

Telemedicine Utilization by North Carolina Farmworkers: A Content Analysis

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A thesis submitted for Graduation with Distinction in Global Health

Duke University

Durham, North Carolina

2023

Abstract

Farmworkers face a variety of barriers to accessing health care. Telehealth, often proposed as a solution to access issues, has yet to be widely adopted by this population due to a lack of broadband access amidst other barriers. Policies surrounding funding for broadband and telehealth reimbursement exacerbate the issue. An examination of public use data shows that farmworkers have a great need for mental health and chronic disease services, and that telehealth may be a useful intervention for both. Pre-existing programs in North Carolina such as the Internet Connectivity Project and TeleFuturo contribute to increasing access. Lessons from these programs show that a variety of public and private funding sources are needed to ensure access to telemedicine for North Carolina farmworkers. It is recommended that policymakers (a) develop incentives for nongovernmental entities to partake in the expansion of broadband connectivity and telehealth programs, (b) require health insurance companies to provide reimbursement parity for all appointment modalities, and (c) require future migrant housing to have internet access. There is also a need to increase the availability of Spanish-language telehealth services.

Acknowledgements

I am deeply appreciative to every person who contributed to the development and execution of this project.

To each of my committee members: Dr. Jay Pearson, who showed enthusiasm for this topic from the start without even knowing me, and for providing valuable insight into the farmworker population beyond the literature; Dr. Joe Egger, who inspired me to think like an epidemiologist while examining policy; and Dr. Rebecca Whitaker, who was there from the earliest iterations of this project and was foundational in my health policy journey.

I owe thanks to the Duke-Margolis Center for Health Policy for all it's taught me in the past two years and to the Duke Global Health Institute for continuously nurturing my love for health and approving my thesis proposal.

I also want to thank Kristina Morris, Jocelyn Santillan, Natalie Rivera and Kate Furgurson from NC DHHS; Nahu Palacios from Piedmont Health Services; Lissette Saavedra from RTI International; and Molly Hayes from El Futuro for providing me with insight as I conducted my research.

Lastly, it would be remiss of me to not acknowledge the University Scholars Program and program director Victoria Lodewick, without which I wouldn't have made it to this point. So much of my Duke experience has been shaped by this program and for that I am immensely grateful.

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Telemedicine Utilization by North Carolina Farmworkers

Agriculture is one of North Carolina's largest industries, with nearly a quarter of the state's land being farmland as of the 2017 Census of Agriculture (U.S. Department of Agriculture, 2019). While many that work in agriculture are family farmworkers, the industry has increasingly come to rely upon the labor of hired farmworkers (Castillo & Simnitt, 2022). "Farmworker" is a broad term referring to people that handle animals or plant, cultivate, harvest and process crops — including apples, berries, Christmas trees, citrus fruit, mushrooms, peaches and tobacco — for sale (Arcury & Quandt, 2009). Hired farmworkers are migratory and seasonal farmworkers that work for a portion of the year and are largely Hispanic and Latine. Research on farm work often focuses on these migratory and seasonal farmworkers, and as such, "farmworker" will be used to refer to them.

Farmworkers face a variety of health challenges due to the nature of their work (Arcury & Quandt, 2009). They risk musculoskeletal injury, heat-related illness, and environmental exposures. They live with chronic conditions such as high blood pressure, diabetes mellitus and low back pain. Farmworker housing is often substandard and may lack sanitation facilities, contributing to the spread of infectious disease. Mental health needs are also present within this community, such as depression, anxiety, and substance use that are sometimes exacerbated by working conditions (Arcury & Quandt, 2009) (Cooke, 2020). Despite this, farmworkers face barriers to care such as work demands, inadequate access to transportation, disparate access to providers, limited health coverage, and language barriers (Watkins et al., 1990) (Arcury et al., 2020) (Kandilov & Kandilov, 2022) (Price et al., 2013). Additionally, farmworkers may distrust

medical or public institutions due to unfamiliarity with local health systems or fear of being reported to immigration authorities (Frank et. al., 2013).

Technology is gaining a stronger foothold in healthcare within the past few decades, with researchers increasingly developing screening and treatment solutions that rely on personal devices (Dicianno et al., 2015). One solution that has become more prominent in recent years is telehealth, defined as the asynchronous or synchronous exchange of health information between patient and provider (Cottrell & Russell, 2020). Telehealth can facilitate greater access to care by allowing patients to connect with their providers without needing to appear at a physical facility. Virtual appointments allowed patients to seek care when in-person visits were suspended in the first year of the COVID-19 pandemic, and telehealth use increased as a result (Drake et al., 2022). Telehealth has been identified as useful for increasing access to primary care in particular (Bashshur et al., 2016). Additionally, telehealth can reduce travel burdens, particularly in areas where health care may not be readily available. Rural areas with limited provider workforces such as Yukon, Canada have implemented “mixed models” where patients visit a nearby facility equipped with telehealth technology and engage in virtual visits with a specialty provider at a third, farther location (Seto et al., 2019). Virtual visits can also take place at home, given that the patient has the requisite technology.

Research on farmworkers’ use of telehealth, especially in North Carolina, is limited. However, evidence from socially similar geographic units provides important insight. Price et al. (2013) found that migrant farmworkers in South Carolina were receptive to using mobile health technologies. Vallejos et al. (2009) found that providers viewed virtual dermatology consultations as useful for this population. More broadly, Ghaddar et al. (2020) found that Latine

individuals along the Texas-Mexico border were willing to use telehealth once they understood what it was.

However, internet access is also a challenge for North Carolina farmworkers — about a third of farms lacked internet in 2020, and a survey conducted by Greenville-based advocacy group AMEXCAN during the pandemic found that farmworkers expressed a need for internet access (North Carolina Department for Information Technology) (Donnelly-DeRoven, 2022). This, combined with the aforementioned barriers that limit health service utilization, make it important to examine how to make telehealth a feasible option for North Carolina farmworkers to obtain care.

Approach

Research for this thesis began in fall 2021 with a literature review, including news articles, academic research, and public records. The methodology for this thesis evolved during its writing. The author initially designed a qualitative study on the factors that impacted care-seeking behaviors by farmworkers and whether they would be willing to adopt telehealth, if they had not already. These results were to be reported according to the 32-item COREQ checklist developed by Tong and co-authors (2007). This protocol was approved by the Duke University Campus IRB (2023-0117).

Semi-structured interviews were to be conducted with three to six people by the author, a female undergraduate student with a background in health policy and intermediate Spanish knowledge. The author would have no established relationship with participants prior to the start of the study. In recruitment and informed consent materials, the author explained that she wanted to learn about how farmworkers use health services and how to increase access to health services. Interviews were to be conducted over the phone with interpretation assistance from a second interviewer. Audio recordings from each interview would be transcribed in Sonix.ai, an online service. Questions were developed based on knowledge gleaned from the literature review and questionnaires used for previous research projects the author has contributed to.

Recruitment flyers were distributed to community health centers and the Farmworker Health Program. Targeted centers were selected by region — those regions were western North Carolina (consisting of the far western portion of the state, the High Country and the Foothills), the Piedmont Triad, the Charlotte metropolitan area, the Triangle, the Sandhills, the Inner Banks

of northeastern North Carolina, southeastern North Carolina and the Outer Banks. Recruitment and informed consent materials are available in the appendices.

The initial participant pool included people working in farm work in North Carolina at the time of first contact. Due to recruitment challenges, the pool was later expanded to include people that had worked in farm work in the past three years. Recruitment materials encouraged potential participants to reach out to the author by WhatsApp or email. Initial contact with health centers began on November 29, 2022. However, despite considerable effort, recruitment was complicated by the end of the traditional farming season.

The focus of this thesis then shifted to analyzing pre-existing programs and policies to determine how farmworkers were currently using health services, including telehealth, and what priorities policymakers and community organizations should set to increase access.

One of the earliest telemedicine programs in the country, Space Technology Applied to Rural Papago Advanced Health Care (STARPAHC), survived longer than most similar programs at the time. In the early 1970s, the National Aeronautic and Space Administration launched the program in tandem with the Indian Health Service, Lockheed Missiles and Space Company, and the Papago people. Bashshur (1980) highlights major lessons from STARPAHC that will be adapted to this thesis.

Those lessons are:

1. identify “the specific needs of the community to be served, particularly those amenable to satisfaction through technologic applications”,
2. determine what organizational structure is necessary for implementation,

3. assess the “specific environment and cultural constraints” in which the project will be introduced, and
4. plan technical design, staffing arrangements, and evaluation plan before operation

First, I will assess the literature on farmworkers and the policy environment that telehealth occupies in line with Lesson 3. I will then use qualitative and quantitative data to infer what services farmworkers might utilize the most to determine current needs, in line with Lesson 1. This analysis will be used to identify priorities for a potential intervention. Next, I will examine existing programs — including programs tailored toward farmworkers and broader programs addressing social determinants of health — to identify the most promising approaches likely to return success, in line with Lesson 2. Those programs have associated logic models showing their intended inputs and outputs, in line with Lesson 4. Finally, this project will propose policy solutions to increase telemedicine utilization by North Carolina farmworkers.

Environment

Assess the “specific environment and cultural constraints” in which the project will be introduced

Farmworkers face a variety of barriers when it comes to accessing health care, and the rise of telehealth adds a new dimension to care delivery. Telehealth use has been associated with decreased emergency department use and lower mortality (Steventon et. al., 2012). Additionally, patients are generally satisfied with the quality of patient-provider relationships and health information provided through video teleconferencing (Orlando et. al., 2019). There are also lower no-show rates for virtual visits (Emerick et al, 2020) (Mathews et al, 2022). While it is not possible to perform physical exams through telehealth, videoconferencing allows providers to

assess the living environments and at-home behaviors of patients, and telephonic or audio-only visits may reduce provider bias, patient discomfort, and technical issues (Emerick et al, 2020).

As for whether telehealth is feasible for farmworkers, technology and the internet are increasingly being used to reach them. For instance, nonprofits Code the Dream and Student Action with Farmworkers developed “Conéctate Carolina,” an online Spanish-language resource directory that aims to connect farmworkers with legal, educational, health, and social services (Boulobasis, 2021) (*Conéctate Carolina*, n.d.). Farmworkers have also been increasingly gaining access to cell phones and smartphones (Sandberg et al., 2016). However, there remains progress to be made with regard to internet access, which is associated with video visits in particular (O’Shea et. al., 2022). Expanding broadband comes with its own challenges. This section will explore the “environment” surrounding telehealth adoption by farmworkers, including current conditions for farmworkers, broadband policy, and telehealth policy.

Farmworkers

Due to challenges associated with legal status and mobility, the exact number of hired farmworkers in North Carolina is unknown. The North Carolina Farmworker Health Program, housed in the Office of Rural Health of the state Department of Health and Human Services, estimated that there were 80,000 farmworkers between June 2020 and December 2021 (Cofie et al., 2022). The nonprofit NC Farmworkers Project estimates that there are 100,000 farmworkers, and the NC Farmworker Advocacy Network estimates that there are 150,000 farmworkers and farmworker dependents each growing season (*NC Farmworkers Project*, n.d.) (*About Farmworkers*, n.d.).

These numbers include adolescents, young adults and older adults. It includes US citizens, permanent residents, undocumented individuals and workers on temporary visas. The most prominent type of visa is H-2A, which permits workers to enter the US for temporary and/or seasonal labor (*H-2A: Temporary Agricultural Employment of Foreign Workers*, n.d.).

Nationally, 56% of farmworkers were citizens, permanent residents or work-authorized in 2019-2020, according to the most recent National Agricultural Workers Survey. While 15% of farmworkers traveled more than 75 miles for work in that time frame, most farmworkers were “settled,” meaning they lived within 75 miles of their workplace. In fact, over 70% of farmworkers lived within 25 miles of their job (Gold et al., 2022). Depending on where worksites are located, this may place farmworkers at a greater distance from healthcare facilities.

North Carolina is a top destination for farm work in the eastern United States because of its aforementioned wealth of farmland and its long growing season (Watkins et al., 1990). Some migrants may arrive from other eastern states, but more recently the majority of migrant farmworkers have migrated from Mexico on temporary work visas (Arcury & Quandt, 2009).

Two-thirds of farmworkers reported Spanish as their primary language, with 29% unable to speak English at all and 40% unable to read English at all, which has certain implications for health literacy (Gold et al., 2022).

Health coverage and care utilization. Insurance status can be make-or-break for farmworkers in need of care. In 2017-2018, over 70% of farmworkers had sought care in the US in the prior two years, but insured workers were more likely to seek care and lack of insurance was cited as a reason to not seek care (Ornelas et al., 2021).

About half of farmworkers nationwide are uninsured, with undocumented and migrant workers being less likely to have health insurance (Ornelas et al., 2021) (Gold et al., 2022). Farmworkers on H-2A visas are eligible for health insurance under the Affordable Care Act, but most workers only have 60 days to enroll in a health plan through the ACA Marketplace. This is because workers who arrive outside of the Open Enrollment Period from November to January are given a 60 day Special Enrollment Period, and most H-2A workers arrive between March and June (North Carolina Community Health Center Association, 2017). While 46% of all North Carolinians and 54.5% of North Carolinians under 65 receive employer-sponsored health insurance, about six in ten farmworkers said their employers did not offer health insurance or cover medical expenses for conditions that weren't related to their work (KFF, 2021) (Ornelas et al., 2021).

Married or partnered farmworkers are more likely to have US-based health insurance than single farmworkers, and the same goes for farmworkers with children (Moore, 2016). Children of farmworkers are also more likely to be insured than their parents, with many of them receiving Medicaid or another form of public insurance (Gold et al., 2022). The Affordable Care Act of 2010 included a provision to give extra federal funding to states that expanded Medicaid coverage beyond low-income children and the aged, blind and disabled to include low-income adults. On March 27, 2023, North Carolina became the 40th state to do so (H. 76, 2023). NC Medicaid could now theoretically cover low-income adult farmworkers, but funding has not been approved for expanded coverage as of April 2023 and undocumented immigrants are not eligible. Farmworkers who are not U.S. citizens or permanent residents also face a challenge in the “public charge” rule, which allows immigration officials to deny visas to people deemed likely to

rely on public benefits (87 Fed. Reg. 55636, 2022). A survey of Latino and Asian immigrants in California found that people avoided enrolling in Medicaid due to their immigration status, even after the public charge policy was loosened in 2021 (Bustamante et al., 2022).

Insurance is not the only factor that contributes to care utilization. Many workers, particularly those on H-2A visas, lack their own transportation as they were transported to their worksites on buses (Arcury & Quandt, 2007) (North Carolina Community Health Center Association, 2017). Some migrant workers from Mexico may return home for care, but this is less feasible in the eastern US compared to border states (Arcury & Quandt, 2009). Farmworkers may not get time off to seek medical care and in some cases have their concerns dismissed by employers (Arcury & Quandt, 2007) (Snipes et al., 2017). Likewise, some workers may delay care because they do not believe their condition is serious enough to warrant medical attention (Snipes et al., 2017). They may choose to treat themselves with cultural therapies or remedies (Maxwell et al., 2018) (Arcury et al., 2019). Undocumented farmworkers are also less likely to seek care than documented workers (Hoerster et al., 2011). Additional hindrances to access include long wait times, lack of reminders for appointments, and difficulty completing paperwork (Maxwell et al., 2018).

On the other hand, living with immediate family and being employed full-time were predictors of health care utilization among migrant farmworkers in Oregon (López-Cevallos & Garside, 2013). Workers that had previously been diagnosed with a chronic disease were more likely to seek care, as well as those that received salaries rather than hourly pay (Hoerster et al., 2011). While some research, such as Hoerster et al. (2011) and multiple works by Arcury and co-authors, suggests that English proficiency is an indicator of increased use, López-Cevallos and

Garside (2013) assert that the level of support received in Spanish may have a greater association with use than exposure to English. Older farmworkers may also be more likely to seek care than younger farmworkers (Slesinger & Cautley, 1981) (Hoerster et al., 2011). Among farmworkers in south Florida, those that had lived in the area longer were more likely to have a regular primary care physician (McCoy et al., 2016).

Gendered differences. About 19% of farmworkers in the eastern US are women, but research on gendered health differences is limited (Arcury & Quandt, 2009). A systematic review by Habib, Hojeji and Elzein (2014) noted that gender is a determinant of work hours, duties, and pay, and women experience differential health outcomes as a result. These differences include where cancer manifests in the body and effects on the reproductive system. However, the authors note that occupational health research often excludes women due to a lack of participants or inadequate data on the kinds of tasks women engage in on farms.

Despite this, some knowledge can be gleaned from the existing literature. Slesinger and Cautley (1981) found that female farmworkers in Wisconsin reported more health issues than men, particularly mental health issues. They were more likely to seek care for genitourinary or reproductive conditions while men were more likely to seek care for orthopedic and skin problems (Slesinger & Cautley, 1981). Littlefield and Stout (1987) found that female farmworkers in Colorado were “more likely to report low spirits, irritability, headaches, strong anger, allergies, eye trouble, bladder trouble and anemia,” and that they were more likely to have sought medical care or been hospitalized in the past year.

In terms of service utilization, Arcury and co-authors (2020) found that among child farmworkers between the ages of 10 and 17 in North Carolina, girls were more likely to utilize

health care than boys. Additionally, findings from Hu et al. (2016) suggest that most patients at migrant health centers are female, and López-Cevallos & Garside (2013) found that only 38% of male migrant farmworkers had used health care services in the prior two years. Moore (2016) found that female farmworkers in California were more likely to have US-based health insurance, although fewer than 10% of respondents in that study were women.

Housing, health, and internet infrastructure. Farmworkers may procure their own dwellings or reside in employer-owned housing (Arcury & Quandt, 2009). About 18% of farmworkers surveyed in the eastern United States lived in employer-owned housing in 2019-2020, with migrant workers being more likely to live in employer-owned housing (Gold et al., 2022).

Those that live in employer-provided housing may have differential health outcomes to those that rent or own their homes. Even though there are standards for migrant housing conditions, reality often falls short of expectation. In North Carolina, all employer-provided migrant housing must be inspected before it is inhabited, but not all dwellings are. Additionally, dwellings found to be in violation are often not re-inspected in time. These homes may be crowded, have exterior or interior damage, have broken or missing appliances, have pest infestations or be exposed to nearby pesticides on farms. This can lead to psychological distress, infectious disease, respiratory problems and injury (Arcury & Quandt, 2009).

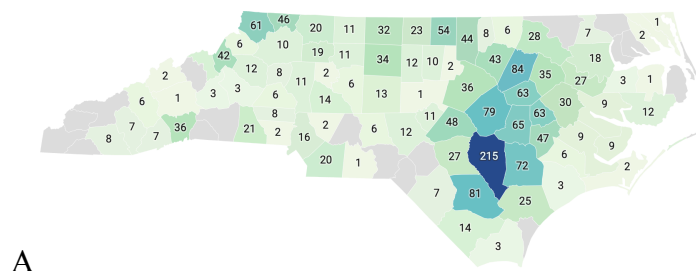
Access to technology may also vary based on where a farmworker lives. Camps are often concentrated in rural counties with limited internet access (Figure 1). Neither federal nor state law requires migrant housing to provide internet service, and developing the infrastructure for internet access in farmworker housing is a challenge due to the layout of many camps (Migrant

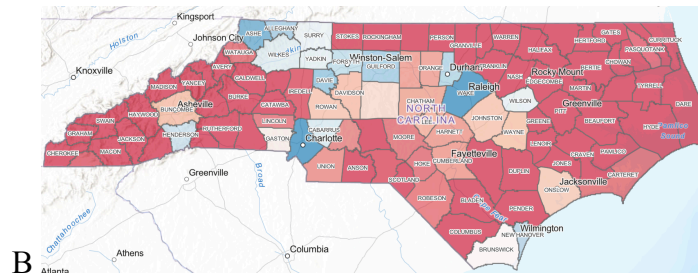
Housing Act of North Carolina) (29 CFR § 500.132). Summers and co-authors (2015) found that about one-third of 180 camps surveyed in central and eastern NC were “hidden,” meaning that they were more than a half-mile away from the nearest road or located behind other structures.

A list of registered, employer-owned farm camps in North Carolina obtained from the state Department of Labor’s Agricultural Safety and Health division points to some of these hidden locations in the state. The list shows that there were 1,886 registered farm camps in North Carolina as of March 4, 2022, most (1785/1886, 95%) of which housed workers on H-2A visas. At least eight camps lacked direct addresses, one description noted that “GPS may not pick up this address,” and another gave a separate address for first responders to report to in case of an emergency.

Additionally, the materials used to construct farm dwellings — particularly metal and concrete — may make broadband installation challenging and expensive (Donnelly-DeRoven, 2022). Of the registered camps, 120 descriptions mentioned metal and 58 mentioned concrete (“Registered Certified Camps Report, March 4, 2022.”).

Figure 1. Maps of North Carolina showing registered farm camps and broadband access





A) Registered farm camps as of March 4, 2022. Counties are labeled with number of camps. Gray indicates no data. B) Broadband availability by county via NCDIT Division of Broadband and Digital Equity, with red indicating less availability, white being intermediate and blue indicating the most.

Housing capacity can also affect internet access — the more occupants a dwelling has, the more people utilizing broadband. Growers requested to house between 1 and 145 farmworkers at these camps in mobile homes, dorms, barracks, apartments, and other structures. Although farmworkers are increasingly obtaining access to cell phones and using platforms like Facebook and WhatsApp for communication, adequate internet access remains a challenge (Sandberg et al., 2016) (J. Santillan-Deras, personal communication, October 4, 2022).

Use of health centers. Farmworkers seek care at a variety of places, ranging from hospitals to traditional medical offices, but the most vulnerable workers tend to visit clinics and health centers. Nationally, a third of farmworkers and/or their household members report visiting a public clinic (Ornelas et al., 2021) (Gold et al., 2022). Many seek care at federally qualified health centers and look-alike centers, which are facilities recognized by the Health Resources and Services Administration as part of the federal Health Center Program. Health centers are typically free or low-cost based on patient income, which is beneficial to uninsured workers who might otherwise have to pay in cash. In some states, they are trusted locations for workers that fear deportation (López-Cevallos et al., 2014).

A subset of federally qualified health centers receive funding specifically for migrant health, and this funding is determined by a center's declared target population(s). Declared migrant health centers must assure services to migrant and seasonal agricultural workers but are not limited to serving farmworkers (Health Resources and Services Administration, 2009). Additionally, grantees need not be migrant health centers to serve farmworkers.

In 2021, there were 13 federally-funded migrant health centers in North Carolina, and 13 additional entities that reported seeing farmworkers and their dependents but did not receive federal funding for migrant health ("Health Center Program Uniform Data System"). The Farmworker Health Program — which contracts with health centers in Alleghany, Burke, Caswell, Jackson, Johnston, Pender and Surry Counties to provide services — receives funding for migrant health and primarily serves migrant and seasonal farmworkers. Health centers can also receive state funding: North Carolina's Office of Rural Health offers a Community Health Grant which can cover in-person or virtual encounters (*Community Health Grant SFY 2024 RFA*, 2022). Additionally, state rural health centers could receive up to \$100 per patient encounter through the 2021-2022 Medical Access Plan and Project Grant program (*Rural Health Centers Program Medical Access Plan and Project Grant SFY 2021- 2022*, 2021). These state grants can also cover equipment, whether for telehealth or other purposes.

Health centers, as an important source of care for farmworkers, are an important target for interventions. Save for one, each of the North Carolina health centers that reported seeing farmworkers and their dependents in 2021 reported offering telehealth ("Health Center Program Uniform Data System"). Facilities that participate in the Health Center Program do not need special approval from the HRSA to offer telehealth as long as they're not offering a new service,

but they are subject to other federal, state, and local policies (Health Services and Resources Administration, 2020). This includes policies surrounding payment, licensing, and more — in fact, the health center that did not offer telehealth cited reimbursement policy and lack of infrastructure as reasons.

Broadband Policy

Rural broadband has been a federal priority for decades, and it is especially important as organizations and information increasingly move online. Some, including NCDHHS, now consider the digital divide a social determinant of health (J. Santillan, personal communication, October 4, 2022) (Clare, 2021). A variety of federal programs are designed to increase broadband access. The Federal Communications Commission offers the Affordable Connectivity Program, which subsidizes costs at the household level, and the Universal Service Fund, which includes subsidized rates for high-cost areas and provisions for rural health care providers to pay lower rates. North Carolina has benefited from the USDA ReConnect Loan and Grant Program multiple times since 2020, with farms in Davie, Iredell, Madison, Moore, Pender, Robeson, Scotland and Yadkin Counties benefiting from the program designed to fund construction, improvement, or acquisition of facilities and equipment needed to install broadband in rural areas (*Trump Administration Invests More Than \$3 Million in High-Speed Broadband in Rural North Carolina, 2020*) (*Trump Administration Invests More Than \$21 Million in High-Speed Broadband in Rural North Carolina, 2020*) (*Trump Administration Invests More Than \$2 Million in High-Speed Broadband in Rural North Carolina, 2020*) (*Trump Administration Invests \$2.3 Million in High-Speed Broadband in Rural North Carolina, 2020*) (Kern, 2022).

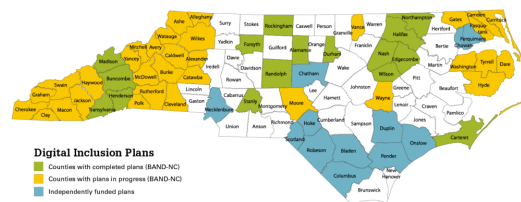
North Carolina was an early promoter of broadband access. The North Carolina Information Highway was codified in 1993, allowing "the delivery of education, health care, and other services" (N.C. S.L. 1993-769). It built on a variety of pre-existing telecommunications projects and laid the groundwork for much of the state's digital infrastructure. Telemedicine, health care information systems, and medical imaging were explicitly named applications of the highway. In determining which new sites would be added to the highway, state officials considered the rural and economic status of the community where the site was located. However, state funding was a major challenge (Moore, 1995).

Recent efforts to expand broadband have similarly focused on funding, as well as developing public-private partnerships. In March 2019, Governor Roy Cooper passed Executive Order 91 which established the Task Force on Connecting North Carolina, which sought to identify federal funding opportunities for broadband and support residents, businesses and government entities in acquiring that funding. It also implemented a "Dig Once" policy, in which broadband deployment projects would occur along with road construction, and sought to leverage state resources. That policy is meant to make broadband installation easier and cheaper, per the state Division of Broadband and Digital Equity. A white paper by the National Governors Association noted that North Carolina's policies led to increased short-term access through hotspots and WiFi-enabled buses, built local capacity and identified long-term priorities for expanding connectivity (Rogotzke et al., 2020). Additional legislation was passed allowing electric companies to deploy broadband through existing infrastructure or work with other entities in their service areas to do so.

Another recent state initiative is the Growing Rural Economies with Access to Technology (GREAT) grant program, which funds broadband development in economically distressed counties and rural census tracts that lack high-speed broadband. The 2021-2023 biennial state budget expanded participation criteria for GREAT and implemented the Completing Access to Broadband program to serve areas not served by GREAT (Bey, 2022). Both programs are application-based. The state has also used COVID-19 funds to expand broadband capacity (Bey, 2022).

Some state programs take a county-level approach. The Institute for Emerging Issues at North Carolina State University manages a program called Building a New Digital Economy in NC (BAND-NC), which assists counties in developing digital inclusion plans. A digital inclusion plan outlines needs and priorities for bridging the digital divide and often focus on three areas: connectivity, access, and adoption. Adoption refers to whether people use the broadband services that are available to them.

Figure 2. Counties with digital inclusion plans (BAND-NC)



Counties with completed digital inclusion plans funded by BAND-NC are highlighted in green; some plans are specific to one county and some cover multiple. Yellow areas are developing plans. Blue plans were developed individually.

Digital inclusion plans highlight what specific areas of the state are doing to promote broadband access and what gaps they have identified. For instance, an Alamance County report notes that two county broadband providers were the recipients of federal grants to expand

broadband in rural areas, but awardees had up to a decade to complete the projects whereas GREAT recipients have two years. The latter requirement was called “more desirable.” Carteret County inventoried its broadband efforts and found that efforts to increase access were “fragmented.” Multiple counties emphasized the importance of leveraging government funding and working directly with internet service providers, as well as pushed for better data collection on who is most in need (*Connecting Forsyth County: Forsyth County’s Digital Equity Plan*, 2021) (Rockingham County Digital Inclusion Coalition, 2021) (*Alamance County Digital Inclusion Plan*, n.d.) (Watts, 2021).

Telehealth Policy

Some structural barriers to telehealth implementation beyond broadband include inadequate technology, provider licensing requirements, security concerns, and lack of provider training. However, one major barrier is cost — both for providers and institutions.

Jim Grigsby and Jay H. Sanders wrote in 1998 that coverage and payment for telemedicine was “an especially important and problematic matter.” In the years since then, finances have remained an obstacle to the implementation of telehealth programs. A 2016 survey of U.S. health centers found that cost and reimbursement were the most cited reasons for not offering telehealth (Lin et al., 2018).

Telehealth was described in the Congressional record as early as December 1969, but it would be years before any national legislation was passed (115 Cong. Rec. 38225, 1969). Instead, telehealth was often funded by other government agencies. Throughout the 1970s, the NSF, the U.S. Department of Health, Education and Welfare (the predecessor to DHHS and the Department of Education), NASA, the Office of Economic Opportunity, and the Veteran’s

Administration funded telemedicine projects around the country. For instance, in 1973 the NSF gave \$906,300 to the University of Miami School of Medicine for the school to establish telemedicine in Florida prisons (“Programs, Practices, People”). However, these projects often failed due to a lack of cost-effectiveness, among other issues (Bashshur, 1980).

For decades, a challenge lay in the fact that the Center for Medicare & Medicaid Services — previously called the Health Care Financing Administration until 2001 — only recognized face-to-face care, the exception being in rural areas where care was often harder to obtain. Insurance companies started to pay for some telehealth encounters in the 1990s, but it was believed that action was needed by the Health Care Financing Administration for that practice to become more widespread (Ziegler, 1995) (Grigsby, 1995).

Federal telehealth policy. In January 1994, the HCFA announced the availability of funding for research projects pertaining to health care reform, financing, and delivery. This included projects focused on the effectiveness of telehealth in rural areas and projects that evaluated payment models for telehealth consultations, in which a provider and their patient met with another provider virtually (Health Care Financing Research and Demonstration Cooperative Agreements and Grants for Fiscal Years 1994 Through 1996, 1994). A few years later, the Health Insurance Portability and Accountability Act (HIPAA) directed the HCFA to produce a report on how Medicare could reimburse fee-for-service care provided through telehealth and make recommendations. By October 1996, the HCFA had begun a demonstration of Medicare fee-for-service payment for telemedicine in partnership with the Denver Center for Health Policy Research, including at least one site in North Carolina (Medicare Program, 1998). This laid the groundwork for Medicare reimbursement for telehealth in the Balanced Budget Act of 1997 —

but only in rural areas, and only for consultations requested by a referring provider (“H.R.2015 - 105th Congress”). For years, Medicare was only permitted to cover telehealth for beneficiaries in rural areas or those participating in federal telemedicine demonstrations. Patients also had to visit approved “originating sites” to use telehealth, meaning they were not allowed to use telehealth in their homes. This not only set the standard for other payers but was also viewed by CMS as a “significant” barrier to telehealth expansion (Centers for Medicare & Medicaid Services, 2018).

In March 2020, CMS released the blanket Telehealth 1135 waiver, which permitted more forms of telehealth beyond video, allowed telehealth visits to occur anywhere, and removed the need for a “referring provider” (*COVID-19 Emergency Declaration Blanket Waivers for Health Care Providers*, 2022). The changes also allowed health centers to serve as “distant sites,” or the primary source of care, whereas they had not been allowed to do so before. This allowed greater access to care as providers restricted in-person visits and set the stage for other payers to follow suit. However, these policies are contingent on the end of the public health emergency, and those that are not made permanent will lapse by the end of 2024 (Consolidated Appropriations Act, 2023).

Telehealth in North Carolina. North Carolina does not have a statewide telehealth policy as of 2023. N.C. S.L. 2017-133 required NCDHHS to recommend standards for the state, and in 2018 the General Assembly’s Joint Legislative Oversight Committee on Health and Human Services drafted legislation based on those recommendations (N.C. Joint Legislative Oversight Committee on Health and Human Services, 2017) (North Carolina Department of Health and Human Services, 2017). The drafted bill, the North Carolina Telemedicine Practice Act, was introduced in 2018 and would have set standards for providers to follow (S. 779, 2018).

However, the original bill was replaced with a committee substitute that did not become law (H. 967, 2018). In lieu of a specific law, providers follow a position statement issued by the state Medical Board which says that providers must be licensed to provide care in North Carolina and they must follow established standards of care (5.1.4: *Telemedicine*, 2019).

Despite the lack of official laws, telehealth has had a presence in North Carolina for years. The state began expanding its telecommunication capacities around the same time the HCFA was researching payment models. The development of the Information Highway allowed the University of North Carolina at Chapel Hill to provide video consultations to three rural sites using funding from the federal Office of Rural Health Policy (Field, 1996). East Carolina University School of Medicine began offering telehealth consultations in 1992, before the Information Highway, but it also received funding from the ORHP and hosted one of the Medicare reimbursement pilot programs (Field, 1996) (Hinton, 1997). The ECU model was later expanded to six rural hospitals and the naval hospital at Camp Lejeune (Hinton, 1997). The Department of Defense also funded telehealth projects at military hospitals in the state. Lipson and Henderson (1996) name Governor James B. Hunt's "public/private health information alliance" and a limited prison telemedicine program as some of the state's additional efforts in this area.

When the new rules for Medicare reimbursement were implemented in the late 1990s, it opened the door for states to decide whether to cover telehealth through Medicaid. This matters because health centers in states where Medicaid reimbursed telehealth were more likely to offer the service (Lin et al., 2018). NC Medicaid's "Telemedicine and Telepsychiatry Clinical Coverage" policy, instituted in 1999, delineated that Medicaid would reimburse for medical care

and specialist visits done over video (Brown, 2006) (NC Division of Medical Assistance, 2018). Like the federal policy, patients could not attend telehealth visits from their homes and use was limited.

In December 2019, NC Medicaid started to develop permanent policies and billing codes for telehealth. This process was expected to take three years but was ultimately accelerated by the COVID-19 pandemic (Chu et al., 2021). In March 2020, NC Medicaid loosened its telehealth restrictions concurrent with CMS' Telehealth 1135 waiver (*SPECIAL BULLETIN COVID-19 #9*, 2020). After North Carolina's public health emergency ended, Medicaid phased out coverage for some telehealth services, but many became permanent, notably behavioral health, dental health, and remote monitoring services (*SPECIAL BULLETIN COVID-19 #226*, 2022). However, coverage for audio-only or asynchronous services have been mostly phased out, except for behavioral health services.

Reimbursement parity. Another barrier to increasing telehealth use is a lack of reimbursement parity among synchronous video, audio-only, and asynchronous care. Private payers in North Carolina are not legally required to provide reimbursement parity, meaning that telehealth may not receive the same coverage as in-person visits (*North Carolina State Telehealth Laws*, n.d.). Even different telehealth modalities may receive different reimbursement levels. As of September 2022, Blue Cross and Blue Shield of North Carolina only paid for audio-only visits 75% of what was allowed for video or in-person visits (*Commercial Reimbursement Policy*, 2022). Aetna similarly did not consider audio-only visits equal to video visits as of October 2020 (*COVID-19: Telemedicine FAQs*, n.d.).

The discrepancies in coverage may be partly due to insufficient evidence supporting the effectiveness of audio-only visits. While audio-only visits have been found to improve outcomes in some cases (O'Brien et al, 2018), they are often shorter than video visits, yield fewer diagnoses on average, and have lower patient comprehension rates (Schifeling et al, 2020) (Voils et al, 2018). However, Hispanic individuals and people with a dominant language other than English are more likely to uptake audio-only visits than video visits, and in some cases they may be exclusively offered audio-only visits because providers do not believe they have the means to participate in video visits (Karimi et al, 2022) (Benjenk et al, 2019).

Thus, the lack of reimbursement for audio-only visits poses an access barrier for farmworkers, who may be genuinely unable to partake in video visits. A federal bill (H.R.4480) introduced in 2021 to require payment parity for telehealth didn't make it out of the House of Representatives, and no such bills have been introduced in North Carolina in recent years.

Identifying Needs

Identify “the specific needs of the community to be served, particularly those amenable to satisfaction through technologic applications”

In proposing solutions to increase telehealth use for North Carolina farmworkers, it is important to establish a baseline for current needs and usage. There is limited data readily available on how North Carolina farmworkers are actually using telehealth services. In addition to determining access needs, it is important to know what services are most likely to be used, and whether those services are conducive to technological solutions. This section will explore care-seeking behavior by North Carolina farmworkers and care utilization trends to determine which interventions should be prioritized.

Care-seeking behavior

It is common for health centers to travel to farms or farm camps to assist workers, as some would not present for care otherwise. One health center staff member noted that the center leaves contact information at camps for farmworkers to reach them, rather than the center initiating contact (N. Palacios, personal communication, October 19, 2021). However, getting farmworkers to reach out remains a challenge (M. Hayes, personal communication, February 6, 2023). Therefore, one goal of this project was to determine what influenced North Carolina farmworkers to seek care.

Numerous challenges ranging from pandemic era shutdowns to off season recruitment efforts severely hampered recruitment efforts. A six-minute interview was conducted by phone with a single young adult male working in agriculture in western North Carolina. He had lived in North Carolina for two years at the time of the interview and worked in agriculture for the same length of time. Part of the interview guide in Appendix A was completed before the call ended, but the author was unable to ask about mental health, access barriers (transportation, costs, time off), or technology needs. Some information could be inferred — for instance, the farmworker had WhatsApp, indicating access to a cell phone — but there was otherwise significant context missing. However, his answers provided insight into care-seeking behavior in general.

The farmworker described his health as “okay,” and upon being asked for an explanation revised his answer to “good.” His last medical appointment was for pain, suggesting that he would seek care for injury. When asked how sick he’d need to feel on a scale from 1 to 10 to seek care, his answer was 2. This contrasts with previous narratives about farmworkers not seeking care because their ailments were not “serious enough” (Snipes et al., 2017). However, he

also indicated that he did not have a regular place for care (“I just go where’s available”) and that he rarely sought care in his country of origin. He also did not attend well visits.

This account aligns with trends showing that younger farmworkers and farmworkers without families are less likely to seek care. Since the interviewee had only lived in North Carolina for two years at the time of the interview, this also aligns with findings by McCoy et al. (2016) that farmworkers who live in an area longer are more likely to have a primary care provider. While it is impossible to speculate about the interviewee’s telehealth use, evidence suggests that people without a regular place for care are unlikely to use telehealth. According to data from the 2021 National Health Interview Survey, 14% of people living in the South with no usual place of care had a telehealth visit in the prior 12 months compared to 38.1% of people with at least one usual place of care (OR = 3.5, 95% CI = 2.94 - 4.2). In comparison, about 35% of people living in the South and 37% of people nationally were estimated to have used telehealth. (Lucas & Villarroel, 2022).

On one hand, the factors that contribute to not having a regular place of care, such as living in a rural area, are likely the same factors that contribute to not adopting telehealth in the first place. On the other hand, this data suggests that farmworkers would benefit from in-person outreach before transitioning to telehealth.

Care utilization

Health Center Program participants are required to report certain data to HRSA on an annual basis, including number and types of locations, number of patients served, patient demographics, services offered, and sources of revenue. This data comprises the Uniform Data System. UDS data can be used to gain insight into how farmworkers currently utilize care,

although not all centers submit data for every question. The dataset also contains information on whether a center used telehealth, whether they used it to communicate with patients and/or specialty providers, and types of telehealth technology used.

Out of the 26 health centers that reported serving farmworkers and their dependents, this population comprises less than 1% of patients at 11 of them. Fifteen health centers, including the Farmworker Health Program, had between 1% and 93% of patients that were farmworkers or dependents (Table 1). Since the FHP is specifically for farmworkers, they saw the highest proportion of farmworker patients.

**Table 1. NC health centers with at least one patient that is a farmworker or dependent
(2021 UDS)**

Grantee Name	% Of Patients (# Farmworkers)
NC DEPARTMENT OF HEALTH AND HUMAN SERVICES*	93.1 (10,712)
GREENE COUNTY HEALTH CARE INCORPORATED	29.6 (11,100)
CAROLINA FAMILY HEALTH CENTERS, INC.	17.8 (4,207)
KINSTON COMMUNITY HEALTH CENTER, INC.	17.5 (1,403)
GATEWAYS COMMUNITY HEALTH CENTER, INC.	17.3 (404)

OCRACOKE HEALTH CENTER INC	8.7 (212)
TRI COUNTY COMMUNITY HEALTH COUNCIL, INC	7.8 (1,851)
APPALACHIAN DISTRICT HEALTH DEPARTMENT	5.9 (256)
BLUE RIDGE COMMUNITY HEALTH SERVICES, INC.	5.5 (2,226)
PIEDMONT HEALTH SERVICES	4.6 (2,234)
RURAL HEALTH GROUP	2.7 (959)
HIGH COUNTRY COMMUNITY HEALTH	2.0 (235)
ROANOKE CHOWAN COMMUNITY HEALTH CENTER INC	1.9 (302)
FIRST CHOICE COMMUNITY HEALTH CENTERS	1.1 (90)
BAKERSVILLE COMMUNITY MEDICAL CLINIC INC	1.1 (121)
BLACK RIVER HEALTH SERVICES INC	0.9 (57)
GOSHEN MEDICAL CENTER, INC	0.8 (1,137)
UNITED HEALTH CENTERS	0.5 (25)
OPPORTUNITIES INDUSTRIALIZATION CENTER, INC.	0.5 (51)

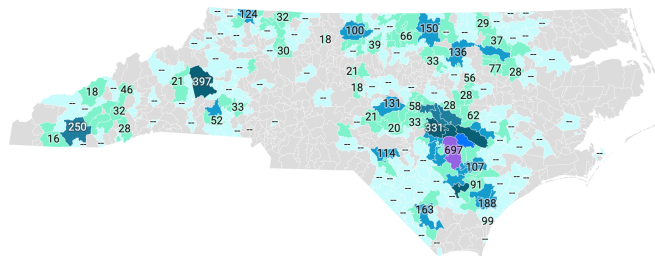
PERSON FAMILY MEDICAL CENTER, INC	0.5 (35)
CABARRUS ROWAN COMMUNITY HEALTH CENTERS, INC	0.4 (63)
THE C.W. WILLIAMS COMMUNITY HEALTH CENTER, INC	0.4 (52)
ADVANCE COMMUNITY HEALTH	0.3 (50)
ROBESON HEALTH CARE CORPORATION	0.2 (40)
APPALACHIAN MOUNTAIN COMMUNITY HEALTH CENTERS	0.2 (20)
GASTON FAMILY HEALTH SERVICES INC	0.1 (59)

*The Farmworker Health Program is based at NC DHHS. This line includes patients seen at contracted health sites, per the UDS Support Center (personal communication, February 14, 2023).

The fact that farmworkers are such a small proportion of the clientele of some health centers makes it challenging to extrapolate data reported by these centers to North Carolina farmworkers as a whole. However, two grantees in particular — the Farmworker Health Program and Kinston Community Health Center — can provide some insight. The former can provide useful information because of its demographics and the latter can provide useful information because it provided specific details about types of visits.

Since 93% of patients seen by the Farmworker Health Program sites in 2021 were farmworkers and dependents, and patients came from around the state (Figure 2), the reported data can be used as a proxy for all North Carolina farmworkers. Nearly 100% of patients seen by the Farmworker Health Program were Hispanic, and 98% were best served in another language, indicating the need for multilingual services (“Health Center Program Uniform Data System”). About 14% of patients were under 18, and about a quarter of those patients are 5 years old or younger — indicating a need to consider children in policy solutions. Most patients were under 100% of the federal poverty line. About 98% of adults and 54% of minors were uninsured, and 45% of minors were on Medicaid. This indicates a need to prioritize low-cost services and/or services that can be funded by North Carolina Medicaid.

Figure 2. Map of patient zip codes for FHP clinics.



A choropleth map showing zip codes where FHP patients lived or worked according to UDS data, labeled with the number of patients. Areas labeled with “-” had 15 or fewer patients. Each zip code had fewer than 15 patients with private insurance and fewer than 15 patients with Medicare. Patients were predominantly uninsured in all zip codes.

Three out of four FHP patients were male, which appears to contradict findings that most patients at migrant health centers are female — although this may be because there are more male than female farmworkers (Hu et al., 2016). In comparison, the health centers with the second and third largest proportions of farmworker patients (29% and 17%, respectively) have

slightly more male than female patients, but these centers have closer to an even gender split (50.5-49.5 and 53.7-46.3, respectively).

The FHP reported that telehealth was used for primary care, oral health, mental health and substance use treatment in 2021 (“Health Center Program Uniform Data System”). Both remote patient monitoring and real-time telehealth were used ¹. While utilization and efficacy data is missing, the use of these modalities shows what capacity health centers have and how that capacity can be leveraged. For instance, remote monitoring helps providers determine whether to schedule follow-up appointments (J. Santillan, personal communication, October 4, 2022). FHP contractors also use patient portals and secure messaging to connect with patients.

FHP data can also provide insight into which conditions should be prioritized and which services are provided most often. For instance, 218 patients presented for emergency care and 444 presented for dental exams. It can also provide insight into women’s health; an estimated 47% of female patients between the ages of 23 and 64 received a Pap smear in the prior two years or a HPV test in the prior three years, and an estimated 54.3% of female patients between the ages of 51 and 73 received a mammogram in the prior two years. While these particular screenings are not available via telehealth, women may be able to obtain contraceptives (18 patients received contraceptive management at the FHP in 2021), maternal care, or therapeutic abortion virtually, in addition to non-reproductive healthcare.

One limitation is that health centers only report data for conditions that are deemed of interest to the HRSA, so other conditions may not be examined. Additionally, aside from specific

¹ The UDS gives “live videoconferencing” as an example of real-time telehealth, but synchronous audio visits are also allowed to be reported to the UDS, so it is not clear which modalities are being used.

women's health conditions, the data is not stratified by gender. Table 2 contains the point prevalence ² of reported conditions per 100,000 individuals (since there are around 100,000 farmworkers in the state) and the average number of visits per patient for each condition. The point prevalence may be an underestimate since the data only includes those who presented for care during the year.

Table 2. Conditions among FHP Patients, 2021

Condition	Point Prevalence	Average visits / patient
Asthma	208.6	1.5
Diabetes mellitus	1920.9	2.4
Heart disease	139.1	1.5
Hypertension	2711.9	2.0
Contact dermatitis	495.4	1.2
High BMI	4041.7	1.5
Alcohol-related disorders	182.5	1.6
Tobacco use disorder	643.2	1.2
Depression and other mood disorders	695.3	2.1
Anxiety disorders	1095.2	2.2
Other mental disorders	756.2	3.0

² number of patients with the condition ÷ total number of patients X 100,000

The five most prevalent conditions in this population are high body mass index, hypertension, diabetes mellitus, anxiety disorders, and mental disorders other than anxiety or mood disorders. Additionally, patients with conditions such as hypertension, diabetes mellitus, mood disorders, anxiety disorders and other mental disorders presented for care multiple times on average. This aligns with findings that farmworkers with chronic diseases are more likely to seek care and indicates a greater need to prioritize chronic disease and mental health services (Hoerster et al., 2011). Indeed, a staff member at a different health center indicated that farmworkers would particularly benefit from access to behavioral health services, and that diabetes and hypertension were among the chief complaints (N. Palacios, personal communication, October 19, 2021).

In addition to looking at conditions, it is important to examine how many health center visits are through telehealth. In October 2021, an interview was conducted with a staff member at a health center that served farmworkers and dependents. That health center typically sees over 1,000 farmworkers in a year, although this number fell during the pandemic (N. Palacios, personal communication, October 19, 2021). Staff visit farm camps to schedule appointments and transport workers to appointments. Services are available year-round, with H-2A workers returning to their home countries and seasonal families remaining in the area. Keeping with wider trends, farmworkers with families were more likely to seek care, presenting at the health center up to four times per year if they were otherwise healthy (Bey, 2022).

The center saw an increase in telehealth use among farmworkers during the first year of the pandemic but gradually shifted back to in-person visits to prioritize access to preventive care and dental care (Bey, 2022). Additionally, a lack of access to technology made it telehealth

adoption difficult for most farmworker patients at the center, and most of the time the center did not present telehealth as an option to patients (N. Palacios, personal communication, October 19, 2021). The latter aligns with findings by Benjenk et. al. (2019).

Kinston Community Health Center was the only grantee examined for this thesis with publicly available data on patient visits by service category and modality — the other grantees reported the information as confidential (“Health Center Program Uniform Data System”). Only 17% of patients served by KCHC were farmworkers and dependents, and only 30% of patients were Hispanic or Latino, so usage data cannot be as easily applied to the farmworker population, but it can provide a baseline for health centers.

KCHC has 13 school-based dental clinics, one general medical clinic, one behavioral health clinic and one mobile van. Out of 25,712 total visits in 2021, 18% were virtual visits, and nearly half of virtual visits were related to mental health. Additionally, nearly all visits to psychiatrists, licensed clinical social workers, or other mental health providers were virtual (Table 3). This aligns with general telehealth use trends being skewed toward behavioral health, and with Duke Health data showing that 98% of psychiatrist visits were virtual (Drake et al., 2021).

However, per KCHC’s website, all behavioral health providers speak only English, which poses a barrier for farmworkers that may have Spanish language needs (“Behavioral Health - Kinston Community Health Center”).

Table 3. Virtual Visits to KCHC by Type of Provider, all patients, 2021

Provider Type	% Of Visits (Total Visits)
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Family Physicians	6.1 (155)
Internists	6.7 (62)
Obstetrician/Gynecologist	11.6 (381)
Nurse Practitioner	16.7 (1187)
Nurse	1.2 (4)
Dentist	0.0 (2)
Psychiatrist	96.0 (810)
Licensed Clinical Social Worker	93.8 (1367)
Other Licensed Mental Health Providers	100.0 (65)

Other provider types with at least 5% virtual visits were family physicians, internists, OB-GYNs and nurse practitioners. The use of virtual obstetric and gynecological services is interesting and it is worth exploring whether female farmworkers or farmworker spouses would be able to use these services. This usage may be due to the fact there were 238 prenatal patients at KCHC in 2021. In contrast, no prenatal patients visited FHP sites.

Programs

Determine what organizational structure is necessary for implementation and plan technical design, staffing arrangements, and evaluation plan before operation

To recommend solutions for the expansion of broadband and telehealth services, it is necessary to examine existing programs. Throughout the state, there have been multiple partnerships or initiatives that resulted in greater telehealth access for farmworkers. One such

partnership is that of Surry Medical Ministries and Surry Communications in central North Carolina.

As of February 2023, Surry Medical Ministries was open from 9 am to 3 pm three days a week and 5 pm to 8 pm once a week (“Surry Medical Ministries”). As a result, Surry County farmworkers often couldn’t fit into the clinic’s limited hours. After Surry Communications, the county’s telecommunications company, stepped in and set up fiber internet at two farms, residents were able to use telehealth (Cyr, 2021). This shows the role that local relationships can play in overcoming access barriers.

Two other state programs, the Internet Connectivity Project and TeleFuturo, give additional insight into broadband access and telehealth use among North Carolina farmworkers. Both programs have an associated logic model with which to evaluate their success, and lessons from these programs can be useful in shaping future projects.

Internet Connectivity Project

The Farmworker Health Program launched its Internet Connectivity Project in June 2020 to increase access to telehealth, social support, family connection, emergency communication and educational opportunities during the COVID-19 pandemic. That project, which included hotspot lending, reimbursing growers for broadband installation, and establishing “internet hubs” that supported up to 100 devices, led to increased access for nearly 3,200 farmworkers during the 2021 farming season (Cofie et al., 2022).

The project was implemented in collaboration with the NC Agromedicine Institute, the Broadband Infrastructure Office, and several other local partners to execute the project.

According to a logic model presented at an October 2021 webinar (Table 4), the project team

identified internet service providers with “a variety of service areas” to partner with. They also developed digital literacy materials for farmworkers, established technical assistance support from the Broadband Infrastructure Office and employed outreach workers for education and distribution of hotspots. Some farmworkers were designated to oversee the use of hotspots upon delivery. The project team also convened a digital inclusivity working group that meets quarterly to continue digital equity efforts. The long-term goals of the project were to improve health outcomes and wellbeing and ensure sustained access to internet connectivity for farmworkers.

Table 4. Adaptation of logic model developed by Farmworker Health Program

Resources	Activity	Output	Outcomes	Impacts
Funding (CARES Act) NCFHP Team Stakeholders Internet service providers	Plan and implement logistics for internet resource distribution Coordinate with community stakeholders for project support	3 internet solutions: MIFI hotspots, grower reimbursement for wired connections, internet hubs Recruited CBOs to distribute hotspots	Short-term: Farmworkers have internet access Growers reimbursed for internet in migrant housing Internet connectivity solution process and guidelines created to assist farms	Farms sustained access to internet connectivity for all farmworkers Digital inclusion and equity for farmworkers Improved health outcomes and well-being for farmworkers
Internet technology (Router, MIFI, Booster, Antennas) Technical support Digital literacy education Research and evaluation staff	Identify ISPs with a variety of service areas Establish technical assistance support for internet connectivity Develop IT solutions to support various connectivity needs Develop digital literacy education materials and train community partners to share with farmworkers Monitor and evaluate ICP with input from stakeholders Convene digital inclusivity working group to find solutions to increase digital equity	NCFHP-NCAI contract for internet cost-share Farms recruited for internet hub option Regular technical assistance from NC BIO internet engineer and policy consultant CBOs improved capacity to tailor digital literacy materials for farmworkers Project implementation process evaluated Program partners, growers and farmworkers interviewed Farmworker surveys Quarterly digital inclusion meetings with NC BIO, NCFHP, community partners	Long-term: State-level digital inclusion policy priorities included farmworkers Increased # of farmworkers with internet connectivity, improved digital literacy, online resource access, telemedicine, education opportunities, social support, emergency communication	

The project cost about \$125,000 during peak growing season (Cofie et al., 2022). Although the logic model mentions funding from the CARES Act, the project evaluation by Cofie et. al. (2022) notes that the project was funded entirely using HRSA money, with the project using 14% of the respective grant. Community health workers distributed 424 hotspots, each costing about \$40 per month. 14 internet hubs were established at seven farms, with routers and antenna installation costing about \$2,400 each, which comes up to \$33,600. Service also cost about \$40 per month.

Reimbursing growers was most challenging due to the aforementioned infrastructure issues in farmworker housing which led installation to be “prohibitively expensive” (Cofie et al., 2022). Growers were reimbursed up to \$1,000 per housing unit for broadband installation, and since installation was completed in 21 units, this places estimated costs at around \$21,000. Additionally, the project being based within a state agency was described as a limiting factor in its sustainability:

“However, as the project is led by a state agency, it is limited in its ability to sustain Internet connectivity for all farmworkers. Leadership by organizations that serve farmworkers and growers is critical for implementing Internet solutions during emergencies like the pandemic, testing long-term Internet solutions, and establishing alliances to promote digital equity in the agricultural community.” (Cofie et. al., 2022)

This points to a need for multiple funding sources outside of government grants as well as a need for stakeholders from both the public and private sectors to participate in efforts to bridge the digital divide.

TeleFuturo

The Farmworker Health Program also offers a Behavioral Health Program, which partners with El Futuro to provide in-person therapy and teletherapy. El Futuro is a non-profit mental health organization based in Durham, North Carolina. The organization is primarily funded by grants and contracts, and it also receives charitable donations and fee-for-service revenue (*Annual Report 2022*). In 2017, the organization launched a telebehavioral health program, TeleFuturo, in which patients could join a video call with an El Futuro provider at home or in a private office at a partner facility (El Futuro, 2022) (Saavedra, 2022). Sessions are free or on a sliding scale.

In 2019, TeleFuturo partnered with the FHP for a farmworker outreach program (El Futuro, 2020). Appointments are offered in the late afternoon and evening to accommodate work hours (K. Morris, personal communication, October 21, 2022). The program had served 82 farmworkers by the end of its first year, and 95 farmworkers by 2021 (Cooke, 2020) (El Futuro, 2022). Overall, the farmworker project saw 342 patients for 1,693 therapy sessions from January 2019 to February 2023, with about 300 patients utilizing teletherapy (K. Morris, personal communication, October 21, 2022) (M. Hayes, personal communication, February 16, 2023). This comes out to an average of 4.5 sessions per patient.

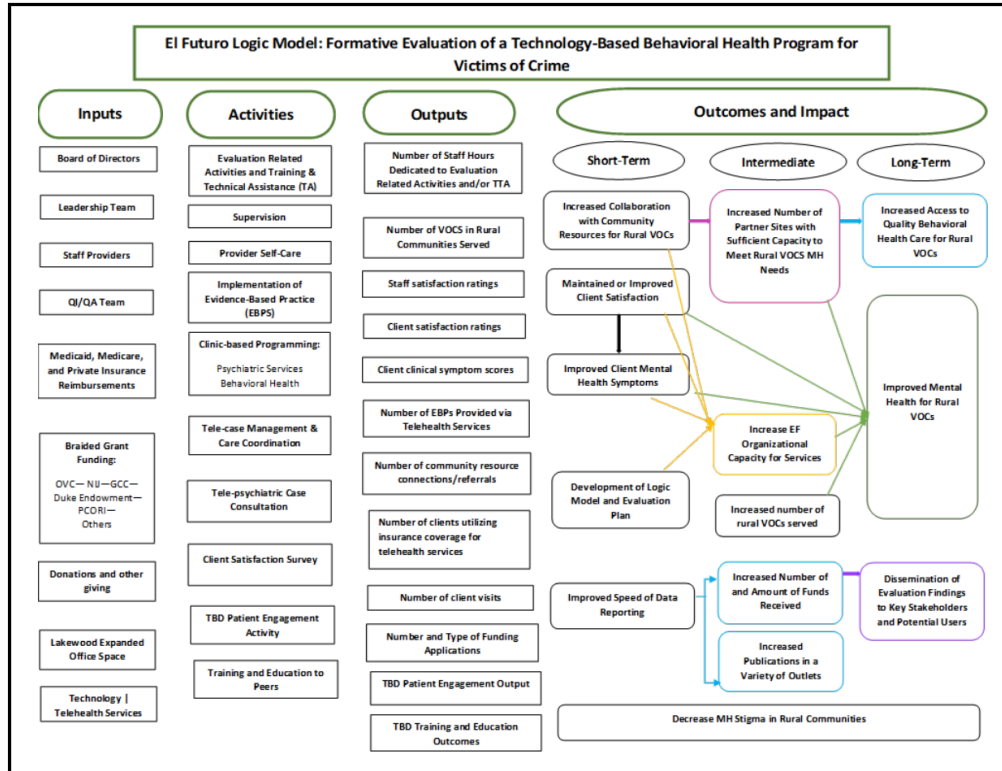
An RTI International study on telehealth services for victims of crime examined El Futuro's role in facilitating access to mental health services for that population. About half of TeleFuturo's patients from October 2019 to February 2021 were victims of crime, and about 100 VOCs were farmworkers (Saavedra et al., 2022) (L. Saavedra, personal communication, February 16, 2023). Patients were recruited through home visits, flyers, engagement with

primary care providers and participation in local activities (Saavedra et al., 2022). Farmworkers reportedly had three visits on average, which aligns with the average number of mental health visits observed at the FHP clinics. Notably, mental health providers that served farmworkers developed a “targeted approach” to care rather than “repeated sessions that dig into root causes” (Cooke, 2020). This may be important to take into consideration for future care delivery.

More broadly, the study noted that type of diagnosis contributed to whether patients preferred telehealth, with autistic patients preferring it and patients with attention deficit hyperactive disorder or paranoia having a harder time (There was no FHP data on these disorders in the UDS). Other obstacles in rural communities included a lack of bilingual psychiatry services and the transition out of the agricultural season. Uninsured and undocumented patients were also concerned about privacy (Saavedra, 2022).

RTI also developed a logic model (Figure 3) based on frameworks of pre-existing El Futuro programs to evaluate the success of TeleFuturo in assisting victims of crime. Although it is tailored to VOCs, it has implications for planning farmworker-targeted programs.

Figure 3. Logic model for TeleFuturo developed by RTI International (Saavedra et. al., 2022)



For one, the logic model shows that TeleFuturo is supported by insurance reimbursement, donations, and “braided” funding, meaning funds combined from multiple sources. TeleFuturo’s expenses were \$430,106 in 2020 and \$307,432 in 2021 according to IRS Form 990 data³. Because of the importance of grant funding to the program’s sustainability, program staff had to prioritize grant writing as funding periods ended in order to ensure continued funding for the program (Saavedra, et al., 2022). Reimbursement also posed a challenge because of evolving policies surrounding telehealth, especially during the pandemic, and inconsistent processes around billing for audio-only visits. This reinforces the importance of reimbursement parity as well as the need for multiple sources of funding.

³ <https://projects.propublica.org/nonprofits/organizations/800122334>

The logic model also provides guidelines for program evaluation. Namely, client satisfaction, clinical symptom scores, number of patients served, number of client visits and number of patients using insurance coverage are identified as outputs. These are important to track when it comes to developing telehealth programs for farmworkers.

Discussion

Telehealth is viewed as a way to increase access to care, especially in rural areas. However, farmworkers confront multiple barriers to telehealth adoption, including lack of internet access, lack of health insurance, transport issues, concerns about privacy, long working hours and lack of Spanish-language services. There are short-term solutions to increase connectivity for farmworkers, including hotspots and community hubs, but investing in long-term solutions such as broadband installation are crucial to ensuring continued access. North Carolina has been making efforts to increase broadband connectivity, but they are complicated by costs and long project completion times. Even for those farmworkers that have health insurance, private payers are not required to cover telehealth at the same rate as in-person visits. Analyzing qualitative and quantitative data showed that mental health and chronic disease services are important to prioritize via telehealth. Pre-existing programs show that public-private partnerships are needed to ensure long-term sustainability of broadband and telehealth initiatives.

Increasing farmworkers' access to and adoption of telehealth will take a multi-pronged approach. Before discussing individual (farmworker) or community level factors, it is necessary to address the systems that have allowed barriers to persist. Cost and connectivity barriers in particular are due to policy, and as such, the following policy changes are recommended:

Policymakers should develop incentives for companies and nonprofits to contribute to the expansion of broadband and telehealth. Programs designed to increase access to internet and telehealth services can cost hundreds of thousands of dollars to implement. Thus, it is not enough to rely on state or federal funding, as seen with the Internet Connectivity Project. As the Surry Medical Ministries-Surry Communications partnership showed, nongovernmental entities play an important role in the expansion of broadband. North Carolina already provides infrastructure grants for companies to defray broadband installation costs, in addition to grants specific to economically distressed areas. However, it may be necessary to incentivize companies to target farms specifically, whether this is stipulated in the state budget or through a Request for Applications. In the 2021-2022 fiscal year alone, lawmakers from Sampson County directed over \$21 million to Star Communications, a communications cooperative, to build a new headquarters (Doran, 2022). It is equally possible to establish a fund in the state budget for farm broadband, or establish a tax credit for companies that contribute to expansion of connectivity. Additionally, health centers remain important sources of care for uninsured populations and North Carolina should continue offering grants to support telemedicine infrastructure and encounters at health centers.

Health insurance companies should be required to provide reimbursement parity, especially in rural areas. Reimbursement for telehealth has been identified as a barrier by North Carolina programs as well as programs in other states. While standards for Medicare and Medicaid are often set at the federal level, one change that can be made at the state level is implementing a requirement for private payers to provide reimbursement parity for different telehealth modalities. This could help overcome barriers for the farmworkers that do have U.S.

based health insurance. At both the state and federal levels, public insurance should ensure the availability of reimbursement for audio-only telehealth in rural areas. This would decrease barriers to care for people that are less likely to uptake video telehealth, such as Hispanic people and people who speak other languages. Some state Medicaid programs already provide reimbursement for asynchronous or “store-and-forward” telehealth as well as remote patient monitoring according to the Center for Connected Health Policy, so it is well within the realm of possibility to reimburse audio-only telehealth.

Require all newly-constructed migrant housing to have internet access. It was noted by the Farmworker Health Program that reimbursing growers to install wired internet in migrant housing was “prohibitively expensive” due to the infrastructure of said housing. As discussed in the “Broadband Policy” section, Dig Once policies attempt to minimize how frequently land is excavated for broadband installation because it is cheaper. Therefore, installing wired internet while housing is being constructed would follow the spirit of Dig Once policies and ultimately be cheaper in the long run.

With regard to community-level changes, counties continuing to develop digital inclusion plans will be crucial in identifying and addressing localized broadband needs. A large proportion of North Carolina farmworkers are uninsured, so the availability of low-cost services remains crucial. There also needs to be more providers capable of providing Spanish-language services, given current gaps in bilingual health services. This would reduce communication barriers between patients and providers and also build trust.

Trust is an important element of care delivery, and farmworkers may not necessarily trust providers for a variety of reasons. As mentioned in the introduction to this paper, a lack of

familiarity with local health services and concerns about safety can contribute to mistrust among farmworkers. Additionally, trust in telehealth specifically relates to privacy (Orrange et al, 2021) (Van Velsen et al, 2016), which was an established concern among undocumented and uninsured TeleFuturo patients. Donaghy et. al. (2019) found that patients were more accepting of video visits when there was a pre-existing patient-provider relationship. For these reasons, as well as previously raised concerns about farmworkers not initiating contact with community organizations, in-person outreach may be necessary before establishing connections through telehealth. El Futuro actively recruited patients for TeleFuturo through community engagement, which could be a model for future programs. At a programmatic level, it is necessary to collect data on usage, satisfaction, and clinical progress to ensure that telehealth interventions are efficacious. This data can then be used to guide future program design.

While this analysis included some data on women's health screenings, there was otherwise limited information with which to explore gendered differences in farmworker health. Communicating with stakeholders that work directly with farmworkers helped shape final recommendations, but a lack of qualitative data from farmworkers made it difficult to generalize about the personal factors that impact telehealth use. The recruitment timeline certainly contributed to this lack of data and it may be best to attempt the qualitative study again during the traditional agricultural season. In general, more research is needed in this area, both through patient surveys and interviews.

Conclusion

Telehealth can be a option for North Carolina farmworkers, but policy changes are necessary to make that a reality. Public-private partnerships are important in the development of

infrastructure and the delivery of care. Virtual care will not and should not replace in-person care, but it provides important complementary support and flexibility for patients and overcomes pre-existing barriers such as a lack of transportation or long working hours. Ultimately, farmworkers should be included in the larger conversation about telehealth. Engaging directly with communities is key to health equity, because it ensures that any interventions or policy changes are tailored to community needs and result in better health outcomes (Grumbach et al, 2017).

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Appendix A

Qualitative Instrument (English and Spanish)

Background

How old are you?

Are you originally from the US?

Country of origin if not US:

How long have you worked in agriculture?

How long have you been in North Carolina?

Do you live in housing provided by your employer?

How many people do you live with?

Do you have a partner or children? Do they live with you currently?

Do you live with other family in North Carolina?

Health behaviors

Would you describe your health as excellent, good, okay or poor?

How many times have you had a medical appointment in the past year?

When was the last time you went to a medical appointment?

Do you have a regular health facility?

If yes: What kind? What services do you get there?

Do you see the same person each time you visit your health facility?

If from another country: Did you go to medical appointments in your home country as much as you do in the United States?

Do you go to check-up appointments even if you feel well?

On a scale from 1 to 10, how sick must you feel to go to a medical facility?

Would you go to a medical facility if you got injured at work? Injured outside of work?

On a scale from 1 to 10, how much pain must you feel to go to a medical facility?

If has family: How often do your family members go to medical appointments in a year?

Do you go together? How often?

Do you have any concerns about your physical health? Mental health?

Do you deal with sadness, anger, or other challenging emotions?

Have you ever been to a therapist?

If no: Would you be willing to see one?

If yes: Are you currently seeing one?

Access

If you need to go to a medical facility, do you have access to transportation?

If you need to go to a medical facility, are you able to get time off from work?

When you go to a medical facility, do you worry about how to pay for it?

Do you have health insurance?

If yes: Do you pay for it? Does your employer pay for it?

If family goes to doctor: Do any of your family members have insurance?

Technology

Is there internet at your residence?

Do you have your own cell phone? Do you use someone else's?

If yes to either: What kind of phone? Does it have internet access?

Have you ever messaged a health professional on a website?

Have you ever emailed a health professional?

Have you ever spoken to a health professional on a phone call at a scheduled time?

Have you ever spoken to a health professional on a video call?

If no to any of the above: Would you be willing to? Why?

If yes to any: Have you done that in the past year? What was the best and worst part of the experience?

Have you ever heard the term "telehealth" or "telemedicine?"

If yes, ask them to define it

If no: Telehealth or telemedicine is the sharing of health information with a doctor through a phone call, video call, or internet.

Do you think you have used telehealth before?

If has regular clinic: Do you know if your health facility offers telemedicine?

Are you willing to use telemedicine (again)? Why or why not?

Instrumento Cualitativo

Historia

Cuantos años tienes?

Usted es de los Estados Unidos?

De que país eres?

Cuanto tiempo ha trabajado en la agricultura?

Cuanto tiempo ha estado en Carolina del Norte?

Vive en una vivienda pone de su jefe?

Cuántas personas viven contigo?

Tiene pareja o hijos? Viven contigo en Carolina del Norte?

Vive con otras familiares en Carolina del Norte?

Comportamiento

Describe su salud como excelente, buen, asi asi, o malo.

Con que frecuencia visitó una instalacion de salud en el año pasado?

Cuando fue su cita medica mas reciente?

Tiene una instalación de salud regular?

Sí: A qué tipo de instalación de salud va? Que servicios recibe? Siempre ve a la misma persona alli?

Si otro país: Asiste a citas medicas en su pais nacido con la misma frecuencia que en los EEUU?

Asiste a citas por un chequeo aunque siento bien?

En una escala de 1 a 10, que enfermo necesita sentir para visitar a una instalación de salud?

Asistirá una instalación de salud si se lastimó al trabajo? Afuera trabajo?

En una escala de 1 a 10, cuanto lastima necesita sentir para visitar a una instalación de salud?

Si familia: Cuantas veces sus familiares asisten citas medicas en un ano? Asisten juntos?

Con que frecuencia?

Tiene problemas con su salud fisica? Su salud mental?

Sienta triste, enojado u otras emociones dificiles?

Ha asistido citas terapeutas?

Si no: Estara dispuesto asistir una terapeuta?

Si afirmativo: Hablando con una terapeuta?

Acceso

Si necesita ir a cita medica, tuviera acceso a la transportación?

Si necesita ir a cita medica, puede ausentarse del trabajo?

Cuando va a cita medica, se preocupa como pagar?

Tiene seguro medico?

Sí: Paga por el seguro? Su jefe paga?

Si familia asisten citas: Sus familiares tienen seguro?

Tecnologia

Hay internet en la vivienda?

Tiene un celular personal?

Tiene acceso al celular de alguien otro?

Para cualquiera de los dos: Que tipo de celular? Tiene acceso al internet?

Ha enviado mensajes a un prestador de servicios medicos en el Internet?

Ha enviado correos electronicos a un prestador de servicios medicos?

Ha hablado con un prestador de servicios medicos por telefono a una hora programada?

Ha hablado con un prestador de servicios medicos por video chat?

Si no para algo: Estara dispuesto a... Por que?

Si afirmativo: Hecho en el año pasado? Que fue la mejor y peor parte de la experiencia?

Conoce la palabra “telesalud” o “telemedicina”?

Si no: Telesalud es el compartido de informacion de salud con un doctor en el internet o telefono.

Si afirmativo: Puede dar una definición?

Crees que ha usado la telesalud?

Si tiene clinica: Sabe si su prestador ofrece la telesalud?

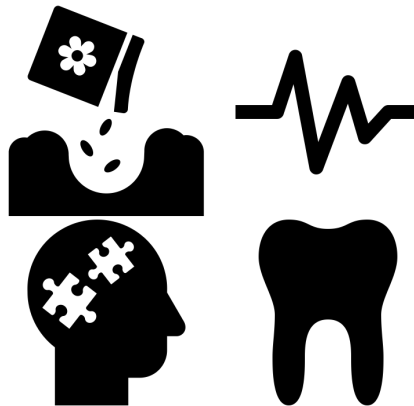
Esta dispuesto a usar la telesalud (de nuevo)? Por que?

Appendix B

Sample Recruitment Flyer

Are you an NC farmworker? Have you worked in farm work in NC in the past three years?

Eres un trabajador agricola en Carolina del Norte? Ha trabajado en agricultura en Carolina del Norte en los tres años pasados?



Looking for farmworkers to talk about experiences with:

- Experiences with health care

OR

- Experiences using phone or internet to reach doctors, nurses, dentists and therapists

Buscando trabajadores agricolas para discutir:

- Experiencias con cuidado de la salud

O

- Experiencias con la usa de telefono u internet para contactar doctores, enfermeros, dentistas y terapeutas

If interested / si tiene interes:

Email / correo electronico nadia.bey@duke.edu (student researcher / investigadora estudiante)

WhatsApp 704-705-5736

Por favor menciona “IRB 2023-0117” en tu mensaje

Participants can earn a Target/Walmart gift card up to \$50 by mail

Pueden ganar una tarjeta regalo a Target o Walmart hasta \$50 por correo

Este estudio no se apoya por Duke Health o El Futuro

Appendix C

Recruitment Email

Dear [health center/community organization],

My name is Nadia Bey and I am a senior at Duke University. I am pursuing a senior thesis in global health focused on health service utilization by North Carolina farmworkers. I am especially interested in learning about whether farmworkers have adopted telehealth and what factors may increase interest and access.

I am seeking farmworkers for qualitative interviews about their health and care-seeking behaviors. I have attached a recruitment flyer to this email with my contact information. The goal of this project is to identify contributors to telehealth uptake or lack thereof among NC farmworkers.

I will schedule a 30-minute phone interview with each interested participant between December and February. Participants have the option to receive a gift card to either Target or Walmart up to \$50. As interviews will not be occurring in person, participants will be asked for a mailing address where they can receive the gift card.

Please consider sharing my flyer with farmworkers as well as other community members. Please reach out to my advisor for questions about this research at jay.pearson@duke.edu If you have questions about research at Duke, please contact the Duke Campus IRB, email campusirb@duke.edu and reference study #2023-0117.

Additionally, if there is a Spanish-speaking staff member that would like to volunteer interpretation services for this study, their assistance would be greatly appreciated. They would

need to sign a confidentiality form in accordance with IRB requirements and would not receive compensation. Please tell any interested parties to contact me directly at nadia.bey@duke.edu.

Please let me know if I can answer any questions about this research study. Thank you.

Sincerely,

Nadia Bey

Appendix D

Confidentiality Form for Interpreters/Interviewers

I, [name], am assisting Duke student Nadia Bey with conducting interviews for a research study on the use of health services by North Carolina farmworkers (Duke Campus IRB #2023-0117). I understand that I am to assist with Spanish-to-English interpretation and facilitating conversation between Bey and the interviewee, on a volunteer basis and that I will not be compensated by Duke or Bey for my services. I understand that I am not to discuss the contents of the interview with anyone apart from Bey and the interviewee.

Signature _____

Date _____

Appendix E

Informed Consent Materials (English/Spanish)

Before starting verbally: How are you? Is this still a good time to talk?

Hello! My name is Nadia. I am a senior at Duke University in Durham, North Carolina. I am doing research on farmworker health. I would like to talk to farmworkers about why they may or may not go to the doctor and how to get more farmworkers healthcare. The goal of this research is to determine whether farmworkers use telehealth (getting health access via the phone or internet) or might be interested in it. If you agree to participate, we will set up a time to talk on the phone, and I will ask you to answer some questions about yourself, including your background, health, your behaviors and the resources you have access to. You may answer in English or Spanish.

Please read more if you are still interested participating in this research:

Key Information

I am conducting research for my studies at Duke University. This study is not in any way connected to a health center or service. Our conversation should last about 30 minutes.

There will be a Spanish speaking interpreter on the call with us. This professional will help me understand our conversation and they will keep what you say confidential.

I would like to audio record our conversation so I can remember what you said. Your privacy is very important to me. So although there is some risk to confidentiality by participating in my research, I will do everything I can to protect your privacy.

If you allow me to record our interview, recordings will then be provided to a transcription service external to Duke. While the confidentiality of the information on the recording cannot be guaranteed once I upload our recording, in doing our best to protect your privacy I have chosen and reviewed a transcription service I trust.

Once the recording is transcribed, the recording will be deleted, and all directly identifiable information will be removed from the transcript. If you are not comfortable with being recorded, I'm happy to still interview you and take notes.

All research data will be kept in a secure location at Duke. And my final report will never describe you in a way that someone will be able to recognize you. For example, if a person is mentioned in my report, I might describe them as "a middle aged woman working in Eastern NC" but never use your name, place of work, or anything else that could cause someone to figure out who you are. The information you share with me will not be used for any other research purpose.

Your participation is voluntary. You can skip any question or end the conversation at any time for any reason. Whether you decide to participate or not will have no bearing on your relationship to any Health Service.

Please let me know if you have any questions at all. My contact information, my advisor's name, and Duke University's email to help research participants was sent to you via WhatsApp. Please feel free to reach out with any questions later.

To express gratitude for their participation, interviewees have the option to receive a gift card to Target or Walmart. If you complete part of the interview, you will receive at least \$25, and if you complete the whole interview you will receive \$50. If you are interested in receiving a

gift card, please share an address we can mail the gift card to. Your address will only be used to mail the gift card, and never linked to any other information you share with me. The gift card will be sent in the mail within two days of this interview. Please note though we cannot replace stolen or lost cards.

Verbal consent:

Do I have your permission to start the interview as part of your participation in this study?

May I begin recording?

Traducción

Como estas? Todavía un buen tiempo para hablar?

Hola! Me llamo Nadia. Estoy en mi ultimo año a la Universidad Duke en Durham, Carolina del Norte. Estoy investigando la salud de trabajadores agrícolas. Quiero hablar con trabajadores agrícolas sobre las razones para visitar las instituciones de salud y como ayudarlos recibir cuidado de salud.

El objetivo de la investigación es para determinar si los trabajadores agrícolas usan el internet y teléfono para atención medico, o si tienen interés. Si participa, programaremos una cita del teléfono y se pidiera que conteste preguntas sobre su historia, salud, comportamiento y acceso a los recursos. Puede responder en ingles o español.

Si todavía esta interesado, por favor lea mas.

Información Importante

Estoy investigando para mis estudios en Duke. Este proyecto no esta conectado con una clínica o los servicios medicos.

Nuestro conversación debería ser treinta minutos. Habra un interprete de español en el teléfono con nosotros. Esta persona me ayudara a comprender nuestro conversación y quedara sus palabras privados.

Quiero grabar el audio de nuestro conversación para recordar lo que me dijo. Su privacidad es muy importante para mi. Aunque hay un riesgo para la privacidad, hare todo lo posible para protegerte.

Si grabo nuestro conversación, subiré el audio en un servicio de transcribir. Elegí un servicio de confianza pero la confidencialidad no esta garantizado. Cuando la entrevista es transcrito, borraré el audio y eliminare información identificable de la transcripción.

Si esta incomodo con la grabación, podemos todavía hablar y tomare notas.

Los datos estará en un locación segura a Duke. El tesis final no describirá a los participantes de una manera reconocible. Por ejemplo, una persona puede ser descrito como “una mujer de mediana edad trabajando en el este de Carolina del Norte.” Nunca usare su nombre, lugar de trabajo, u otra información que alguien pueda reconocer. Su información no usara por otros propósitos.

Su participación es voluntaria. Puede negarse a responder una pregunta o terminar la conversación a algún punto. La decision de participar no afecta el acceso de los servicios de salud.

Dime por favor si tiene preguntas. Envié en WhatsApp mis datos, el nombre de mi consejero, y la dirección de correos electrónicos para Duke. Si quiere preguntar luego, hazlo.

Para agradecer participantes, puede recibir una tarjeta regalo a Target o Walmart. Si comienza la entrevista, puede recibir a menos \$25. Si cumple la entrevista, puede recibir \$50. Si quiere una tarjeta, dame una dirección postal. La dirección es solamente para enviar la tarjeta y no es conectado a sus respuestas.

Enviare la tarjeta dos días después de la entrevista. Desafortunadamente ni Duke ni yo estamos responsables para tarjetas perdidas o robadas.

Consento:

Tiene preguntas antes de comenzar? Me permite comenzar la entrevista para su participación en la investigación? Puedo grabar?