

Expansion of Mobile Health Services for the Allegheny County Latino Population

by

Emily Crisan

Bachelor of Science in Nursing, Duquesne University, 2019

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This essay is submitted

by

Emily Crisan

on

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and approved by

Essay Advisor: Patricia Documet, MD, DrPH, Associate Professor, Behavioral and Community Health Sciences, Graduate School of Public Health, University of Pittsburgh

Essay Reader: Elizabeth Miller, MD, PhD, FSAHM, Professor, Department of Pediatrics, School of Medicine, University of Pittsburgh

Essay Reader: Andrea Fox, MD, MPH, Associate Professor, Department of Family Medicine, School of Medicine, University of Pittsburgh

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Abstract

The Latino community in Allegheny County is an emerging population with special healthcare needs and many of whom are uninsured. Currently, the University of Pittsburgh Medical Center (UPMC) offers pediatric mobile healthcare services to the community. I propose UPMC expand its mobile healthcare services to include the adult Latino population. In partnership with Casa San Jose, the Latino Community Center, Family and Immigrant Connections, and several churches, the mobile health clinic would provide primary care services. It will serve neighborhoods with more than 450 Latinos and operate in the locations where the UPMC Care Mobile already works. The clinic will be staffed with one administrator, one doctor, two physician's assistants or nurse practitioners, two nurses, and two drivers. There are five phases to this project and success will be measured by patient satisfaction and several process measurements. This clinic will benefit UPMC by bringing in more patients to the Health Plan, decreasing healthcare costs, and addressing the issues found in their 2019 Community Health Needs Assessment. It will show the community UPMC's commitment to the health and wellbeing of the community it serves. The mobile services will benefit the community by reducing barriers to care and making healthcare more accessible. The biggest risk of operating a new mobile clinic are the high initial costs for UPMC.

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1.0 Introduction

Allegheny County is considered an emerging Latino community and healthcare services in the area need to reflect this growing population (Documet et al., 2015). There are currently several clinics that work to serve this population; however, the University of Pittsburgh Medical Center (UPMC) only serves the pediatric Latino population. In order to keep up with the demand for services of this growing community, it is imperative UPMC expand its mobile health services to include the adult Latino population.

The health and wellbeing of Latinos in Allegheny County has significant public health importance for the community and the health systems in place. The public health significance for this work is improving access to healthcare for Latinos living in Allegheny County. In the following needs assessment, I will demonstrate that access to healthcare for this population is a major difficulty to maintaining good health. Health indicators for Latinos are poor when compared to those who are white or black. Social determinants of health are also a priority when addressing the health needs of this population. Mobile health clinics (MHCs) are used around the country to address the health needs of vulnerable, uninsured, and minority populations, such as the Pittsburgh Latino community (Yu et al., 2017). Following a needs assessment and literature review, I will propose a program for expanding UPMC's mobile health services to include caring for adult patients.

According to the United States (US) Census Bureau, the US Office of Management and Budget defines Hispanic or Latino "as a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race" (US Census Bureau, 2021). Based

on this definition and for the purposes of this assessment, the terms Hispanic and Latino will be used interchangeably.

2.0 Review of Literature

2.1 Needs Assessment of Allegheny County Latino Population

The Pittsburgh Hispanic population has grown significantly in recent years and continues to grow in both the United States (US) and Allegheny County. According to the 2020 US Census, 34,325 Hispanics live in Allegheny County (US Census Bureau, 2020). Since 2010, Allegheny County's Hispanic population grew by 80 percent. In 2019, people who identify as Hispanic or Latino accounted for 3.2 percent of the city of Pittsburgh's population (Vercilla, 2021). However, these statistics may not be completely accurate. It is possible that the Hispanic population is larger than reported (Tomatic, 2020). The Census Bureau has calculated that nationwide, Latinos are undercounted by a rate of 4.99 percent. Using this rate, the true count of Latinos living in Allegheny County would be 36,132 people (Barrett, 2022). Nevertheless, Allegheny County is an emerging Latino community and maintaining the health of this population is crucial.

Despite this increase in population size, lack of access to healthcare remains a problem facing this community. In Pennsylvania (PA), 32 percent of Hispanics reported not having a PCP, compared with 14 percent of white non-Hispanic people and 17 percent of black people. More Hispanics were unable to see a doctor due to cost too, at 23 percent. This is compared to 8 percent of white non-Hispanic people and 14 percent of black people. Finally, Hispanics/ Latinos report the lowest percentages of health insurance. In PA, 14 percent of Hispanics were uninsured, compared with 6 percent of white non-Hispanic people and 8 percent of black people (PA Department of Health, 2021). In Allegheny County, only 85 percent of Latinos were insured. This is compared to 90 percent of Black/ African American people reporting having health insurance.

Additionally, Hispanic/Latino children have the lowest percentages of health insurance coverage, at 93.8 percent, compared with all other race/ ethnicities, at over 98 percent (Allegheny County Health Department [ACHD], 2019).

According to Pesantes and Documet (2017), undocumented Latino children and their immigrant mothers often found it difficult to access healthcare. After interviewing low-income immigrant mothers, researchers found that despite healthcare providers' willingness to help and provide information to Latino mothers, they relied on friends, family, and the church to get their healthcare information. Additionally, they found that communities of emerging Latinos were often unprepared to serve this population. After interviewing a purposive sample of 16 mothers, they found that there was an average of two uninsured children per family. In total, 16 children were undocumented and uninsured. The mothers recognized the Catholic Church as their primary source for healthcare information. They also identified food banks, women's shelters, the internet, Spanish phone lines, and word of mouth as sources of information (Pesantes & Documet, 2017).

Providers were also interviewed for this study and identified several problems for the Latino community when accessing healthcare. They explained that many undocumented Latino parents lack the information to make an informed decision about when to bring their child to an emergency department (ED). These ED visits are often unnecessary and expensive. Immigrant mothers stated that when their child was sick, they would wait until the last possible moment to take their child to the ED. There is a gap in knowledge about what types of illnesses warrant an ED visit and which do not. However, mothers reported difficulty not only finding a pediatrician, but also completing bureaucratic and administrative procedures necessary for the medical visit. Long and confusing paperwork was identified as a barrier to accessing care. Therefore, mothers cited the monthly free pediatric primary clinic or the Ronald McDonald Care Mobile as being their

primary sources of healthcare. This research identifies the serious gaps in knowledge and barriers to receiving healthcare Latinos face in the Allegheny County community (Pesantes & Documet, 2017).

Transportation issues feed into the problem of lack of access to healthcare for Hispanic people in Pittsburgh. Many Latinos do not own cars and rely heavily on public transportation, which can be unreliable and sometimes difficult to access. According to the Allegheny Community Indicators, 14.5% of Hispanics/ Latinos use public transportation to commute to work, compared with 6.9 percent of white non-Hispanic people (ACHD, 2019). Weekends are of particular concern due to the lack of available public transportation. Many people worry about what to do if a medical emergency were to occur and there was no way to get to a hospital. Finally, many Latinos report difficulty finding childcare when they go to work (Latino Family Center and Casa San Jose, 2016).

Racism, discrimination, and language barriers are issues facing the Latino community as well. According to a 2021 needs assessment, many people cited fear of immigration enforcement presence in their neighborhood and institutional discrimination (Metis Associates). Additionally, children are bullied in schools. Another issue is the lack of clarity of information regarding governmental services. People cite confusion about immigration status, financial aid for college, and eligibility for welfare. Greater language access is needed for the Hispanic community too. There is a lack of information translated into Spanish, particularly for healthcare and mental health services. More generally, school, government, and health information should be more readily available in Spanish with interpreters as needed (Metis Associates, 2021).

With the COVID-19 virus still a threat, 30 percent of Latinos polled by the Latino Community Center reported not being interested in receiving the COVID-19 vaccine (Gannon, 2021). As of August 2021, only 14,627 Hispanic people were at least partially vaccinated. It is

possible that this number is underreported since not all people are asked their ethnicity or race when they get vaccinated. Nevertheless, this is less than half of the estimated 34,325 Hispanics living in Allegheny County (ACHD, 2021). Vaccine hesitancy is one of the major issues facing the Latino community in Pittsburgh. The language barrier and fears over sharing personal information while being undocumented are the biggest concerns (Gannon, 2021).

According to Documet et al. (2008), minority women faced multiple barriers when accessing healthcare. The results from 31 focus groups showed that these minority women of African American, Amish, Appalachian, and Latina descent not only identified barriers to care but also reported wanting more accurate information and identified strategies for reducing barriers. Many women, Latinas in particular, had inaccurate knowledge of health screenings and the risks of cancer. Participants wanted more information and Latinas placed a high importance on health education. One large issue is the language barrier for Spanish-speaking patients. Some women felt intimidated during appointments and did not always receive information in ways they could understand. They felt fear of pain, diagnosis, and death. They also felt embarrassment and self-consciousness. This was the primary barrier Latinas stated they needed to overcome. Latinas were also unaware of free services and lacked transportation to receive care. Many of them did not receive healthcare benefits or paid sick time off, making accessing healthcare even more difficult. Latinas also felt the process of scheduling an appointment to be overwhelming. Finally, social support was often a struggle for Latina women. The Latino community in Pittsburgh is not a tight knit community and Latinas often leave their extended families behind. They expressed interest in group screening events and improving social support (Documet et al., 2008).

Among 66 Latino men living in Allegheny County, Documet et al. (2015) found that they also had feelings of isolation, loneliness, and lack of social support. When there were not enough

social outlets, the men turned to drinking. This led to other risky behaviors, including fighting and having unprotected sex. Participants did verbalize healthy behaviors to practice. However, due to barriers such as lack of time, not knowing where to exercise or socialize, and not having a partner to do these activities with, they were not able to practice these healthy behaviors. Men also noted barriers to accessing the healthcare system. They reported fear due to immigration, financial, and language concerns. The participants lacked the knowledge on how to access healthcare when they were sick or in an emergency. Providers who participated in this study described the lack of low-cost healthcare service options for Latinos. Finally, less than 10 percent of the men surveyed had health insurance and only 29 percent had visited the doctor in the last year (Documet et al., 2015). These results identify the many barriers facing the Latino population in Allegheny County that will be addressed in the following program proposal.

2.2 Overview of MHCs

Mobile health clinics (MHCs) serve communities by reducing barriers to receiving healthcare and making healthcare more accessible to marginalized populations. They are an essential part of the healthcare system because of their ability to improve health outcomes, reduce healthcare costs, and build a bridge between the community and hospital system. MHCs typically target underserved and disadvantaged populations. They primarily provide primary and preventative care services. When explaining why patients prefer MHCs, patients often cite their client-centered approach to care. MHCs also help their clients navigate the complex healthcare system and act as a hub for health and social services resources (Yu et al., 2017).

The following review of literature will discuss the improved patient outcomes and decrease in healthcare costs MHCs provide. MHCs detect a high rate of undiagnosed diseases and provide a high number of referrals. Patients report high satisfaction and note the comprehensive and holistic care they receive. MHCs fill the gaps in healthcare and provide services to populations who would have otherwise not received them. MHCs also report high emergency department (ED) cost savings and a decrease in ED visits. While MHCs show significant improved health outcomes and cost savings, they do report some missed opportunities and limitations to their care model (Yu et al., 2017). While these challenges must be addressed, I will provide recommendations for implementing an MHC in the Pittsburgh Hispanic community.

2.3 Who do MHCs serve?

MHCs are an integral part of healthcare systems and serve to reduce barriers to accessing healthcare and make healthcare more readily available to vulnerable populations. According to Malone et al. (2020), the Mobile Health Map is a comprehensive database for mobile clinics in the US. The Mobile Health Map reports that there are about 2,000 operative MHCs in the US. The map estimates that MHCs see 5.2-7.0 million visits per year. MHCs primarily provide care to minority and vulnerable populations such as people of color, people who are homeless, people who are uninsured, immigrants, veterans, people who are suffering from poverty, and people who live in rural communities (Malone et al., 2020).

According to the US Mobile Health Map, women comprise a slightly higher percentage of patients (55 percent) than men (44 percent). A transgender option was recently added, so 1 percent of MHC users identify as transgender. Individuals aged 0-17 comprise the age group with the

highest percentage of MHC utilization, at 41 percent. The second highest group utilizing MHCs is the 45–64-year-old age group, at 31 percent (Malone et al., 2020). Certain populations utilize MHCs more frequently. Fifty-nine percent of people who use MHCs are members of a racial or ethnic minority. Finally, there are some MHCs who particularly target a group of underserved individuals. Thirty-eight percent of clinics target homeless people and 56 percent of clinics target people who are uninsured (Malone et al., 2020). These data show how crucial it is that MHCs target vulnerable populations such as women, children and adolescents, racial and ethnic minorities, homeless people, and uninsured people.

MHCs serve disadvantaged individuals in terms of health and wellness too. For instance, in Italy Bertoncello et al. (2020) established a mobile clinic in Italy to screen for noncommunicable diseases (NCD). Their goal was to describe the population using the MHC and assess the effectiveness of preventing and controlling NCDs in this type of clinic. They found that people who were smokers, overweight or obese, had unhealthy diets, or were physically inactive tended to use MHCs more frequently. The people who used the MHCs in Italy were generally not healthy when compared to the general population. Additionally, the proportion of foreigners who utilized MHCs were higher than the proportion of foreigners in the general population (16.6 percent versus 9.9 percent) (Bertoncello et al., 2020).

2.4 What do MHCs do?

Mobile health clinics serve as a bridge between communities and healthcare systems. By decreasing inequalities and barriers to care, MHCs manage to improve access to healthcare for many disadvantaged populations (Malone et al., 2020). Yu et al. (2020) identify many barriers to

care including physical barriers such as transportation and costs, and mental barriers such as fear and intimidation. Transportation is a common barrier that causes people to miss healthcare appointments. MHCs address this barrier by bringing healthcare to the community. By parking in convenient locations and being visible and accessible in the community, MHCs reduce geographical barriers or transportation issues. Lack of insurance and cost is a major barrier to receiving care for patients as well. Even those with insurance may worry about being able to pay their copay. MHCs do not require insurance and therefore remove any financial barriers to care (Yu et al., 2020).

Healthcare and hospital systems are complex structures with long wait times and complicated administrative procedures, which can be quite intimidating to patients. MHCs, community health centers (CHCs), and federally qualified health centers (FQHCs) use client-centered and community-based approaches to combat these issues. MHCs often do not require appointments and keep paperwork to a minimum. For people who live in communities with no health services, the benefit of MHCs is that they meet people in their own communities. This builds trust and reduces the intimidation that occurs when walking into a typical hospital or doctor's office. MHCs work to reduce the complexity of the system. When no CHCs or FQHCs are available, MHCs create a welcoming and informal environment where patients feel comfortable receiving care and asking questions by blending into the community and social environment around them. MHCs work hard to build trust with the community they are in and help reconnect patients with their providers (Yu et al., 2020).

Since most patients of MHCs are of racial or ethnic minorities, concerns around linguistic and cultural barriers, as well as legal status, are of great importance. These concerns may prevent people from seeking out healthcare in typical hospital or doctor's office settings (Yu et al., 2020).

Furthermore, if a person does not see a primary care provider (PCP) regularly, they are likely to miss important health screenings and information on disease prevention. In communities where there are no CHCs, many immigrants do not see PCPs due to several reasons, including embarrassment; fear of pain; lack of time, social support, knowledge, and employment benefits; and self-perceived lack of need for testing for disease. MHCs have the opportunity to reach these populations and provide the necessary services to address their problems and provide a bridge to the healthcare system (Guruge et al., 2010).

2.5 What services do MHCs provide?

Primary care (41 percent) and prevention services (47 percent) are the most common services MHCs provide. Screening services most commonly screen for hypertension, diabetes, cholesterol, and cancer (Malone et al., 2020). In Baltimore, a study comparing an MHC with a traditional clinic found the percentage of clients who agreed to undergo human immunodeficiency virus (HIV) screening was higher at the MHC, at 54.4 percent, than in the traditional clinic, at 7.1 percent. This illustrates the MHC's key ability to access vulnerable populations and identify disease successfully. Prevention of disease is a fundamental component of MHCs as well. In a Miami community, pregnant women who used MHCs were more likely to start receiving prenatal care earlier than pregnant women who used traditional clinics. Additionally, those women who used MHCs reported only 4.4 percent of births being pre-term or low-birth weight births as opposed to 8.8 percent of births of women from the traditional clinic. This further demonstrates how an MHC can reach minority populations who may not normally go for preventative services, thereby improving health outcomes (Yu et al., 2020).

MHCs also provide education and initiate chronic disease management for their patients (Malone et al., 2020). Patients at an MHC in New Mexico showed a decrease in low-density lipoprotein (LDL) levels and increase in high-density lipoprotein (HDL) after four visits over nine months. Furthermore, patients at an MHC in Massachusetts showed a decrease in blood pressure readings by 10.7 mmHg for systolic blood pressure and 6.2 mmHg for diastolic blood pressure. These reductions in blood pressure reduce the risk of heart disease, myocardial infarction, and stroke (Yu et al., 2020). This data shows how MHCs can improve health outcomes and increase patient self-efficacy.

MHCs also provide certain services to populations who might not otherwise have access to them. For example, in Chicago an MHC expanded its services to provide sexual and reproductive healthcare (SRHC) to adolescents in disadvantaged schools. According to Stefansson et al. (2018), half of adolescents ages 15-19 report having sex. Additionally, this population comprises half of all new sexually transmitted infection cases. Had this MHC not expanded its services to reach this population, these adolescents may never have received SRHC (Stefansson et al., 2018). Another example shows an MHC that connected veterans with the Veterans Affairs (VA) Hospital System. In this case, 56 percent of patients reported that their visit to the MHC was their first encounter and connection to the VA (Yu et al., 2020). This demonstrates another scenario in which a population that was not connected with healthcare resources got connected through the work of an MHC.

2.6 Why do patients prefer the MHC setting?

MHCs are successful because they provide a safe, private, and welcoming space in the patients' community to deliver medical care, where there are no community health centers. They are perceived as nonthreatening and nonjudgmental. Several factors influence the MHC's ability to succeed. MHCs strive to empower patients by using a client-led strategy to provide care (Oriol et al., 2009). They focus on patient education and empowerment and center the whole experience around the patient. MHCs typically ensure diversity of their staff and provide cultural competence training to cater to all patients. These strategies ensure a welcoming, friendly, and less clinical environment. This approach centers around the patient and their community, making access to healthcare very convenient (Yu et al., 2020). MHCs and CHCs excel in providing a culturally competent and client-centered experience.

2.7 Do MHCs provide more than clinical services?

MHCs serve as a bridge between communities and healthcare systems. Patients report that MHCs serve as an intermediary to help them navigate the complex US healthcare system. MHCs connect patients with medical and social services in the community. In an MHC that is affiliated with the VA, 56 percent of the patients reported that their visit to the MHC was their first encounter, and ultimately made a connection, with the VA hospital system (Yu et al., 2020). This serves as an example as to how MHCs form relationships with patients and build a bridge to the medical system.

Malone et al. (2020) talk about the importance of social determinants of health and linking the community with clinical and social services. Social determinants of health address food, housing, education, and jobs. These all have an impact on a person's health and wellness and are intertwined with the ability to seek out healthcare to prevent disease. MHCs serve not only as a key intermediary between the community and clinical services, but also help connect people with social services (Malone et al., 2020). The Outreach Van Project at Boston University School of Medicine is an example of an MHC that links homeless people with social services. This MHC collaborates with food and clothing distribution services and homeless shelters to holistically serve its patients. This model is a comprehensive and sustainable solution (Yu et al., 2020).

2.8 Health Outcomes

MHCs can be an essential part of the healthcare system, and their success can be measured by the outcomes of the patients they serve, including increases in case identification, referrals, and patient satisfaction. According to Bertoncetto et al. (2020), their MHC found several new, undiagnosed cases of various diseases. The prevalence of undiagnosed hypertension was 27.8 percent, diabetes was 5 percent, and hypercholesterolemia was 37.5 percent. Additionally, they reported high numbers of referrals. Of those patients who were referred to counseling for smoking, physical activity, diet, or cancer screening, 99.4 percent went to their counseling appointments. Also, 38 percent of patients were advised to contact their primary care physician, and 0.7 percent were referred to the ED (Bertoncetto et al., 2020). These findings show the importance of MHCs in diagnosing undetected diseases and providing chronic disease management and encouraging healthy lifestyle changes through referrals.

Stefansson et al. (2018) describe an academic medical center in Chicago that worked with the local health department to improve their already-operating MHC to include SRHC. The MHC provided care to students in multiple underserved high schools in the greater Chicago area. The results of this study demonstrate how this MHC filled the major needs and gaps in providing adolescents with comprehensive SRHC. The team began their study with key informant interviews with the MHC staff. The interviews showed that the staff wanted to learn more about SRHC and incorporate it into their existing practice. The staff expressed positive attitudes about providing more accessible SRHC and birth control to the students and did not think parents, teachers, or the school system would be a barrier. Additionally, the team administered an adolescent satisfaction survey, with very encouraging feedback from the teens. Ninety-two percent of the adolescents sampled in the survey said they would recommend the MHC to their friends. Privacy and safety were important to the patients as well, with 88 percent and 93 percent reporting the MHC as a private and safe place, respectively. Furthermore, 89 percent of adolescents said they felt they were free to make decisions without coercion, another significant aspect of the MHC. Twenty-six students reported qualitative benefits as well, such as easy access to the MHC and the ability to discuss topics without embarrassment. Most patients stated no drawbacks to the MHC; however, it is noteworthy that all adolescents who took the survey were patients of the MHC (Stefansson et al., 2018).

The SRHC MHC also provided students with access to prescriptions and birth control. They administered five Depo Provera (DMPA) injections and provided five DMPA prescriptions. The team wrote nine emergency contraception (EC) prescriptions, gave seven doses of EC, and provided eight three-month supplies of oral contraceptive pills as well. Overall, the MHC helped address the need for more adolescent education on SRHC and provided teens with the means to

obtain contraception. It helped increase access to care in a safe and private setting. MHC staff and providers expressed the feasibility of the implementation into their scope of practice. The team attributes their success to the incorporation of providers and adolescent users into the overall program development (Stefansson et al., 2018).

The SRHC MHC program in Chicago demonstrates the ability of an MHC to both fill the gaps in healthcare and reach a population with a specialty service that they are not receiving – in this case, the service is SRHC for adolescents. The MHC provided teens a safe and private space to receive care and ask questions. The program also provided education and prescriptions to adolescents who would have normally never received this care. Furthermore, providers were eager to incorporate this care into their practice.

Another study followed Portuguese-speaking women living in Canada as they navigated the healthcare system and utilized MHCs. Qualitative interviews and observation were used to describe their experiences receiving reproductive healthcare in an MHC. Patients perceived health to be physical, mental, social, and spiritual. The patients also expressed their desire for holistic care from their providers. They communicated several postmigration effects on health, such as stressors due to transitioning to a new life and country, loss of social and financial support, fear of deportation, and lack of access to information and available services. These factors compromised their ability to get access to preventative healthcare (Guruge et al., 2010).

The womens' experiences in the MHC were better than in traditional doctor's offices, according to Guruge et al. (2010). Women complained that PCPs in Canada did not listen to their concerns, were not warm and understanding, did not offer referrals, were too quick with the visit, and that male physicians did not examine their pelvis and breasts. Their experiences did not provide the holistic care that the women hoped to receive. They stated this was dehumanizing.

The women described their interactions with the MHC as more comprehensive and holistic. They described the MHC as being linguistically and culturally competent, easily accessible, considerate, trustworthy, and confidential. The women also referenced the MHC as a non-clinical, warm, caring, and friendly environment. They reported no critiques of the MHC (Guruge et al., 2010). This study demonstrates that MHCs successfully reach underserved populations, and that these populations have positive experiences with this mode of healthcare delivery.

2.9 Funding Structure

The average cost of a mobile clinic operation per year is \$632,369. Therefore, funding is an important part of every MHC. The primary sources of funding for MHCs are philanthropic and federal funds. Fifty-two percent of MHCs receive funding through philanthropy and 45 percent through federal funds. Public and private insurance providers come in next, at 38 percent and 37 percent respectively. While 33 percent of MHCs are independent, 29 percent are affiliated with hospital or healthcare systems and 24 percent are affiliated with universities. Less than 20 percent of MHCs are affiliated with health centers, insurance companies, and faith-based organizations (Malone et al., 2020).

Oriol et al. (2009) describes the need for a shift in funding structure from grant and charity-based funding to the payment of services through government and private insurance providers. This is a much more sustainable funding structure than is being used currently. Funding through philanthropy is not secure and can change from year to year because of shifting priorities and changes in grants and fundraising. To appeal for a more sustainable funding structure, MHCs must

quantify the value of their services and demonstrate the financial benefit of the investment to stakeholders (Oriol et al., 2009).

2.10 Cost Savings and Return on Investment

In 2009, Oriol et al. conducted a calculation of the return on investment (ROI) of MHCs using The Family Van from Harvard University. This study found that often people who were underinsured or uninsured used the ED for nonemergent care. Oriol et al. created an ROI algorithm to estimate the cost savings of using an MHC versus an ED. The results showed an ROI of 36:1. For every dollar invested in funding an MHC, \$36 were returned in ED cost savings and value of life years saved. The group also estimated that one visit to an MHC would cost \$117, while one visit to an ED for nonemergent primary care would cost \$923. Oriol et al. assumed that 80 percent of MHC visits would have been an ED visit. Using this data, they projected the ED would save \$3.1 million annually. Additionally, the total value of life years saved was estimated. The group projected that 254 quality-adjusted life years were saved by the screening, education, and counseling that MHCs provide. By applying a dollar value to the life year, they identified about \$20,000 in cost savings. It is important to note, however, that one of the limitations of this study was that data was taken from multiple different years to calculate the ROI. Ideally, all data would have come from the same year (Oriol et al., 2009). However, this data shows just how important MHCs are in reducing healthcare costs, and what difference they can make in the health of vulnerable populations across the US.

Yu et al. (2020) also provides information on the cost savings of MHCs, citing a 2013 report by the Centers for Disease Control and Prevention (CDC). The report stated that if health

disparities were eliminated in 2009, there would have been 500,000 fewer hospitalizations. Additionally, hospitals would have saved \$3.6 billion in hospitalization costs (Yu et al., 2020). While it is impossible to eliminate health disparities completely, MHCs target barriers to care and work to reduce health inequalities and disparities. By doing this, MHCs help hospitals and healthcare systems save money each year.

MHCs decrease visits to the ED, helping to save millions of dollars in ED costs every year. Yu et al. (2020) also describes a Cost Trends Report done in 2015 by the Massachusetts Health Policy Commission. It estimated that between 2010 and 2014, more than 40 percent of ED visits were nonemergent and could have been managed in a primary care setting. With 1.1 million avoidable visits to the ED in 2010, it cost hospitals \$558 million. Additionally, the rates of ED visits were highest in communities with lower average incomes and among minorities compared to the general population. This indicates the need for more healthcare outreach to minority and vulnerable populations – a primary goal of MHCs – which will save money in healthcare costs. Data comprised by The Family Van in Massachusetts supports this claim. They estimate that visits to their MHC helped to avoid 2,851 visits to the ED under the assumption that without the MHC, these would have been ED visits. This saved \$1.4 million in healthcare costs from January 2010 to June 2012. Additionally, using data from 16 MHCs on the Mobile Health Map, Yu et al. (2020) concluded that \$1.1 billion per year is saved by utilizing MHCs instead of EDs (Yu et al., 2020).

2.11 Limitations

While the benefits of incorporating MHCs into the healthcare system are large, there are several limitations and areas for improvement. Continuity of care can be an issue due to

inconsistency in primary care provider and difficulty following up with patients. This makes it difficult for staff and providers to track patient outcomes too. The fragmentation of care can become a problem for patients requiring follow up and collaboration of care. As discussed earlier, funding is currently another source of difficulty. Since most MHCs are funded through philanthropy or charity, steady funding sources can be almost impossible to find. Funding may vary from year to year, causing changes in the MHC's ability to provide comprehensive healthcare. As funding comes and goes, so do healthcare services. This is something vulnerable communities see much too often, causing mistrust and difficulty building relationships within these communities (Yu et al., 2020).

Structural and logistical constraints can be drawbacks to MHCs. Spatially, an MHC is quite small and can only accommodate one or two patients at a time while still maintaining confidentiality. Anonymity and privacy may be hard to uphold with multiple patients in the MHC at a time. Additionally, equipment quality may be subpar or unreliable. Due to spatial and logistical constraints, equipment must be small enough to fit in the space, be portable, and run off a generator. Fast and reliable WIFI may be hard to obtain. Staff retention can be a problem. Since most MHCs serve vulnerable communities, are small spaces to work in, and have wavering job security due to unstable funding, they are not the most sought-out workspaces. Finally, safety can be a concern when working in underinvested communities. Finding a safe location to park and one that can accommodate a large van can be a difficult task (Yu et al., 2020). While many of these drawbacks cannot be completely solved due to the logistics of working in a van, there are solutions to strive for to improve MHCs and create a better experience for patients and providers alike. The benefits significantly outweigh the costs of utilizing MHCs in the US healthcare system.

2.12 Allegheny County Health Services

In Allegheny County there are four organizations that offer care to Latino patients. Two of these organizations operate MHCs. The UPMC Children's Hospital of Pittsburgh (CHP) operates Salud Para Niños, a bilingual pediatric primary care clinic. It was founded in 2002 by Dr. Diego Chaves Gnecco and was the first pediatric bilingual clinic in southwestern Pennsylvania. Salud Para Niños provides preventative care and immunization services to children and their families. It provides culturally and linguistically competent care and is staffed by three Spanish-speaking doctors. The clinic focuses on prevention services and empowering the community. They offer a bilingual literacy program, Spanish reading materials on health promotion, car seat checks, injury prevention programs, a Spanish phone line, and participate in health and wellness fairs. On Tuesday and Friday mornings and Thursday evenings, Salud Para Niños operates a primary care clinic at the Primary Care Center of Children's Hospital in Oakland. Appointments and health insurance are required at this clinic. However, every second Saturday of the month at Birmingham Clinic in the South Side they offer free services. No appointments or insurance are required. Additionally, every fourth Tuesday of the month at this same location services are offered which do require an appointment but do not require insurance. Salud Para Niños does not serve the adult Hispanic population and has limited hours of service. Nevertheless, the clinic is remarkable because it specializes in offering bilingual services directed at the Hispanic community in Pittsburgh and is led by a Latino physician (UPMC, n.d.).

UPMC CHP also collaborates with the Ronald McDonald House to operate an MHC, called the Care Mobile. The Care Mobile is a mobile unit directed by Dr. Elizabeth Miller that delivers pediatric primary care services to children in Allegheny County. While the clinic is not specifically for Latino patients, it does see Spanish-speaking patients. The unit is staffed with culturally

competent pediatricians, nurse practitioners, nurses, and respiratory therapists. The Care Mobile offers wellness and sick visits, immunizations, sports physicals, dental exams, and asthma care. They see 1,700 patients per year. The Care Mobile utilizes distraction therapy by transforming their exam rooms into a Pittsburgh Penguins themed igloo or an under the sea experience. This decreases the child's stress when going to visit the doctor (Ronald McDonald House Charities, n.d.). The Care Mobile is staffed by a driver, a nurse, and a nurse practitioner (NP) or physician. It also provides community-based resources and health education classes on the mobile unit. The MHC visits schools, early childhood centers, and family centers. They primarily provide services in Mon Valley, New Kensington, New Castle, and Homewood. While their services are not specific to Latinos, they welcome patients of all racial, ethnic, and cultural backgrounds (UPMC, n.d.).

The Birmingham Free Clinic is a UPMC-affiliated clinic that offers services to people who do not have medical insurance. It was founded in 1994 through the Program for Health Care to Underserved Populations. They are staffed by volunteer physicians, nurses, pharmacists, physical therapists, health professional students, and AmeriCorps National Service members. The clinic offers primary and acute medical services, social services, medication access, and case management. They also help with insurance navigation. The Birmingham Free Clinic sees patients by appointment only. They also provide immunizations, blood glucose testing, basic urinalysis testing, and health education. Additionally, the clinic provides specialty clinics on a more infrequent basis. These clinics include audiology, dental, dermatology, vision, and many more (Birmingham Free Clinic, n.d.).

The Squirrel Hill Health Center (SHHC) is another clinic that serves the Allegheny County community and offers comprehensive and culturally and linguistically competent care to Latinos.

Dr. Andrea Fox helped to secure funding for the SHHC as a center serving primarily language minority populations. Being a federally qualified health center, the clinic is dedicated to providing care to people who have barriers to accessing healthcare. They provide services to patients who are uninsured. The SHHC serves patients regardless of their ethnic and cultural background, religious beliefs, language spoken, age, sex, and disability status. The SHHC offers medical, dental, behavioral health, prenatal care, and OBGYN services. They also provide medications at a lower cost, give immunizations, and provide lab services. The SHHC has a mobile unit which travels to Auberle, Beechview, Corapolis, Leland Point, Milestone, POWER House, Tadiso, and Prospect Park. Their mobile unit staff consists of a driver or medical assistant, a physician or NP, and a Pittsburgh Health Corps Member. The MHC is by appointment only and offers COVID-19 testing services as well (SHHC, 2022).

The East Liberty Family Health Care Center (ELFHCC) is a faith-based clinic serving uninsured and underserved patients in the community. The clinic was founded in 1982 and works to provide community-centered and quality healthcare serving the whole person. The ELFHCC provides medical, dental, pediatrics, prenatal, OBGYN, behavioral health, and laboratory services. They also have language assistance and social services to help with payment and applying for insurance (ELFHCC, 2021).

2.13 Objectives

This essay will present a program proposal to expand UPMC's mobile healthcare delivery system in Allegheny County specifically targeting the adult Hispanic population. Currently, many families take advantage of the Salud Para Niños mobile clinic's services because of their culturally

aware staff, the fact that they do not require medical insurance, and their ability to bring healthcare to the community (PRESENTE Pittsburgh Latino Magazine, 2021).

3.0 Methodology

Based on the literature review and the other mobile and stationary clinics in Allegheny County that serve the Latino population, I will identify services for the MHC to provide. These services will be primary care and preventative services that are important to address the health needs of the community, as well as are cost-effective to UPMC.

To identify the best communities in Allegheny County for the MHC to operate, I will identify by zip code which areas have the highest percentages of Latinos living there. I will also collaborate with the SHHC to ensure we do not duplicate our services in any location. Additionally, I will identify the areas the Birmingham Clinic and ELFHCC serve so as not to oversaturate services in those areas. Because this MHC will complement the UPMC Care Mobile and Salud Para Niños, I will identify the communities they already serve and expand those services to the adult population. This will ensure the whole family is cared for in those locations, not just pediatric patients.

The location where the MHC truck will be parked also needs to be chosen carefully. I will identify where Latino people frequently go, such as churches, schools, family centers, and grocery stores. These locations are ideal because they are trustworthy and will attract the most patients. I will partner with these businesses and other Latino organizations. This will ensure patients have a safe place to wait before they are seen by the clinic. The parking lot must be easy to maneuver and large enough to accommodate the truck. UPMC will need to collaborate and negotiate with the business to park there.

To staff the truck, I will identify bilingual physicians, NPs, and physician assistants (PAs) on the UPMC physician directory website. These providers will be either family or internal

medicine clinicians. There is no directory for the number of nurses or medical assistants/ drivers who are bilingual at UPMC. I propose listing a job posting to fill these positions. In the beginning stages of this plan, nurses and medical assistants/ drivers from the Care Mobile or Salud Para Niños can staff the clinic. Additionally, the MHC will need to hire an administrator to organize the operations of the mobile clinic.

According to UPMC's 2019 Community Health Needs Assessment, UPMC identified chronic disease management, behavioral health, access to care and navigating resources, and prevention and community-wide healthy living as the community's top four needs (UPMC, n.d.). This program proposal will tackle three of the four needs; chronic disease management, access to care and navigating resources, and prevention and healthy living. By investing in this MHC, UPMC will be investing in the health and wellness of the community it serves. Not only will it address three priority needs, but it will show the community UPMC's commitment to serving Allegheny County.

It is financially beneficial to expand these services because the MHC will decrease ED costs and overall healthcare costs. While many Latinos are uninsured, primary care visits cost significantly less than ED visits, which I noted in the preceding literature review. By creating this mobile clinic for Latinos, UPMC has the opportunity to bring patients onto the UPMC Health Plan and keep them as UPMC patients. When looking at the financial benefits to implementing this project, I will consider initial startup costs and what it costs to maintain the truck and staff. I will consider the number of ED visits by Latinos in the US and how a new MHC will help decrease those non-emergent ED visits.

Finally, I will identify process measures to evaluate the effectiveness and success of the mobile unit. Using the findings from the articles in the literature review and identifying outcomes

measured by the Care Mobile and the SHHC MHC, I will provide recommendations on process measurements for the new MHC.

4.0 Findings

In this program plan, I propose UPMC expand its mobile health services to the adult Hispanic population. Currently, Salud Para Niños provides healthcare services to the pediatric Hispanic population and the Care Mobile travels to different communities around the area to serve pediatric patients. However, UPMC does not have a specific clinic addressing the needs of the adult Hispanic population. While the SHHC, Birmingham Free Clinic, and the ELFHCC all provide bilingual services, Pittsburgh is an emerging Latino community. There is a need to include adults in UPMC's services and provide comprehensive family services to the Latino population. I propose expanding UPMC's already successful Salud Para Niños program to include adult patients. Expanding the program to include adults will provide care to a vulnerable population and address healthcare needs of the whole family. To expand this program to adults, several factors need to be taken under consideration including the needs of the community, the geographical regions that need to be covered, and the interest and capacity of UPMC. The number and availability of bilingual staff members and the capacity of the truck that is already operating will all be considered in this following proposal. Additionally, phases of expansion will be described to ensure the sustainability and success of the program.

4.1 Services Provided

Based on the literature review and the services other clinics in the area provide, I propose this MHC provide adult primary care and preventative services including screening for chronic

diseases such as diabetes, hypertension, and hypercholesterolemia. The clinic will also provide education and chronic disease management services. The MHC will provide referrals, should a patient need to see a specialist within UPMC or at one of the other clinics mentioned in this paper, and social services resources. It will be staffed by bilingual clinicians and team members who are culturally and linguistically competent.

4.2 Geographical Locations

Latinos in Pittsburgh do not live in one, single neighborhood, but rather are spread out throughout Allegheny County (Pesantes & Documet, 2017). Currently, the SHHC mobile unit serves Auberle, Beechview, Coraopolis, Leland Point, Wilkinsburg, Tadiso, and Prospect Park (SHHC, 2022). I suggest that the new UPMC mobile unit does not go to these sites to avoid oversaturating healthcare services in those areas. Additionally, Birmingham Clinic serves the South Side neighborhood and the ELFHCC serves East Liberty, Shadyside, and Highland Park (Birmingham Free Clinic, n.d. & ELFHCC, 2021). It is important not to duplicate primary care and preventative services in these communities.

Since this new MHC will complement the UPMC pediatric clinics, Salud Para Niños and the Care Mobile, it is imperative the adult services cover the communities where the pediatric services already operate. In these locations, now the whole family will be cared for. According to the February 2022 Care Mobile schedule, the truck goes to Clairton, Banksville, Homestead, New Castle, Penn Hills, Duquesne, and Homewood (UPMC, n.d.). Aside from Duquesne, which is also serviced by the SHHC mobile unit, these communities are not served by the other clinics

mentioned. Therefore, they are critical neighborhoods to begin offering these extended healthcare services to adults.

There are several neighborhoods in Allegheny County with more than 450 Latinos. These locations include Brentwood, Carnot-Moon Township, Pittsburgh, McKeesport, Monroeville, Mt. Lebanon, Ross Township, and Penn Hills (Statistical Atlas, 2018). While the SHHC has a physical location in Brentwood, the other locations do not. I suggest the new MHC begin to offer services in these areas as well.

In the prior needs assessment of this paper, Latinos identified the Catholic Church as being their primary source of healthcare information. Because the church is so well-respected, it is essential to collaborate with local churches in these communities. In Allegheny County, St. Rosalia (Greenfield), St. Catherine of Siena (Beechview), and St. John the Baptist (Plum) churches all offer Spanish services (The Real Yellow Pages, n.d.). Currently, there are no services offered in Greenfield and Plum, where St. Rosalia and St. John the Baptist are located. By collaborating with these churches and offering services in these locations, the MHC will address a need and reach Latinos living in Greenfield and Plum, and neighboring Penn Hills and Monroeville. While waiting to be seen on the MHC, patients can wait in the church and take advantage of other services the church offers. Church parking lots are ideal places to park the mobile unit.

The MHC will also partner and collaborate with local organizations that cater towards the Latino community in Allegheny County. Casa San Jose, the Latino Community Center, and Family and Immigrant Connections are all trusted organizations in the Latino community (ISAC, 2021). Family and Immigrant Connections is located in McKeesport, a location without current services. Therefore, it is important to prioritize offering services in this area. Partnering with these organizations will help the MHC develop trust within the community, advertise the adult

healthcare services, and increase the utilization of services by the Latino population. When partnering with the organizations, Latinos will be able to use the MHC's services and the organization's services in one stop.

School and grocery store parking lots will be used as locations to park the MHC. Many Latinos shop at the Walmart in Robinson Township, making it an ideal place to park the truck. Additionally, the UPMC Care Mobile already has agreements with certain businesses where they park their current MHC. These locations include several schools, family centers, and a Family Dollar (UPMC, n.d.). These contracts will be capitalized on when beginning to use the new MHC.

4.3 Staffing

The current UPMC Ronald McDonald Care Mobile operates with one driver, one nurse, and one practitioner, such as a NP or physician. In total, the Care Mobile employs two drivers, two nurses, two NPs, and one physician. According to the UPMC provider list, 24 physicians and two PAs specialize in internal medicine and speak Spanish. Additionally, 25 physicians, three NPs, and one PA specialize in family medicine and speak Spanish (UPMC, n.d.). There is no directory to identify the number of bilingual nurses or medical assistants/ drivers. However, using the current Care Mobile model that already successfully operates in the community and the number of bilingual practitioners UPMC employs, staffing the adult clinic is highly feasible.

To staff the clinic, I recommend hiring one administrator and assigning him/her to overseeing the daily operations of the clinic. One physician and two NPs or PAs will also be hired to care for patients. These practitioners may rotate their duties on the mobile clinic with their other responsibilities at one of UPMC's other clinics. The clinic will need to recruit and hire two

bilingual nurses and two bilingual drivers. These employees will work solely at the mobile clinic. Below is a sample figure of what the project team and organizational chart will be for this project.

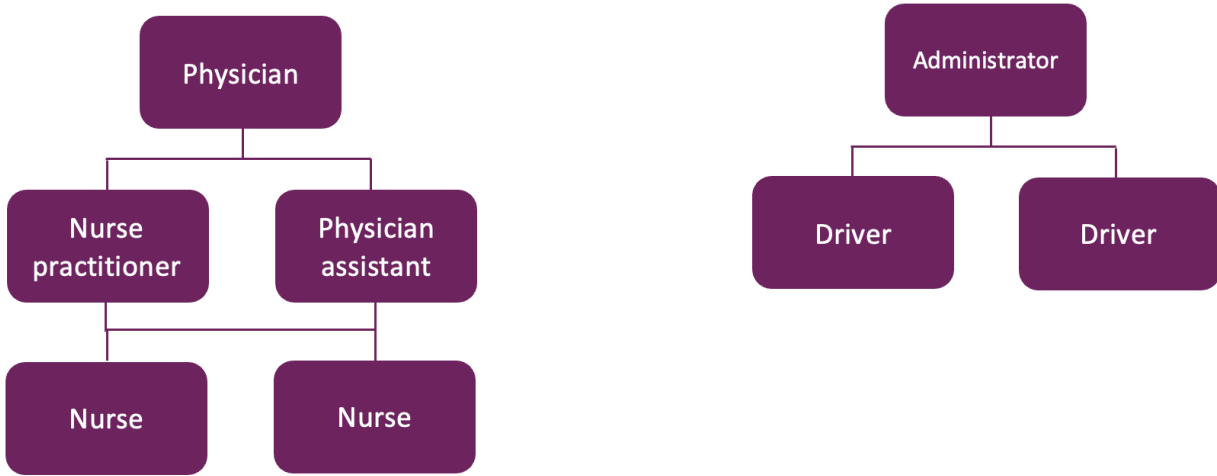


Figure 1: Clinical Team Organizational Chart

4.4 Phases of Expansion

There will be five phases for this project, lasting two and a half years total. The first phase will be proposing this project to UPMC and getting buy in. It will include preparations for the expansion of services, including hiring staff and training them. The second phase will be utilizing the Care Mobile on its off days to provide adult services. The third phase will be buying a new truck and supplying it with the resources needed to provide patient services. The fourth phase will be utilizing the new truck to provide adult patient services to the community. The fifth and final phase will be continuing and sustaining the services. Below is the proposed timeline for this project.

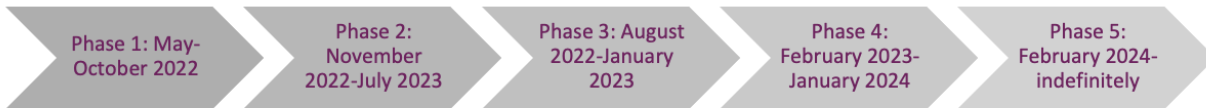


Figure 2: Project Timeline

4.4.1 Phase 1: Preparation

The first phase will last six months and will consist of proposing this project to UPMC, getting buy in, and preparing for the expansion of services. I will present this project to the directors of the UPMC Health Plan and the Center for Engagement and Inclusion. I will make the following points to get buy-in from UPMC:

- This plan will show the community UPMC is committed to providing for underserved populations and promoting diversity, equity, and inclusion.
- As a nonprofit organization and the largest provider of health services in the area, it is UPMC’s moral imperative to create these services.
- Implementing this program will address the needs found in UPMC’s Community Health Needs Assessment.
- This program will help secure more patients under the UPMC Health Plan, using providers and services in UPMC’s network.

Once UPMC has accepted this program proposal, preparations for the clinic will begin. The current Care Mobile team will identify communities in need of primary care services for Hispanic adults and locations where the truck can easily park, using the information I presented in the methodology and findings sections of this paper.

While this is occurring, staff will need to be identified, hired, and trained. Working on a mobile care unit can come with significant and different challenges clinicians may not be used to while working in a stand-alone clinic. It is important to hire and train staff early. I also advise having the staff shadow the current Care Mobile staff during this time to better prepare them for their work. One to two months will be sufficient for the purposes of training new staff members on the Care Mobile.

Finally, the team will need to obtain supplies for adult patients. While the Care Mobile is already staffed with supplies, certain supplies cannot be used on both pediatric and adult patients. For example, adult blood pressure cuffs will need to be obtained, along with common medications for adults with the correct dosages.

4.4.2 Phase 2: Trial Period

The second phase will last nine months and will be operating the Care Mobile for adults when it is not in use for children. Based on the Care Mobile's schedule for November and December 2021, the truck was not operational for 11 days total (UPMC, n.d.). This creates an opportunity to utilize the Care Mobile on the days it is not operating for pediatric services to test out the model on providing care to adult patients. The team will identify the days the Care Mobile will not be in use for pediatric services every month and select sites for the adult population to receive care on the truck. The adult clinic can run on a trial basis for six months using the already-operating truck on days it is not in use. Furthermore, no money will be invested on a new truck during the trial period. This trial period will spread the word about the new adult services, gauge community interest in the new adult services, and allow for a transition period from only serving

pediatric patients to serving adult patients as well. After the trial period is over, a second truck will be bought if there is enough interest and use of adult services from the community.

4.4.3 Phase 3: Buying the New Truck

This phase will last six months and will take place during the second phase. As word spreads about the new adult services on the Care Mobile through partnering Latino organizations and interest grows in using its services, a new truck will need to be purchased to keep up with demand. This truck will be used for adult patients. Once this truck is in use, the Care Mobile can return to providing services to both pediatric and adult patients.

This phase will require UPMC to research and source a new mobile care unit to service the adult Hispanic population. Additionally, during this phase, the new truck will need to be stocked with all resources and supplies needed to run the clinic. These include but are not limited to, supplies, medications, vaccinations, vital sign machines, computers, printers, etc.

4.4.4 Phase 4: Operating the New Truck

Phase four will introduce the new truck into the community. This phase will last one year. The newly purchased truck will now operate as the sole UPMC mobile clinic provider of adult services to the Hispanic community. During these six months, issues may arise while working on the new truck and processes will be streamlined.

4.4.5 Phase 5: Continuing Operations

Phase five, the last and final phase, will continue indefinitely while the MHC is still in operation. This phase will consist of sustaining healthcare services, performing annual maintenance on the truck, identifying new community partnerships and maintaining old ones, and identifying new evidence-based practices to implement on the MHC. This truck, along with the Care Mobile, can transition into a family unit which will provide a one-stop health clinic for all ages in the future.

4.5 Measures of Success

To measure how successful the MHC is, I will use process measures such as the number of patients reached, number of new cases of disease identified, number of referrals given, the services provided, and the number of immunizations given. It will be important to compare these numbers with statistics from other UPMC clinics serving this population, such as the Birmingham Free Clinic. Based on the literature review, many MHCs compared their number of new cases of disease identified and referrals given out to a regular, standalone clinic. They looked at chronic diseases such as diabetes, hypertension, and hypercholesterolemia. They also identified the number of people screened for various diseases and cancers (Bertoncello et al., 2020). Social isolation, depression, and anxiety should be measured too. These diseases are common among Latinos and many FQHCs screen for them (Documet et al., 2015). One MHC identified how many vaccines and medications they administered as well (Stefansson et al., 2018). It is important for

this new adult MHC to keep track of all services provided so that it can be compared with other UPMC clinics.

Additionally, the MHC will measure patient satisfaction through qualitative survey data. After patients are finished with their visit, they will take a short survey on their experience. The survey will ask about the accessibility of the MHC, the cultural competence of the staff, and the confidentiality and trustworthiness of the MHC. It will ask the likelihood of the patient returning to use the services again. It is important to consider these factors when assessing the success of this MHC in the community.

Finally, the number of visits to the MHC will be compared with the number of visits to the ED for a primary care reason. The rate of use of the ED by Latinos will be compared with years past to identify if the use of the ED for primary care reasons for this population has lowered since the initiation of the new mobile healthcare services. Ideally, the use of the MHC will increase and the use of the ED for primary care visits will decrease.

4.6 Budget

The total budget for this two-year project will be \$1,974,994. The majority of the budget will go to staff salaries and benefits. According to the UPMC Careers website, the average salary for an office manager is between \$17.48 and \$28.54 an hour. Averaging the high and low salaries produces an hourly wage of \$23.01. The administrator will make \$95,722 for both years. The average salary for a primary care physician is \$150,000 per year, making the two-year salary \$300,000. NPs or PAs that work at outpatient clinics make between \$38.65 to \$61.13 an hour. Averaging the high and low salaries produces an hourly salary of \$49.89. The total two-year salary

for two NPs or PAs is \$415,085. Professional staff nurses that work at outpatient pediatric clinics make between \$25.30 and \$30 an hour. Averaging the high and low salaries produces an hourly salary of \$31.15. Two nurses' salaries for two years are \$259,168 total. Drivers at UPMC make between \$15.76 and \$23.58 an hour. Averaging these wages gives an hourly salary of \$19.67. The total two-year salary for two drivers is \$163,654 (UPMC, n.d.). Fringe benefits were calculated by multiplying the annual salary by 0.3. The cost of the truck and equipment will be a one-time expense (M&R Specialty Trucks and Trailers, 2021). Supplies will need to be resupplied as stock declines. The table below presents a comprehensive itemized budget.

Table 1: Itemized Budget

Category	Item	Subtotal	Total (two years)
Staff salaries	Administrator x1	\$23.01/ hour	\$95,722
	Physician x1	\$150,000	\$300,000
	Nurse practitioner or physician assistant x2	\$49.89/ hour/ NP or PA	\$415,085
	Registered nurse x2	\$31.15/ hour/ nurse	\$259,168
	Driver x2	\$19.67/ hour/ driver	\$163,654
Fringe benefits	Administrator x1	\$14,358/ year	\$28,716
	Physician x1	\$45,000	\$90,000
	Nurse practitioner or physician assistant x2	\$31,131/ year/ NP or PA	\$124,525
	Registered nurse x2	\$19,438/ year/ nurse	\$77,750
	Driver x2	\$12,274/ year/ driver	\$49,096
MHC	Truck	\$400,000	\$400,000
	Equipment/ supplies	\$35,500	\$35,500
	Gas	\$750	\$1,500
	Truck maintenance	\$30,000	\$30,000
Total two-year budget			\$1,974,994

5.0 Discussion

5.1 Benefits

The benefit of operating a new MHC in Allegheny County is reducing barriers to care and making healthcare more accessible to the community. MHCs are convenient because they bring healthcare directly to the people who need it. Because transportation and getting paid time off is such a large barrier for Latinos accessing care, the MHC will address those needs. By providing primary care, screening, and prevention services, health outcomes will improve for this population. Patients will have improved physical accessibility to culturally and linguistically competent care and resources. Not only will the MHC provide healthcare services, but it will also serve as a bridge to the hospital system, connecting patients with PCPs and specialists. The MHC will also help connect patients with social services. The clinic will be a free clinic with no insurance required, making it more financially accessible for this population.

The benefit to UPMC is securing more patients within the Health Plan, promoting UPMC, and showing the community the good work UPMC is doing. By operating this mobile clinic, UPMC will secure more patients in their network. It will also support the continuity of care. All UPMC outpatient services use Epic, making it easier for patients and providers to access medical records. This clinic will promote UPMC, the UPMC Health Plan, and its services. Being a nonprofit and the largest provider of healthcare in the area, UPMC will show its concern for the health and wellbeing of the Allegheny County community and its commitment to caring for underserved populations. Often, efforts to promote diversity, equity, and inclusion go unnoticed.

UPMC could benefit from implementing this plan and sharing its positive community work to its patients and the community.

The operation of the mobile unit could significantly lower the overall cost of care, providing UPMC with cost savings and ROI. According to a study done on ED use of Hispanic adults by Allen and Cummings (2016), the overcrowding of EDs in the US, a major public health concern, is largely related to non-urgent ED use. Non-urgent ED use are visits that could have been delayed up to 24 hours or could have been prevented through primary care. This leads to longer wait times, higher costs, and the missed opportunity of establishing a relationship with a PCP. The study concluded that 7.7 percent of Hispanics used the ED for a non-urgent visit (Allen & Cummings, 2016). Another study by Parast et al. (2021) on the use of EDs by race/ ethnicity showed that Hispanics are more likely than non-Hispanics to use the ED for routine medical care and are less likely to have a PCP. They also reported using the ED for an ongoing medical condition more often, rather than for a new one (Parast et al., 2021). Using the ED for non-emergent care increases overall healthcare costs for the UPMC system.

As I previously mentioned in the literature review, there are cost savings and ROI for operating a primary care mobile unit. Oriol et al. (2009) concluded that for every dollar invested in an MHC, \$36 were returned in ED cost savings. While one visit to an MHC only costs \$117, one ED visit costs upwards of \$923. This saves \$3.1 million annually (Oriol et al., 2009). Furthermore, Yu et al. (2020) described that more than 40 percent of ED visits were nonemergent from 2010 to 2014. These visits cost hospitals \$558 million when they could have been managed in a primary care setting. Finally, they concluded that \$1.1 billion per year is saved in healthcare costs by using MHCs instead of EDs (Yu et al., 2020). These data demonstrate the massive cost savings UPMC could save by implementing a mobile unit.

5.2 Risks

Some major drawbacks to operating an MHC are the physical and spatial constraints of the space. Room is limited on a truck; therefore, the MHC will not be able to provide specialty services. Equipment must be able to fit and function on the truck as well. Most trucks only have the capacity to serve one to two patients at a time because of the limited space and exam rooms. Services will primarily be limited to primary care and prevention services. If a patient needs more specialized care, the clinic will have to refer the patient to a specialist. Finally, finding a space large enough to accommodate and park a truck may be an issue.

However, the major risk to operating a new mobile clinic is the high start-up cost for UPMC. Up front it will cost a significant amount of money, as I discussed in the budget section of this proposal. Start-up costs will include buying a new truck and supplying it with the necessary equipment to operate as a clinic. Maintaining the MHC and its services will be ongoing costs. These costs include staff salaries and fringe benefits, as well as truck and equipment maintenance, gas, and restocking supplies. It may take some time for the clinic to gain momentum and for patients to begin to trust the clinicians and use the services. Therefore, ROI and cost savings may not be seen right away. In all likelihood, it will take several years to see the effects of the clinic on the community and UPMC's cost savings.

I recommend the UPMC Health Plan to fund this project. This will provide a stable and sustainable funding source for the project. While it may prove difficult to get the Health Plan to fund this project at first, the overall ROI and cost savings UPMC will gain in the future will make funding this project well worth the initial start-up costs.

6.0 Conclusion

MHCs are a cost-effective solution to expanding primary care services to the Hispanic adult population in Allegheny County. Latinos are growing rapidly in Allegheny County and healthcare services directed at caring for this population need to reflect that. While there are several bilingual clinics in the area, UPMC only serves the pediatric Latino population. By expanding its primary care services to include adult Latino patients, UPMC will address this vital healthcare need.

MHCs deliver primary care and preventative services. By screening patients and focusing on providing holistic care and health education, they prevent disease and manage the health of their patients. These prevention services decrease the number of ED visits and the cost of care for a healthcare organization. Additionally, health outcomes improve and patients report feeling comfortable and well-cared for on the MHC.

In this paper I proposed that UPMC expand its mobile health services by utilizing its existing Care Mobile to begin offering adult services and buying a new truck to sustain these services. I provided recommendations on services to provide, geographical areas to reach, staffing, phases of expansion and project timeline, and an estimated budget. This MHC will significantly improve UPMC's outreach and the health of this community. It will address the priority areas found by UPMC's recent community needs assessment. Finally, it will decrease total healthcare costs and the number of non-emergent ED visits for Latinos. I encourage the UPMC executives to consider this proposal to improve the health of our community in Allegheny County.

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