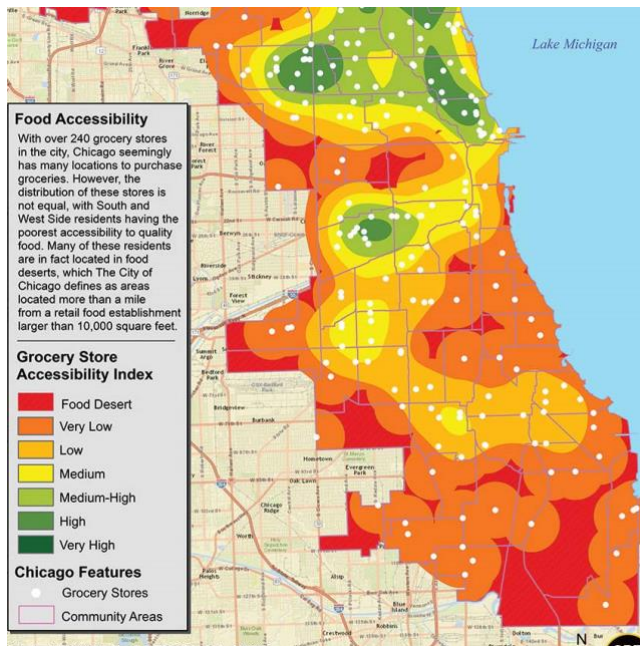


Figure 1. Grocery store accessibility index of Chicago showcases the accessibility community members of different Chicago neighbourhoods have to grocery stores. Green representing high or very high access to grocery stores, can only be seen in the northern parts of the city. The south and west sides of Chicago are yellow, orange, and red representing low, very low and food desert levels respectively. Source: The Urban Farm.

2 Literature and Current Landscape

The term food desert itself was recently adopted by the U.S. back in 2008 after the British Government coined it to better understand their low-income neighbourhoods. The overall issue of food deserts though, has unfortunately been around for many years which has caused an influx of possible solutions. Solutions range from small community-based protests and petitions to large scale U.S. Government policies. Back in 2010, First Lady Michelle Obama created a nearly half a billion dollar The Healthy Food Financing Initiative (HFFI) policy (Shannon, 2013). The goal of this policy was to eradicate food deserts in a seven-year time frame as the link between them and poor health outcomes became prominent. This policy provides two options: grants and technical assistance (TA). The HFFI website explains getting accepted for a grant allows smaller grocery stores to receive a one-time investment of between \$20,000 and \$200,000 to assist in renovations, development, etc. In addition, those who are accepted for TA can receive expert guidance on a variety of topics for food retail organizations in the early planning stages. In 2021 alone, there was a minimum of \$4 million available for grants. To achieve such assistance, applicants must apply on the HFFI website and submit a proposition with additional documentation within the application window.

In 2022, Whole Foods Market closed down six of its stores nationwide, two of those stores being in Chicago. One located downtown in the city's Lincoln Park area, the other in the South Side neighbourhood, Englewood. Back in 2016, former Mayor Rahm Emanuel and The City Council passed a 10-million-dollar grant to aid in the building of a large retail property housed by Whole Foods with the hopes of bringing the fresh produce the food desert of Englewood so desperately needed (Ward, 2022). Just a short six years later, that same store followed in the footsteps of previous grocery stores in the area and shut down due to "performance and growth potential" (CBS News, 2022). This closure

left the neighbourhood of 25,000 occupants with just one small grocery convenient store and a plethora of concerns and issues. Community leader Asiaha Butler said it best when she expressed the limited access people have to fresh fruit and even something as simple as a bright and well-lit store (CBS News). Honing into state level legal initiatives, Illinois House Bill 2832, otherwise known as “The Healthy Food Development Program”, was signed into law June of 2022. In collaboration with other Illinois state agencies, Senator Mattie Hunter (2022) expressed the goal of this new program is to financially assist big and small food retailers in the community to ensure not only convenient access to fresh food but long-term access as well.

“Fresh Moves Mobile Market” is the most recent creative initiative which began back in 2015. This idea, which parks a bus filled with fresh produce at various locations Monday through Friday in the city of Chicago, got its big start from a federal grant allowing them the finances to reinstate two out of service transit buses. Their goal is to take fresh and locally grown produce to the surrounding Chicago communities to help close the food access gap. This initiative concentrates on the Black and Brown Chicago communities that have otherwise been at a disadvantage for a long period of time. The bus can be found at various locations such as churches, health centres, schools, and community centres between 10:00 AM and 3:15 PM. Customers are able to pay with cash or card as well as the Illinois Link Card, which is a government issued card where benefits are issued to aid users in purchasing foods. The program also offers a Link Match, which matches up to \$50 on any purchase made with a link card on the bus.

The above three initiatives are good and have improved issues for many individuals, but there is still something missing. The applications for the above grants can be extensive and require multiple forms of supplemental documentation in addition to just sitting there and waiting to hear back. The amount of funding each corporation has varies from year to year causing a sense of insecurity and instability. The Fresh Moves Mobile Market, has large logistic gaps as well as poor hours, leaving consumers with little access to it. The concept of this paper, “Movin’ Grocers”, is a combination of all three initiatives but with a twist. This concept can receive appropriate funding from both state and federal levels, it supports its respective communities by selling produce from local gardens, and it allows residents to have access to these products in both a timely and efficient matter. In addition to focusing on the food insecurity, Movin’ Grocers supports community members employment by opening more jobs in the gardens, trucks, and the organization itself.

3 Method, Data Collection and Framework Development

The design research was conducted with three Chicago based subject matter experts (SME). First SME is a liaison for the Family Medicine Leadership Program (FMLP), second is a religious leader in the community of Englewood and third is a community garden leader. Our outreach began with Family and Preventive Medicine Liaison, as she was already associated with the university and is very familiar with the west side neighbourhoods and its healthcare concerns. She connected us to religious leader in the Englewood community as they have collaborated prior to on food desert initiatives. Finally, community garden leader was introduced to us also by the liaison as they knew each other through several collaborations on the west side community gardens and the university’s first year medical students. These meetings and subject matter interviews took place via Zoom during the winter semester of 2022. The other design research data this project relied on was from the previous

semester of this same course. Students had run nine focus groups to understand health and wellness needs of the community. Of the nine focus groups, three were with teens, three with young mothers with kids and three with senior citizens. Each group had six to eight people in it. The data was collected in the Fall of 2022.

The first meeting was with Family and Preventive Medicine liaison, who is affiliated with the academic institution this study collaborated with and is focused on Chicago’s West Side neighbourhoods. She provided data regarding the community gardens, the difficulty that is getting grocery stores to open in these neighbourhoods, marketing of junk food and gentrification. This conversation detailed how gentrification is much to blame for West Garfield Park becoming a food desert because a neglected community, such as this one, relies heavily on each other and when that community is destroyed, a plethora of issues arise. Citizens of food deserts are seen as targets for the marketing of junk food, making it easily accessible and affordable in comparison to healthier options. Religious leader stressed the importance of education as well as community inclusion through community gardens and members. Being a Reverend that many turn to and trust, he mentioned that trust is key when working with communities who have otherwise been neglected for some time. Gaining this trust takes time but it is one of the only solid ways to ensure that the education is received and practiced. Finally, a discussion with Community Garden Expert, showed a combination of information from the prior two individuals. She demonstrated the use of community gardens to not only be a revenue stream and source of fresh produce but a form of education. With volunteers of all ages at the community garden she oversees, she is able to educate the youth on the importance of gardening and fresh food and the impacts it has on their health. The goal with this approach is that the future adults are able to sustain healthy eating habits no matter their geographic location.

Through these conversations and other open access public health data, the data collected was analysed for themes. Interviews and community health needs assessments data input offered various viewpoints and experiences leading to the team’s understanding of what is and is not working in these food deserts. There are two main concerns that ended up being a common theme: the lack of practical access to the fresh food and a lack of education. These concerns have been showcased by the existing work mentioned in the previous sections, further proving that the current initiatives are not enough.

Focus groups data was re-analysed for food, nutrition, fresh groceries, and other dietary supplements required by the community members. The below figure shows the insights gathered from the re-analyses of data.



Figure 2. Nutrition, wellness, and life skills insights from Focus Group Data.

Considering the three phases of human-centred design: inspiration, ideation, and implementation, the framework for Movin' Grocers was developed. The inspiration for this idea came from the project team members' previous focus group work with mothers and their young children in West Garfield Park. The mothers expressed having a difficult time staying healthy as the lack of grocery stores in the neighbourhood and revolving around a very tight schedule limited their access to healthy items. Since the mothers were living on the west side, the researchers were able to get a first-person perspective from the people who struggle with the food desert and how it impacts not only adults but children. Next came ideation, where the team focused on the individuals who live in a food desert or have been working to improve it. Between the existing work, conversations with both the residents of the food desert and professionals, there was a long list of concerns that had to be narrowed down. The concerns were evaluated and filtered to ensure one main focus. After filtering through all the data, the focus of accessibility was determined, and a solution began to be constructed. Combining the two steps of ideation and implementation together, it was decided that the best way to fix the accessibility issue was through a mobile service and with Fresh Moves Mobile Market already in service, it was a matter of tweaking and improving it.

4 The Prototype Solution

Movin' Grocers is conceptualized as a local community-owned and operated fresh produce grocery truck. The value proposition of this concept is 'access to healthy foods to eat better and worry less'.

The idea is that with the easy and practical access individuals get with this truck, the process of getting healthy food is made easy allowing them to save time and shop comfortably. Purchasing and consuming more fruits and vegetables allows consumers to avoid junk foods that otherwise impact issues such as obesity, fatigue, diabetes, and others, giving them a chance to worry a little less about their health. Partaking in healthier eating allows consumers to practice preventive medicine and live a healthier and possibly more fulfilling life.

In comparison to other grocery trucks, this model is unique in three aspects: community connections, accessibility, and affordability. This truck will be solely partnered with the community garden, in this case, Garfield Park Garden Network, to sell their produce. In addition, the people who will drive the truck will be community members. These two concepts are implemented to give back to the community by supporting a local business such as the community garden and offering an employment opportunity to a community resident. This aims to ensure the community connections are strong, trustworthy, and long lasting. Secondly, the truck can be accessed in various locations in Garfield Park throughout the entire day to ensure residents who are working or in school can still access it when they come home. Finally, since this is a partnership with the community, the truck is able to sell the produce at discounted prices and accept SNAP benefits as well.

As previously mentioned, the truck would be operated by a community member who applied and was accepted for the position. This individual would receive the vehicle from the Movin' Grocers organization or a community donor. The maintenance of the vehicle would be covered by the revenue streams of the organization. Unlike other organizations, the Movin' Grocers truck will be open Mondays from 3:00 PM to 7:00 PM, Wednesdays from noon until 4:00PM, Fridays from 10:00AM to 6:00PM, and Sundays from 7:00AM to 1:00PM. Customers can find the truck at Genevieve Melody Public School, Garfield Park Community Worship Centre, and the parking lot of the closed down Aldi

grocery store. These locations were strategically chosen to be in places where community members already spend their time. For example, the school, gives children access to healthier options in place of junk food for an after-school snack as well a chance for parents during drop off and pick up.



Figure 3. Movin' Grocers proposed grocery truck.

5 Implementation and Execution

The financial aspect of Movin' Grocers is very important to show viability and is composed of five elements: the vehicle, fuel and maintenance, licenses and permits, operational costs and finally, inventory. It is estimated that between \$20,000 and \$55,000 would be required to purchase a used truck or bus with an additional \$25,000 to \$50,000 to repurpose them and ensure the vehicle is safe and up to code. Ideally, only repurposed vehicles would be used to help maintain low costs and prevent them from just rotting away in junk yards. If new vehicles were to be purchased, it would more than double the estimate given for repurposed vehicles, thus resulting in relying on a much greater budget that may otherwise not be available or could be put towards something else. In addition to purchasing the vehicles, the fuel and maintenance cost is calculated to be around \$2,000 monthly. Thirdly, licences and permits are needed to ensure legality as this is an official business; this is estimated to be around \$10,000. This cost would occur right away as it is one of the first steps taken when opening a business and would be renewed every few years per the law. Operational costs consist of the wages the employee(s) get while working which depends on the specific state, in this case in Illinois is about \$14.00 an hour. Finally, a critical estimate for inventory is ~\$400,000 per year, including items like produce and any other products sold, bags, cash registers, signs, containers, and decorative accessories.

As previously mentioned, the produce would be sold with a subsidy or discount. The average markup for produce is 12%, Movin' Grocers would markup only 6% to allow customers in the community an opportunity to purchase goods at a discount. Potential revenue can offset the inventory costs and enable the salary of the employed team at Movin' Grocers.

The process would begin by Movin' Grocers undergoing the appropriate procedures to trademark the name and become a legal not-for-profit organization. A business license and federal employment identification number (FEIN) must be attained to ensure everything abides by local and federal law. In addition, the appropriate insurance policies would have to be purchased when the truck becomes operable. As for finances, there are a variety of grants available on the government website, Grants.gov, which Movin' Grocers can apply for to receive funding for the vehicle, insurance, maintenance costs, etc. Financial contributions can also be accepted from private investors and donations. For the collaboration with the community garden, meetings would be held with its team members and executives to ensure both parties are on the same page as far as business plan and collaboration goes. It is important that both parties agree to terms and set a strong foundation that exudes support and trust so that relationships with customers are genuine and trusted. Items sold, prices, dates of harvests/pickings and collaborative events are some ideas that may be discussed. Meetings will also be arranged within the community members (i.e., people from the neighbourhood, local business owners, church leaders, school officials) to build an important relationship amongst one another and find possible employees. Any prospective employees would submit a resume and undergo an interview to ensure they are well versed and connected with their community and share the same values for healthy eating and living, as well as have a current driver's license. Employees would be properly trained to drive the vehicle to its appropriate locations at their designated times, to weigh and bag produce, take proper care of the produce during transport, work the cash register, and accept payments.

Advertisement of Movin' Grocers would be done with the use of mailed flyers to community members and announcements and posters at local schools, churches, community centers and clinics. These communities are very tight knit so the word-of-mouth advertisement would also be utilized between garden members and other locals. Door to door advertisement also provides an opportunity for the Movin' Grocers team to advertise the truck and answer any questions or concerns possible consumers may have. The locations in which the truck will park at will also be highlighted. Once all requirements have been met and the truck is ready to be in full use, the truck can drive around through the target neighbourhoods allowing residents to become familiar with its appearance and that it is opening.

Actual implementation of the Movin' Grocers truck has not yet occurred due to a lack of funding. As collecting the appropriate funds has been difficult, the search is ongoing to acquire ample funding to move Movin' Grocers out of the prototype phase and into implementation.

6 Conclusion and Future Works

To many, America is seen as a first-class country but what they do not understand is just how much struggle there truly is. The issue of food deserts has unfortunately been around for many years and will most likely continue becoming a larger issue if something is not done soon. Activists, politicians, community members have tried time and time again but there seems to be little progress. Professor Steve Cummins (2014) confirmed that simply providing physical access to the healthy foods is not enough, instead there must be lower costs, familiarity with location and culture and most of all, education. Movin' Grocers is a solution that has the abilities to accomplish the above three missing pieces. Through its incorporation of a mobile service, community inclusion through gardens and employees as well as more cost-effective products, Movin' Grocers is set to tackle this issue.

As with any project, there are future improvements and aspirations for Movin' Grocers. Depending on the demand of the service in its respective areas, an increase in hours of operation can be implemented to ensure the consumers have equitable access to the service. In addition, an increase in the quantity of trucks utilized can increase not only the quantity of produce accessible to consumers but a larger variety as well. This diversification can provide consumers with a larger array of fresh produce as well as other types of healthy food items such as local eggs, dairy products, and healthy baked goods. Finally, as the above data has shown, incorporating education is vital. Movin' Grocers can provide cooking courses and demonstrations at local community centres, educational pamphlets detailing the best way to utilize the product, and partnerships with local health centres to track changes in their health. This addition would give consumers the optimal trifecta as they are able to purchase healthy foods, learn how to optimize on all their benefits and get insight into their healthcare and well-being. With time, adults of current food deserts will be able to improve their eating habits and knowledge to prevent the onset of chronic diseases as well as pass down an optimistic future to the younger generations.

The American Hospital Association (2007) emphasizes how vital it is for change to be enforced because hundreds of thousands of lives are waiting to be saved in addition to nearly \$120 billion in health care costs simply due to the population reaching healthy weights. Focusing on improving Preventive care can reduce hospitalization for common issues like diabetes and high blood pressure and save nearly \$13 billion in healthcare costs. When countries were severely war torn and had pitiful economies, food was hard to come by let alone healthy food. Today, when countries are a bit more peaceful and have developed greatly, they are experiencing the same issue. The only difference today is that society has changed, and resources and accessibility have grown giving initiatives like Movin' Grocers a chance to truly make a difference.

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