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The Integration of Community Voice in the Implementation of a Mobile Health Program

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ABSTRACT:

Background: Health care access is vital to advancing health equity. The purpose of this paper was to use a community-based participatory research approach (CBPA) to engage underserved communities in the development of a new mobile health clinic (MHC) program and to discuss the lessons learned from the conversations. Community conversations helped identify barriers to access to health care, community strengths, and health concerns. They also helped the mobile health clinic leaders develop programming.

Method: CBPA guided five community conversations conducted (n=51 participants) from 2018-2019. Participants provided input on their personal experiences with a) existing facilitators and barriers to health, b) priority health issues and needs, and c) recommendations for MHC program development.

Results: Barriers to health care access were identified, as were many community strengths. Recommendations directly informed MHC program development and implementation, including availability of services at no cost, mammogram referrals, mental health screening, eye exams, and nutrition counseling.

Conclusions: This project highlights the importance of collaboration between academic partners and communities to inform health care programs and the implementation of a mobile health clinic based on community voice and input.

KEYWORDS: Community health partnerships, Health disparities, Appalachian Region, Needs Assessment, Delivery of Health Care, Health Care, Medically Uninsured, Mobile Health Clinics

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Introduction

The United States spends proportionally more on medical care than other developed countries, but paradoxically achieves poorer health outcomes and has persistent health inequities among population groups, linked to race and ethnicity, access to quality care, and health outcomes.[1] The World Health Organization (WHO) and other international health organizations are calling for innovative strategies to address the medical and social drivers contributing to disparities in health outcomes.[1] Conventional approaches to health service delivery are ineffective when targeting vulnerable populations, including people who are homeless or uninsured.[1,3,4] Despite recent legislation, emergency room use for primary care conditions continues to be a common practice for the underinsured and uninsured.[5-7]

North Carolina (NC) has seen a large growth in population and loss of health insurance during the pandemic. About 29 percent of NC residents are uninsured, compared to about 12 percent for the rest of the nation.[8] In our region (Forsyth County, NC), approximately 24 percent of residents under the age of 65 reported being uninsured in 2012 (an increase from 19 percent in 2008).[9]

Mobile Health Clinics: Mobile health clinics (MHC) provide cost-effective care to vulnerable populations, particularly for minority groups, homeless, and immigrants.[4,10,12] Services vary widely in MHCs, but many provide various primary and urgent care services and health screenings.[4,5] MHCs are adept at responding to community needs quickly and can help to alleviate health disparities in populations who have barriers to accessing traditional models of health care, such as transportation, lack of health insurance, cultural barriers, intimidation by healthcare settings, or hours of operation.[4,12]

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MHCs are well situated to provide a patient-centered model of care and facilitate improved health outcomes for chronic conditions, such as hypertension and diabetes.[4] In one example, the Family Van mobile clinic's successful blood pressure management program helped patients achieve reductions in blood pressure, thereby reducing patients' relative risk of myocardial infarction by 32.2 percent.[14] MHCs also help decrease the inappropriate use of emergency rooms for primary care needs, detect previously undetected chronic disease, and decrease hospital costs.[4,14, 15] But despite this evidence of benefits, there is limited literature on including community input to design and implement MHC programs. This paper described a community-based participatory approach to gather input from community members who live in potential areas that the mobile clinic team might serve prior to developing such a program in Forsyth County, NC. The community conversations provided the team and informal opportunity to engage in community dialogue and input on the design of our mobile health program without the formality of traditional qualitative methods, such as focus groups.

Overview of Community-Based Participatory Research

Community-based participatory research (CBPR) emphasizes collaborative partnerships among community members, organizations, and academic researchers to help identify local knowledge, work through strategies to solve problems, and develop programs with potential sustainability within communities.[16] Informal conversations can authentically engage members of communities, while generating local knowledge and promoting co-learning and collaborative development of strategies.[16,17] They are a necessary step to building trust and genuine partnership between health care providers and the communities they serve.[19,20] Nonetheless, health care

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leaders rarely solicit input from local residents when developing new programs or modifying existing health care programs or services.[16]

Health interventions can be strengthened if they incorporate community theories of etiology and solutions into programming. [18,20] Community engagement is an important part of the implementation cycle and focuses on:

1) Problem identification- Providing input and understanding on key problems to be addressed.
2) Design and planning- Helping to shape program aims and objectives, providing feedback on program goals, and contributing insights into provision of culturally appropriate care; and
3) Implementation- Participating in design of the intervention, both formally and informally.[21]

Community-Informed Program Development and Implementation: We conducted community conversations to solicit input into developing a MHC program for underserved residents in select communities in Forsyth County in December 2018-February 2019. Secondary aims included identifying barriers and facilitators of health and access to care, as well as recognizing community strengths. Our team used community conversations to understand and develop plans to address health disparities experienced by participants.

Methods

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Approach: By using community conversations for program development versus traditional focus groups, our team could show cultural humility and respect to communities as co-learners and partners. Participants in the conversations lived in the communities our program was interested in serving. Our team did not recruit a specific population for the conversations, did not collect demographic information of the participants, and did not record the conversations, as opposed to the methodology of traditional focus groups. Conversations were held in locations geographically convenient for participants, such as diners, churches, or community centers, and scheduled based on participants' availability. Food and refreshments were provided. Dialogue was open and the team's questions frequently generated debate and storytelling among participants. Several participants recounted emotional—sometimes tragic and sometimes inspiring—personal stories of coping with poor health or poverty. Community members often suggested possible solutions to their own health concerns and provided concrete items that the MHC could act on to help alleviate health disparities. Community members were eager to share their stories and perceptions of both personal and community needs. They were also excited to be included in developing a MHC to provide health care for residents in their own communities.

Consistent with CBPR principles, community partners conceptualized the problem through assisting with research questions and were involved in implementing procedures (e.g., securing sites for community conversations, hosting recruitment events) and dissemination.[22] Here we report on ongoing progress and outcomes of the MHC program.

Recruitment: To recruit participants for community conversations, we used established relationships among community partners to build awareness about the MHC. Furthermore, the

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MHC director attended several community-led meetings to talk about the MHC program and recruit participants for input at future sessions. We provided community leaders with flyers about the community conversations to hand out before these meetings and posted them in various locations. We sought to have representation across diverse communities whom the MHC might serve. Participants included adults over the age of 18 residing in the target communities for potential MHC services who spoke English or Spanish.

Setting: Target communities for conversations were identified by reviewing the Community Health Needs Assessment of Wake Forest Baptist Health (WFBH), the needs assessment of the Forsyth County Health Department, and through relationships with local community associations.[23]

Participants: Community conversations were held in four different target communities (n=51 participants) over several months between 2018-2019. Three communities were identified as distressed census tracts of Forsyth County with poverty rates of 34-73%, while the fourth was a predominantly Hispanic community.[24] All communities identified were ones that might benefit from non-traditional means for accessing medical care due to high poverty rates, immigrant status, or high use of charity care at WFBH.[23] Table 1 summarizes demographic data from the community conversations.

Data Collection: This project received IRB exemption and informed consent was not required, as we were using information for program development and implementation. All community conversations were conducted by two trained facilitators experienced in qualitative research methods who were also part of the research and MHC leadership team. Community partners were essential in bringing residents to the conversations and helping to create a discussion space

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that felt safe and trusted. For example, an apartment complex manager known as "the matriarch" of her community participated in the community conversation with residents from her apartment complex and community.

Before initiating conversations, the facilitators reviewed basic ground rules that stressed the importance of maintaining confidentiality, allowing all participants to express their perspectives in a respectful manner, and encouraging participants to talk generally about health care needs instead of their specific health concerns. To protect confidentiality and promote trust, the facilitators did not ask participants their names.

Each community conversation lasted 60 to 90 minutes and included five to 15 individuals. The facilitators used a semi-structured questionnaire to initiate and guide the conversation (see Questionnaire 1). Questions were open-ended and asked in a set order. Probing questions were asked to allow deeper insights. One facilitator took detailed notes during sessions, which were then later summarized and categorized. All community conversations were conducted in English; any participants who spoke Spanish were provided with a translator/interpreter.

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Questionnaire 1.

1. Which communities do you reside in?
2. Do you feel that people in your community have access to health care?
3. If not, what is preventing people from accessing care?
4. What is good, and what is not so good about health care in your community?
5. What makes your community strong?
6. What health conditions do you see a lot in your community?
7. What I mention a doctor's office on wheels or a mobile clinic, what are your thoughts about this?
8. Do you think it would be helpful for you to get health care in the community that you live?

Data analysis: Following each community conversation, facilitators debriefed to discuss emerging themes. The team also later conducted a descriptive analysis of the transcribed conversations and identified emergent themes or patterns. Additional community conversations were conducted in different target communities until "saturation" in themes was reached, defined as consistency and repetition of themes from one community conversation to the next (i.e., no new themes emerged). Recommendations were reviewed from conversations, and were integrated into the MHC if feasible (see Table 2). The MHC began providing health care for communities in November 2019.

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Results

Four major themes emerged inductively from the community conversations (see Table 2).

Health Care Access: When asked about perceived barriers to accessing care, most comments related to high health care costs, especially related to the cost of medications, specialty care, and high co-pays even if insured. The most frequently identified sub-categories consisted of high cost of care, lack of trust in health care providers, access to urgent and emergency room care for primary care needs, lack of reliable transportation, requirements to pay cash in part or full at time of visit, and time constraints. Lack of trust and lack of access to affordable health insurance were noted. One participant noted, "More and more people do not have access to health care… both young people and seniors." Most participants recommended the MHC integrate primary and preventive care, while providing patients a referral process for specialty care. In addition, participants suggested the MHC provide access to low-cost eye exams and eyeglasses, free or low-cost access to medications, access to dental care, and afternoon and early evening availability for care. Many participants also expressed interest in integration of mental health and nutrition counseling services into the MHC program. One community of Hispanic women requested access to low-cost mammograms.

The MHC addressed requests by community members by providing free primary, preventive, and urgent care, referrals to mental health services, colorectal screenings via FiT testing, and nutritional services. Additionally, the MHC staff received training related to health disparities, social determinants of health, trauma-informed care, and cultural humility. Community members assisted in the design of the mobile clinic's space and interior and offered suggestions

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about the most accessible locations for residents to access the MHC. The facilitators provided a sample blueprint of the MHC and asked participants to provide input on spacing of rooms, colors to include for interior, and recommendations related to patient flow. To account for working hours of patients, the MHC provided hours during late afternoon and evening.

Additional free on-site services were provided by the MHC, including primary care labs and health coaching, provided by a registered dietician. Free offsite services were also included for mammograms and dental care, provided through grant monies and support from community partners (see Table 4). For specialty care, the MHC program partnered with Health Care Access, a nonprofit that provides patient access to low-cost primary and specialty services within the community. Other services provided to the community at no cost included COVID-19 vaccine clinics, providing over 500 vaccines to low- income communities in partnership with Iglesia Cristiana Sin Fronteras and Grace Presbyterian; 90% of people vaccinated were Black or Latinx. Additionally, the Salvation Army helped to provide low or no-cost medications to residents of their homeless shelter. Since opening in 2019, the MHC has provided care to over 1,600 unique individuals, affording over 80 people with free eye exams, over 90 people with free mammograms, and over 70 individuals with dental care. In December 2021, the MHC partnered with the American Cancer Society to implement colorectal cancer screenings onsite via stool DNA tests, and have received back 100 FiT tests from patients served, with a 70% return rate.

Perceived Barriers to Good Health: When asked about overall health in the community, participants identified many environmental and political factors that influence personal health and access to care. Subcategories included poor housing and living conditions, lack of access to

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healthy foods, need for health education, and a lack of locally accessible health programs. Specifically, participants reported concerns about dilapidated housing situations. Many also expressed fears of reporting such conditions to their property owners due to potential risk of eviction or other negative consequences. Another participant expressed concern about a landfill located close to an apartment complex and play area, emitting fumes that they believed to be methane. Additionally, participants reported food access as a concern. Participants expressed concern and frustration about having access to few local stores with healthy food options. Many participants reported shopping for food at local convenience stores and gas stations who sold produce at higher prices than grocery stores.. Others also reported that local grocery stores frequently sold expired food items.

In response to these concerns, from March 2020-September 2021, the MHC program implemented a Fresh Food Rx program, to meet the nutritional needs of individuals with food insecurity. The MHC provided produce vouchers to individuals and partners with community-based organizations to provide home delivery of produce boxes and prepackaged meals each week to older adults identified as having food insecurity.[25] To date, the MHC has provided over 7,000 boxes of locally grown produce and over 30,000 meals. In addition, the director of the MHC is the chair of the Piedmont Triad Regional Food Council, formed to oversee a 12-county food systems assessment, and develop policy recommendations for a more equitable food system.[26]

Strengths in the Community: When asked about the strengths present in their respective communities, three overarching subthemes emerged: pride in heritage and community members,

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strong interpersonal connections, and trust in local community-embedded organizations. Community members in predominantly Hispanic communities reported several assets, including a sense of cohesiveness between neighbors, diversity of cultures, and a strong sense of work ethic. They also reported a "matriarch" in the community, who served as a resource for many types of needs. Others reported that churches or faith-based organizations were important resources for community members. Predominantly African American communities also reported several strengths, including the sharing of resources between neighbors, strong community advocates, shared common spaces for children to play, and high trust equity in the embedded faith community.

In response to participants' suggestions, the MHC team formed an Mobile Clinic Advisory Council (MAC) co-chaired by community-academic partners (see Table 3). The MAC partners have helped advocate for funding and resources, have offered ongoing recommendations for services provided by the MHC, and have helped provide volunteer support for the program. Community representatives from MAC meet every two months. In addition, the MHC program manager visits each site on a regular basis to build and maintain relationships and inform MHC programming strategies. To further encourage partnership, the MHC hires interpreters and community health workers from the communities served by the program. These community members help connect patients to resources, assist the MHC staff with communication techniques, and bridge and explain cultural traditions in communities served.

Health Service Needs: Participants in all conversations expressed need for primary and preventive care services. Many participants described health conditions that were predominant in

their communities such as diabetes, high blood pressure, arthritis, and obesity. One group additionally described prominent health conditions of low back pain and joint pain, felt to be associated with manual labor. One participant spoke of the severe allergies and rashes that her children had due to housing conditions. One group noted domestic violence as a health concern. Participants requested the MHC include dental care, vision and hearing screening, pregnancy care, nutritional support, mental health services, and prescriptions for low or no cost. Participants in several conversations asked that clinicians be sensitive to their cultural preferences, and one group asked that the MHC consider integration of traditional therapies and hire bilingual staff.

After holding these community conversations, the MHC program began in November 2019. In addition to many of the recommendations stated by participants above, community partners helped lead in the care of their communities by volunteering onsite to provide food for staff and volunteers, coordinating CHA volunteer workflow, providing culturally appropriate health coaching, providing community-located food markets during MHC times, and offering active input on the direction of care provided in the community during MAC meetings.

Limitations

The first two community conversations had fewer participants because the team did not market the conversations widely, beyond asking the community leaders to recruit participants for the conversations. Community members engaged in these conversations were recruited primarily through community partners and flyers and may not represent (or have the same perspectives as) those who did not volunteer. One of the main purposes for utilizing community conversations was to build trust with communities, understand existing barriers to good health, and

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simultaneously develop a MHC model that would meet community needs. As such, we intentionally limited our data collection methods to note-taking during conversations to preserve the trust of our participants. Data may have been richer if audio recordings with full transcriptions had been obtained. Nonetheless, the community conversations allowed participants to express their concerns on topics and to feel validated or heard by the team.

Conclusion

This paper reports on an exploratory qualitative analysis of urban communities' perceptions of barriers and facilitators of health, communities' strengths, and health service needs. It also reports how community voices were integrated into the development of the MHC program. The identified themes reinforced each other and highlighted the participatory collaboration of the community-academic relationship. These findings highlight the mutual respect of the groups involved and the importance of collaboration.

Results can help inform action-oriented processes that create sustainable programming for community health services. The participants made many suggestions on what the MHC could address in their communities. The MAC was formed in September 2019, after these conversations to continue strengthening community member and partner input in the ongoing process of MCH strategies. In addition, we developed processes to monitor health and health-related cost outcomes for those served by the MHC program and report these regularly to the MAC.

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The main themes that emerged were connected by their associations with social drivers of health, which are governed by broader socio-ecological conditions that affect the communities served by the MHC. For example as of the printing of this manuscript, Medicaid expansion has not occurred in North Carolina, limiting access to health care for those who do not receive employee-sponsored health care or who cannot afford health coverage through the Affordable Care Act.

Next Steps

This project highlights the importance and value of using CBPR to solicit and integrate community voices in shaping and informing MHC program development and ongoing implementation and evaluation. This approach can be applied and used to inform development or modifications to other health care delivery models about topics such as program uptake, reductions in emergency department use, and health care savings associated with chronic disease management. Community voices continue to guide the MHC. Next steps include evaluation of program outcomes by the MAC quarterly and integration of behavioral health into the model of care to better support the mental health needs of patients served by the program.

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Table 1.

Characteristics of Community Conversation Participants

Perceived Demographics	**n (%)**
Gender (n=51)	
Male	8 (15%)
Female	43 (85%)
Race	
Non-Hispanic White	1 (1%)
Hispanic	24 (48%)
African American	26 (51%)
Communities Included in Conversations	
Community 1	9 (17%)
Community 2	7 (14%)
Community 3	12 (24%)
Community 4	23 (45%)

Table 2. Community Conversation Themes and Participant Perceptions

Domain	Theme	Participants perceptions from focus groups
Health Care Access	Health care is unaffordable	• Even with insurance, co-pays are unaffordable • Medications are unaffordable • Without health insurance one does not get good care • Specialists make people pay in advance before seeing them • "Money is the main thing" • Men cannot get health insurance through Medicaid easily • Trouble affording inhalers • Legal status
	Frequently accessing free and charitable clinics, or the emergency room for usual care	• "ED is the doctor" • Providers in the free clinics are volunteers and have already worked a full day. "Do not always have much patience and don't want to hear our stories" • Will go to local free clinics, but they do not answer the phone many times
	Lack of trust in providers	• Men are afraid of going to the doctor, "masculine thing" • Distrust of doctors, "racial history" • "Afraid of bad news" • People who are Latino are afraid to go anywhere for care due to fears of deportation and arrest
	Time constraints prevent use of clinics open from 8-5	• Having time to go to the doctor is difficult due to work schedule • Lack of follow-up appointments
	Perception of poor customer service	• "Snobbish attitude" because we are from a low-income neighborhood • Receptionists at doctor's offices have "gatekeeper mentality", big turnoff
	Lack of reliable transportation	• Even with resources available in the city, the issue is getting there • Depend on others for transportation

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		• Buses do not always work with mobility aids • Many do not have driver's licenses and are afraid to drive • "Programs aren't local—you have to drive too far and pay for parking"
Barriers to Good Health	Poor housing/living conditions	• Mold and parasites • Landfill with methane fumes near housing
	Awareness/education	• Many ignore health problems "Problem has to get real bad before they get care" • Education needed
	Need for healthy food access	• Just a few local stores, expired produce many times • Gas stations • Trouble affording
	Lack of local health programs	• Have to drive too far
Strengths of Communities	Pride in heritage and community members	• Diverse cultures • Hard working • Advocate for themselves • Positive outlook
	Strong interpersonal connections	• Good communication • Elders in the community • Long-term friendships, like family • Take care of one another and share
	Trust and engagement in shared community spaces	• Churches • Libraries • Schools • Playgrounds, common spaces for kids to play
Health Service Needs	Primary and preventive services Dental care Vision and hearing Pregnancy care Nutrition coaching Mental health Affordable medication options	

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Program Recommendations	• Provide primary and urgent care services at no cost * • Private exam rooms for patient privacy and dignity * • Cultural humility training for staff * • Bilingual providers • Establish a referral network for specialty care * • Dental vouchers * • Free vision screening and glasses for low vision * • Nutritional coaching * • Free and low-cost medications through local pharmacy * • Mammogram referrals at no cost * • Colorectal screenings* • Consistent times and communities of care * • Long-term plan for growth of program * • Community advisory council * • Provision of afternoon and evening hours * • Immunizations * (COVID-19 and Flu) • Provide materials that are simple to read * • Advertise and market services*

* Integrated into the mobile model of care per community recommendations

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Table 3. Mobile Clinic Advisory Council

Partner Name	Partner Type	Zip Code Represented
St. Johns CME	Church and site location	27105
Love Out Loud of WS	Nonprofit and volunteer recruiter	27105
Iglesia Cristiana Sin Frontieras	Church and site location	27106
Maya Angelou Center for Health Equity	Partner and advisor	27105
Neighbors for Better Neighborhoods	Nonprofit and advisor	27105
School-Based Health Alliance of Forsyth County	School based clinical program with shared staffing	27157
FaithHealth	Nonprofit with funding support, provide community health worker support	27157
Latino Community Services	Nonprofit and site location	27106
Salvation Army Center of Hope	Homeless shelter for families and site partner	27104
Forsyth County Health Department	Health department	27103
Winston Lake YMCA	Site location	27106
Novant Health-Community Health representative	Health system	27104
Winston Salem State University-Mobile Health	Mobile health director of local Black college and partner for educational experiences	27127
City of Winston Salem	Site location	27107

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Table 4. Partners who Provide Offsite Services for MHC Patients

Partner Name	Service Rendered
United Health Centers	Federally qualified health center that provides dental care (simple procedures and dental preventive care)
Wake Forest Baptist Health Diagnostic Imaging	Provides patients with free screening or diagnostic mammograms
Health Care Access	Nonprofit that connects MHC patients who meet financial criteria to an access card for specialty care or diagnostic imaging
Winston Lake YMCA	Provision of health coaching
HOPE of Winston Salem	Voucher redemption for locally grown produce