Addressing the Impact of COVID-19 on Immigrant and Refugee Children and Families at a Federally Qualified Health Center in Durham, North Carolina

by

Sarah Eastman Norton

Duke Global Health Institute
Duke University

Date:_____

Approved:

_____
Nathan Thielman, Supervisor

_____
Rushina Cholera

_____
Emily Esmaili

Thesis submitted in partial fulfillment of
the requirements for the degree of
Master of Science in the Duke Global Health Institute
in the Graduate School of Duke University

2021

ABSTRACT

Addressing the Impact of COVID-19 on Immigrant and Refugee Children and Families at a Federally Qualified Health Center in Durham, North Carolina

by

Sarah Eastman Norton

Duke Global Health Institute
Duke University

Date:_____

Approved:

_____
Nathan Thielman, Supervisor

_____
Rushina Cholera

_____
Emily Esmaili

An abstract of a thesis submitted in partial
fulfillment of the requirements for the degree
of Master of Science in the Duke Global Health Institute
in the Graduate School of Duke University

2021

Abstract

Background: The COVID-19 pandemic amplified disparities experienced by children in immigrant and refugee families (CIRF). The pandemic coincided with a recognition that proactively screening and addressing social risk drivers is an efficacious population health intervention. We used the Reach, Efficacy, Adoption, Implementation and Maintenance (RE-AIM) framework to set up a program to screen for social risks drivers at a Federally Qualified Health Center (FQHC). The study sought to demonstrate to what extent the proactive outreach program would a) capture at-risk persons and b) facilitate linkage of identified persons to community resources. We sought to c) quantify social needs among CIRF and d) understand whether addressing social risk drivers would lead to caregivers perceiving an improvement in their child's health. Lastly, we sought to e) elucidate the experiences with and preferences of families in regard to screening efforts. Methods: The study was conducted at the Lincoln Community Health Center in Durham, North Carolina. Eligible participants were ages 0-5, non-English speaking, and were seen at the clinic within the last 2 years. A care coordinator reached out to the guardians of eligible children for baseline screening. Participants with social needs received referral placement and navigation support. We looked at the number of baseline questionnaires completed, linkage rates and resolution of social needs as well as perceptions of SDOH screening and perceived changes in

child's health using descriptive and univariate statistics. Results: We attempted to contact 342 guardians; to date, we did not reach 85 (24.85%) participants and 21 (6.14%) have incomplete outreach. 212 (61.99%) participants were enrolled and completed baseline screening. Most participants had at least one social need. Of the 212 individuals enrolled, the 39 who completed the intervention (100%) indicated that the calls helped them to gain a better understanding of community resources. When asked who they would be most comfortable talking with about their social needs, the majority indicated a case manager in person (34, 89.5%) or over the phone (36, 94.74%). When asked about what characteristics were important to them when considering who they might speak with about their social needs, 36 (92.1%) selected language and 22 (57.9%) indicated that cultural affiliation was important. The impact of the intervention on the perception of child's health was unable to be quantified due to a small sample size. Conclusion: Our findings illustrate the burden of social risk drivers experienced by CIRF and demonstrate the capacity of a proactive outreach SDOH screening program to meet the needs of CIRF served by a FQHC. It is our hope that this screening tool and proactive outreach program can be used as a model to better identify and address the social needs of CIRF and to thus enhance health outcomes and population health.

Contents

List of Tables

List of Figures

Acknowledgements

Thank you to my mentors in the Duke Department of Internal Medicine and at the Duke Global Health Institute, specifically Nathan Thielman. Nathan - I am grateful for your guidance; thank you for encouraging me to pursue my interests and passions, to recognize and respect the values that motivated me to continue on this medicine and global health path, and the guidance and ceaseless support you provided along the way. I am forever grateful to Rushina Cholera and Emily Esmaili for allowing me to join the research team on their COVID-19 Fill the Gap project in the midst of a pandemic which left many of us-- including myself-- struggling to make sense of the ever-changing world, at a loss with where to direct our focus and desiring a way to make an impact. Thank you for allowing me to join in the design, development, implementation, and execution of this program. This project has further opened my eyes to the depth and breadth of social risk drivers and highlighted for me the vital importance of incorporating sensitivity to such issues into both my clinical and research career. Thank you also to the staff of the Lincoln Community Health Center for providing the case management backbone and serving as the impetus for this effort. My work in this project was supported by the Duke Global Health Pathway and the larger effort was supported by the COVID-19 Fill the Gap Fund. The views expressed are solely the view of the authors; the views do not represent those of Lincoln or Duke University at large.

1. Introduction

1.1 Background on Efforts to Standardize Social Risks Assessments in the Health Sector

The recognition that social conditions influence health and wellbeing (1, 2) is now widely accepted in healthcare policy and practice. There is a growing appreciation that addressing social adversity is one way to improve health outcomes and to achieve health equity (1, 2). Efforts to address health disparities through the identification of social risk drivers that impact health are becoming more common in the healthcare sector (1). Endeavors have been largely focused on the design and adoption of social determinant of health (SDOH) screening tools in clinical settings as well as policy transformation and payment initiatives to support programmatic roll-out (1). Increasingly, primary care settings generally, and providers specifically, are seen by directors of healthcare systems and policymakers as entities that can both screen for adverse SDOH and counsel on social risks (4). Given increased interest in leveraging clinic-based activities to identify and address social risk, health systems are exploring the implementation of standardized patient-level social risk assessments (6). While varied in design and scope, the majority of these interventions include initiatives to elucidate social needs and to intervene with referrals to resources (3).

While a great deal has been learned from the increased momentum for SDOH screening, there is still a need to further understand what instruments are best for screening for social risks, which interventions are most effective, and whether or not

intervening on social risks actually improves health outcomes. There is also a need to consider the negative and positive externalities experienced by patients and clinicians (4). To address these needs, our research team developed and implemented a proactive outreach SDOH screening program (notably amidst a multi-year statewide effort through Medicaid Transformation) to integrate SDOH screening into the provision of health services while also addressing disparities experienced by CIRF. The project was implemented during the COVID- 19 pandemic in 2020-2021, a time when historically marginalized and vulnerable populations, including children in immigrant and refugee families (CIRF), were at risk of experiencing heightened disparities. We rolled-out our screening intervention at the Lincoln Community Health Center (LCHC), a Federally Qualified Health Center (FQHC) in Durham, North Carolina.

1.2 Defining Terms Related to Social Determinants of Health

Behavioral Risk Factors vs. Social Risk Factors

Prior to engaging in an extensive discussion around SDOH, it is useful to provide some key definitions. In clinical medicine, *behavioral risk factors* are often discussed as those elements resulting from individual human behavior that influence health, such as alcohol use, illicit drug use, and smoking. *Behavioral risk factors* are notably different (and yet intricately intertwined) with *social risk factors*. *Social risk factors* pertain to the adverse social conditions that are associated with poor health, health

outcomes and access to healthcare such as food insecurity or access to transportation (3). Social risk factors are associated with behavior; groups who have an elevated social risk also have a higher prevalence of behavioral risk, which is linked to poor health outcomes. Historically, conflating behavioral and social risks has led to interventions that myopically focus on individual behaviors and neglect larger social and structural factors that are the root cause of inequities (3). Efforts to address behavioral risks may be more efficacious if they attempt to address macro-level SDOH as well.

Social Risk Factors vs. Social Determinants of Health

The literature pertaining to clinic-based, social interventions often uses the following terms interchangeably: social determinants, social risks, health-related social needs, health-related social problems, and social needs (3). As defined by the World Health Organization, *SDOH* are the conditions in which people are born, grow, live, work and age (8) and are shaped by money and power, the distribution of resources and social class (3). Importantly, *SDOH* have a direct and complex impact on health, and affect everyone. For example, the social gradient (a manifestation of the social context of people's lives) is reflected in the health gradient as those towards the bottom of the socioeconomic scale have worse health than those higher up (3). Making the distinction between *SDOH* and *social risk factors* is important. For one, *SDOH* affect everyone and can positively or negatively augment an individual's capacity to be healthy (3). Social risks, on the other hand, have a more consistently negative connotation, pertain more to

higher-risk populations, and are linked to poor health outcomes (3). Secondly, defining and identifying individual and community level social risk factors can help health care systems better target interventions (3).

There is a lack of consensus among public health and social service agencies on frameworks for SDOH domains. The North Carolina Department of Health and Human Services (NCDHHS) puts forth four priority domains: food security, housing stability, transportation, and interpersonal violence (IPV) (9) and articulates supplemental domains including, but not limited to the following: access to health and childcare; financial security; employment, family, and community support; education; mental health/disabilities; substance use and, immigration status (4) (9). Healthy People 2030, an initiative of U.S. DHHS, puts forth five domains keeping in mind the influence of social, built, and economic environments on health: Economic Stability; Education Access and Quality; HealthCare Access and Quality; Neighborhood and Built Environment; and Social and Community Context (22). For entities seeking to launch social risk screening interventions (such as NCDHHS, DHHS), the major and minor social risk domains were selected based not just on evidence which links social risks to health outcomes, but also on resource utilization, costs, and intervention feasibility (10). Table 2 defines the primary SDOH we selected for screening in our study. We used the North Carolina DHHS SDOH tool as our starting point and expanded on it through collaboration with stakeholders. We solicited input around the key factors that were

likely to impact our study population (i.e., language, immigration concerns, childcare, etc.). Our goal was to contribute generalizable data to state and national efforts working to standardize social risk screening in clinical settings.

Table 1: Definition of Social Determinants of Health

Core Domain	Description
Economic Stability	
Food Insecurity	NCDHHS relies on the FDA definition: "lack of consistent access to enough food for an active, healthy life (11) (9). Standardized screening questionnaires often ask: "within the last 12 months, did you worry that your food would run out before you got money to buy more?"; or "within the past 12 months, did the food you bought just not last and you didn't have money to get more?" (9)
Housing Instability/ Utilities	Housing instability and utility access refers to the ability of individuals to find affordable housing with adequate utilities, such as heat in the winter and indoor plumbing (9). Standardized screening questionnaires often ask: "do you have housing?"; "are you worried about losing your housing?"; and "within the past 12 months, have you or your family members you live with been unable to get utilities (heat, electricity) when it was really needed?" (9)
Employment	Employment refers to the ability of an individual to find, secure and keep a job. Standardized screening questionnaires often ask: "Do you have a job? If no, would you like help with finding employment and/ or job training?" And, for example "What is your current work situation?" (9)
Neighborhood and Built Environment	
Transportation	Inadequate access to transportation can impede access to health care, food, and community support. Standardized screening questionnaires often ask: "Has lack of transportation kept you from medical appointments [...] non-medical meetings or appointments, work, or from getting things that you need?" (9)
Healthcare Access and Quality	
Access to Health Care	This domain is critical in understanding the influence of social risks on health. Standardized screening questionnaires often ask: "Do you need help to get

	health insurance for you and your family?"; "have you needed to see a doctor, but could not because of the cost?" and "have you or the family members [...] been unable to get medicines or health care [...] when it is really needed? (9)
Education Access and Quality	
Access to Childcare	Standardized screening questionnaires often ask: "Do problems getting childcare make it difficult for you to work or study?"; "do you need daycare for your child? (9)
Social and Community Context	
Interpersonal Safety	IPV is defined as violence between individuals and can be further divided into family violence, IPV, and community violence (12) (9). Standardized screening questionnaires often ask: "Do you feel physically and emotionally safe where you currently live?"; "have you been hit, slapped, kicked or otherwise physically hurt by someone?"; "within the past 12 months, have you been humiliated or emotionally abused in other ways by your partner(s) or ex-partner(s)?" (9)
Mental Health	This optional domain is concerned with substance use and emotional wellbeing. Standardized screening questionnaires often ask: "During the past week, how much trouble have you had with feeling depressed or sad?"; "Do you worry about your mental health or drug and alcohol use?"; "Are you interested in receiving resources for emotional wellness?" (9)
Immigration Status	This optional domain is concerned with the impact of immigrant and refugee status. Standardized screening questionnaires often ask: "Do you have concerns about any immigration matters for you or your family?" and "are you a refugee?" (9)

Social Risk Factors Vs. Social Needs

The distinction between social risk factors and social needs is important as it highlights the patient's role in differentiating between the two and it helps prioritize social interventions (3). *Social Needs* emphasizes an individual's perceptions, lived experiences, and context. Many SDOH screening interventions can uncover multiple

social risks for an individual, but it is up to that individual to determine what *social risks* are in fact *social needs*, i.e., their priorities and their interest in accepting assistance (13). Several clinical studies examining food insecurity in pediatric populations illustrate this nuance: only half of the patients screened as food insecure asked for referrals to food-related interventions (3). Other studies which focused on multiple risk factors similarly found that despite a high prevalence of social risk (97% to 99% with one or more social risk), less than 15% of patients requested help" (3). Some of the factors cited that could deter patients from seeking assistance include stigma, discrimination, prior negative interactions with the health care system or a lack of trust (3).

While a social risk is not synonymous with a social need, it is also important to note that a *social risk* can transform into a *social need* (14). Many researchers, healthcare providers, and policy makers recognize *social needs* as discrete and actionable items stemming from the upstream SDOH that healthcare systems can focus on to improve population health (14).

1.3 Patient's Perceptions of Social Needs Interventions

Building on the above discussion, wherein patient's lived experiences are recognized to discriminate between a *social risk* and a *social need*, health care providers and policy makers recognize that the patient's perspective can and should also inform the implementation of clinic-based, patient-level social risk assessments. To date, little is known about the feasibility of implementing social needs interventions in ambulatory,

clinical settings (14). To further evaluate social needs assessments within the ambulatory setting, those working to develop these interventions need to (1) understand whether patients appreciate the link between social needs and health; (2) examine patient and provider experiences with social needs programming; (3) explore patient and provider attitudes towards screening and interventions; and (4) understand how patients respond to the idea that health systems should intervene in social risks and facilitate connections to community resources to mitigate risks and health inequities (14). Illuminating patients' social needs perceptions and understanding the barriers that prevent them from seeking social support can aid in developing targeted programs (3). Integrating the patient perspective into the implementation of these standardized social screening interventions will help to optimize patient-centered care in clinical settings (14). Acceptance of the intervention by patients and providers is key in considering the implementation, adoption, and sustainability of healthcare-based social risk screening programs (10).

Myriad characteristics influence the acceptability of social risk programming for patients, clinicians, and clinical staff. One study exploring patient perceptions found that many patients who identified a social need in the past year, "agreed that social needs impact health [(69%)] and [...that] health system should ask about [...] (85%) and help address [...] (88%) social needs" (pg. 1389) (14). Furthermore, patients previously screened for social risk and/or recruited from a primary care/clinical setting that

received public funding were more likely to perceive social risk screening as appropriate (10). Socially marginalized groups, perhaps due to their having more experience with structural inequities, were also more likely to perceive social risk screening as appropriate (14). Moreover, once an individual has a social risk and identifies it as a need, they are better able to articulate the healthcare system's responsibility to address the social determinants (14). Importantly, even those patients who recognized the value in SDOH screening perceived limitations in the capacity of the healthcare system and providers to address and mitigate all social risks (5). In essence, people would like their healthcare providers to be attuned to their social situation, but they do not harbor the expectation that providers should address and resolve their social needs (5).

1.4 RE-AIM

RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance), a framework widely used in behavioral health and the foundation for our intervention, was originally designed to address the research-to-practice gap that impedes efforts to mitigate health inequities and to positively impact and enhance public health (15). RE-AIM allows us to evaluate population health interventions and social interventions as it is premised on a holistic approach to medical sciences which recognizes the complexity of social and biological determinants of health (16). The RE-AIM framework exists in contrast to research paradigms and clinical trials, which emphasize narrow clinical outcomes. Moreover, these research methods can be resource intensive; they are often

highly standardized protocols implemented in specialized settings. As such, these paradigms may "not address how well a program works in the world of busy, understaffed public health clinics, large health systems, or community settings" (pg. 1322) (16).

The RE-AIM domains encompass different aspects of the research process. *Reach* "refers to the percentage and risk characteristics of persons who receive or are affected by a policy or programs" (pg. 323) (16); emphasis is placed on the representativeness of participants and whether the program is reaching those most at risk (17). *Effectiveness* is equivalent to efficacy times implementation and is determined by those in a real-world setting who are not a part of the implementation or research staff (16). *Adoption* refers to the number, percentage, and representativeness of the entities that opt for implementation (17). *Implementation* refers to whether the program was delivered as intended (16) and "entails applying the [intervention] as planned, adequately enforcing it, and ensuring ongoing and consistent compliance with the core components" (pg. 109) (17). *Maintenance* is concerned with the sustainability of the programming and ensuring that the program, policy, or intervention has few negative impacts (17). RE-AIM allows practitioners to determine if an initiative can reach a large number of people (specifically the most vulnerable) through broad delivery and adoption with a sustainable and replicable impact.

The RE-AIM framework can be used in many settings and is compatible with community-based and public health interventions (16). The public health impact of an intervention is a function of the aforementioned RE-AIM elements (16) and given that the dimensions are interdependent, they are not meant to be evaluated in complete isolation (17). For applied settings (such as the FQHC in Durham, North Carolina that served as the site of our intervention), a pragmatic approach is recommended. In clinical and community settings, the entirety of the framework is used often during the design of the intervention. The RE-AIM framework is used initially for the selection of specific dimensions to better guide implementation, evaluation and reporting and, secondly, to determine the success and scalability of a program (18). The framework increases the likelihood that the population-level public health impact is captured.

1.5 Aims and Hypotheses

We designed and implemented a proactive outreach SDOH screening tool at a FQHC in Durham, North Carolina to aid in addressing the impact of COVID-19 on children in immigrant and refugee families (CIRF). In designing our intervention, we sought to not only address social needs but also to contribute generalizable data to efforts seeking to incorporate standardized SDOH screening into the provision of primary care. Table 3 outlines our project aims as they coincide with categories from the RE-AIM framework detailed above.

- **Table 2: RE-AIM- Framework for Analysis**

Re-AIM Category (18, 19)	**Research Aim**
Reach: identifying and reaching those who need a specific intervention	**Aim 1:** Describe intervention uptake (and programmatic reach) *Hypothesis 1: a proactive, culturally sensitive design and approach will allow us to identify families willing to engage in SDOH and in need or resources*
Efficacy: ensuring intervention impact	**Aim 2:** Describe the impact of the intervention on: 2a) identifying social risks and needs 2b) linking individuals to community resources *Hypothesis 2: Our culturally sensitive proactive outreach, referral, and care coordination program will facilitate identification of social risks and needs and facilitate the linking of low-income CIRF to resources.* **Aim 3:** Elucidate and describe social risks among CIRF 3a) Describe the demographics of families experiencing different social risk drivers 3b) Elucidate and describe the burden of social risk drivers *Hypothesis 3: Our culturally sensitive proactive outreach, referral, and care coordination program will aid in quantifying (and describing) the burden of social risk drivers, including the interplay among different risk drivers and the availability and accessibility of resources* **Aim 4:** Describe the impact of proactive outreach calls on perception of child health and wellbeing *Hypothesis 4: Families who screened (+) for a social risk and need will perceive a greater improvement in health outcomes*
Adoption: designing the intervention and facilitating developmental support for program delivery	**Aim 5:** Describe the experience of immigrant and refugee families with SDOH screening in regards to setting and who is conducting the screening
Implementation: ensuring project feasibility and fidelity	**Aim 6:** Describe the challenge and opportunities in implementing a social risk driver screening tool
Maintenance: guaranteeing community capacity, program institutionalization and sustainability	**Sub-aim:** In designing the intervention, we sought to ensure the feasibility and sustainability of our approach in order that case managers would be able to continue to use our proactive outreach program and screening instrument after completion of the study period.

We aimed to describe the reach of our program; the impact of the intervention on not only identifying social risks and needs but also in facilitating linkage to community resources; to elucidate and describe the social risks among CIRF and their families; to describe the impact of our proactive outreach calls and intervention on caregivers' perception of children's health and wellbeing; and to describe participant experiences with and perceptions of social risk screening interventions. Our culturally sensitive proactive outreach, referral and care coordination program was designed and implemented at the height of the COVID-19 pandemic (December 2020 - October 2021) in the hopes that we could both develop a program to meet the social needs of CIRF and contribute to the literature around SDOH screening interventions.

2. Methods

2.1 Study Design

We developed a culturally sensitive proactive outreach, referral, and care coordination program to address the unmet social needs for low-income CIRF aged 0-5 served by a Federally Qualified Health Center (FQHC) in Durham, North Carolina. The program was premised on SDOH screening, used to facilitate the identification of needs and connection of individuals to community resources. The social drivers questionnaire designed for this study was based on the North Carolina Department of Health and Human Services Social Determinant of Health Screening Questionnaire. The Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE), a standardized social risk assessment tool for community health centers already used at LCHC was also used as a reference. Our questionnaire and research protocol were then shared with community stakeholders (i.e., directors and staff of CBOs and members of LATIN-19, an interdisciplinary advocacy team working to respond to COVID-19) during an on-line meeting; solicited feedback was incorporated into the instruments. We sought to outline the demographics of the community served, describe the results of the social determinant of health screening, capture some of the unique impacts of COVID-19 upon CIRF, document the impact of our intervention on the health of the community well-being, and generalize the acceptability and feasibility of our effort to larger interventions

designed to identify and address community needs. Study approval was obtained from the Duke University Institutional Review Board.

2.1.1. *Study Site*

Lincoln Community Health Center (LCHC) in Durham, North Carolina is a FQHC that has served the community since 1971. LCHC focuses on preventive and primary health care and cares for many of the underserved and marginalized populations in the area (7). The health center serves Durham County, with a total population of 306, 457. The population increased by 14.5% (from 267,587 to current levels) between 2000 and 2018; Durham County remains one of the fastest growing regions in North Carolina. The county is largely African American (37.0%) with a substantial Hispanic population (13.4%). The Latino population in Durham County more than doubled between 2000 and 2018 to 41,065 individuals (Census 2000, Census Bureau, 2011; American Community Survey, Census Bureau, 2014-2018). Data from 2020 (January- December, the UDS reporting period) demonstrated that LCHC served 34,652 unique medical patients and had 125,424 patient encounters.

Table 3: Lincoln Community Health Center Demographics

Medical Patients	34, 652
Patient Encounters	125, 424
Income	Below 100% FPL: 58%
	Above 100% FPL: 42%

Insurance (adults)	Uninsured: 51%
	Insured: 49%* *23% are Medicaid insured
Race	Racial or ethnic minorities: 78%
	White: 22%
Age	Children and youth: 23%
	Adults: 68%
	Seniors: 9%

The LCHC patient population (those living with incomes less than 200% of the Federal Poverty Guidelines (FPG) declined slightly (-5.4%) over the year despite the significant population growth (American Community Survey, Census Bureau, 2014-2018). LCHC cares for a significantly higher proportion of poor and uninsured than the national or state average for community health centers. As of 2020, 58% of Lincoln's patients have incomes at or below 100% of the federal poverty level, and 51% of adult patients are uninsured; approximately 23% of patients are Medicaid insured only. Of the Lincoln patient population, 78% are members of racial or ethnic minorities (non-white), and 50% report they are best served in a language other than English. Lincoln sees 23% children and youth (under age 18), 68% adults (age 18 to 65), and 9% seniors (over age 65). The majority of Lincoln's patients reside in Durham County. LCHC employs (on average) six

Licensed Clinical Social Workers (LCSWs) to help meet the social needs of the population in its catchment area. In addition to case management services, LCHC relies on a unique student run initiative called 'Help Desk,' which seeks to better integrate the social care sector into the clinical domain using volunteer community resources navigators to facilitate connections between patients and CBOs (23).

2.1.2. *Study Population*

All children served by the LCHC were screened for study inclusion and study personnel were provided with a list of eligible children. Children aged 0-5 who had been seen at the LCHC in the last two years and were non-English speaking were eligible for study participation. The age group 0-5 was chosen as children at those ages are particularly vulnerable to adverse childhood experiences, such as the pressures and stressors of the COVID-19 pandemic. This age range is a developmentally critical period, with both positive and negative experiences having lifelong impacts. The percentage of calls made to Spanish-speaking individuals versus members of other refugee groups was designed to reflect the overall demographics. Participants were further sorted by insurance status (prioritizing uninsured children) and income (prioritizing lowest income).

We began study enrollment in a pilot phase in December of 2020, prior to ramping up baseline and follow-up calls in February of 2021. The project is currently slated to run through December 2021.

2.2 Data Collection

A bilingual case manager completed baseline outreach calls, implemented the SDOH screening tool and placed the initial referrals (which entailed either a direct referral to an organization or the sharing of a contact number at a local CBO to facilitate access). Enrollment in the study involved several steps: the case manager captured demographic information from the EHR and then made up to three attempts to reach a child's caregiver by phone, including leaving voicemails and sending text messages. On contact, the case manager sought verbal consent to participate. Permission was obtained to record the initial calls for quality insurance purposes. The recordings were stored on the HIPPA compliant and secure Duke Drive.

Once enrollment was complete, the case manager proceeded with SDOH screening using the standardized tool. After completing the questionnaire, the case manager immediately addressed social needs for which caregivers requested assistance. On identifying a need and a resource, the case manager sent a text message with referral information (name of agency, resource being provided, contact person if applicable, address, telephone number and hours of operation) in either Spanish or English. Screened clients agreeing to follow-up were scheduled for 2-, 4- and 8-week calls. Student volunteers (who were trained using aspects of the 'Help Desk' volunteer protocol including role play scenarios and assessment of their capacity to adhere to call protocols using a competency checklist) (23) made the follow-up calls using a

standardized script to assess whether individuals or families had connected to resources, to discuss what barriers and facilitators were faced when accessing services, and to develop strategies for additional resources or referrals where needed. In instances where participants faced challenges in accessing services, volunteers facilitated additional connections to provide appropriate resources. A text message with referral information was again sent. If it was noted that patients had further needs beyond that which could be addressed by the student volunteers, the case was escalated back to case management. Emergency protocols were in place for immediate escalation if patients were facing dangerous or life-threatening circumstances. Data were collected by the case manager and the student volunteers and entered into a REDCap database. A professional medical interpreter was used as needed to facilitate calls and communication.

2.3 Sample Size

We used a stratified sampling method to select our population. Our eligibility criteria included: all pediatric patients ages 0-5 seen at LCHC in 2020 who were non-English speaking. 'Non-English speaking' was selected as a criterion as it is one of the best proxies for immigrant/refugee in EHR. We further stratified eligible children by income level and insurance status with the goal of first conducting outreach to patients facing the most substantial social risks. Our sample size was determined by applying these eligibility criteria to the overall pediatric patient panel at LCHC (N=2,415). Our

sample was limited by the number of patients that we were able to contact during our study period (N=342). As stated above, data collection is ongoing.

2.4 Statistical Analyses

The analyses here are focused primarily on the outreach encounter during which SDOH screening was conducted. We measured the number of patients reached within three outreach attempts, proportion of caregivers who completed SDOH screening, proportion who screened positive for social risks and were referred to at least one resource, and proportion of caregivers requesting assistance. We also report the number of caregivers who gave verbal consent to receive follow-up calls from student volunteers. The primary outcome was the number of caregivers who reported successfully connecting to a resource prescribed at the outreach call based on an identified social need. We also report preliminary analyses from follow up calls including: number of participants reached for follow up at 2, 4- and 8- weeks; as well as changes in perceived health of children between baseline and 8 weeks; and experiences and perceptions of social risk screening.

Descriptive analyses compared baseline demographics, insurance status, and language spoken at home. We compared baseline characteristics between those who completed the baseline SDOH screening and those where outreach was completed, but the caregiver was either not reached or declined participation. We reported mean and interquartile range (IQR) (25th-75th percentile) for continuous variables and counts and

proportions for categorical variables. We used univariate analysis to describe social risk driver profiles, perceptions of child's health (pre- and post- intervention) as well as perceptions and acceptance of SDOH screening.

We looked at frequencies in terms of: number of people who screened positive for each social risk; and number of people who had a social risk identified as a social need. We looked at the proportion of those who screened positive for each SDOH (thus having an identified social risk) and, of those who were noted to have a social need (i.e., acknowledged that they would like help resolving the risk), what percentage of those were linked to a community resource. We stratified response for analyses of resolution of social need as the questions were answered on a five-point Likert scale.

All analyses were conducted in Stata, version 16.

3. Results

There were 2,415 patients at LCHC identified that met our inclusion criteria (Figure 1). 342 (14.16%) of eligible patients were called. To date, 212 (61.99%) were reached and completed the baseline screening questionnaires. There were 83 (24.27%) of participants who we were unable to reach by phone, voicemail, or text message. A small number of participants, 14 (4.09%), who were reached by phone declined participation. Among the 212 who completed the baseline SDOH questionnaire, 209 (98.58%) had an identified social risk, but a smaller number indicated that they had a need and requested assistance. 195 were marked by case management as meriting follow-up and consenting to subsequent calls. To date, 184 two week calls, 140 four week calls and 78 eight week calls have been completed. Data collection is ongoing with the target date for study completion being the end of December 2021. Analysis is focused on the study subset enrolled between December 2020 through October 2021. As such, much of the analysis for the two-, four- and eight-week calls is outstanding and the numbers reported here (for example, in regards to our primary outcome of caregivers who reported successfully connecting to a resource prescribed at the outreach call based on an identified social need) are incomplete and will be updated on completion of the study.

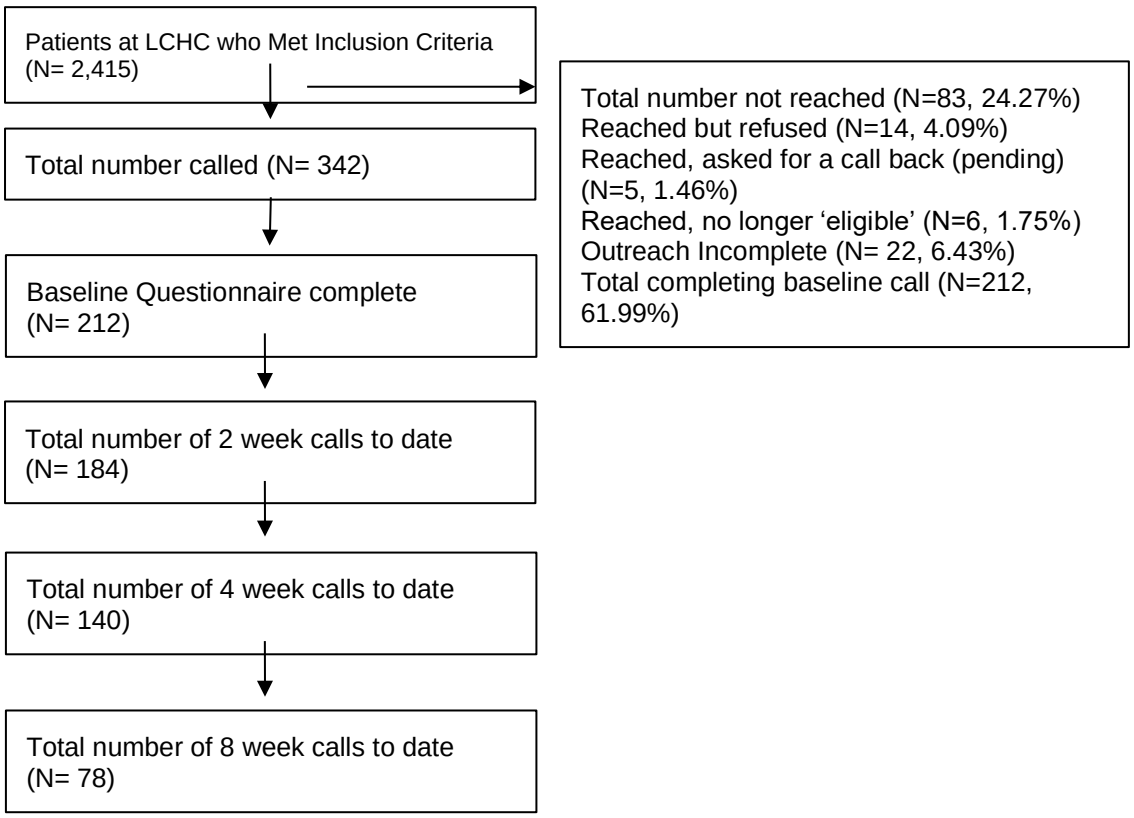

Figure 1: Strobe Diagram of Participant Eligibility and Enrollment

3.1 Characteristics of the Study Population

Table 4 summarizes baseline characteristics of the enrolled population, specifically the 212 individuals that were reached by a proactive outreach call and who completed the SDOH screening. Most of the proactive social risk screening was completed with the mother of the child deemed eligible for the study (173, 81.60%). The majority of participants came from households with between one and three people under the age of 18 (179, 84.43%) and a household size of two to four (95, 44.81%) or five to seven (108, 50.94%). Of the 212 baseline questionnaires completed, 149 (70.28%) had

no assigned insurance coverage and 60 (28.30%) had North Carolina Medicaid. In regards to language, the vast majority, 186 (87.74%), were Spanish speaking and 8 (3.77%) spoke Arabic, with the remaining 18 families preferring a range of languages including (Burmese, Karen and French). The legal status of participants reflected the language divide as just 11 (5.19%) were refugees and 201 (94.81) were immigrants. Of note, participants were asked at baseline if they or anyone in the household had ever tested positive for covid; 72 (33.96%) said yes, while 137 (64.62%) said no, 3 (1.42%) did not respond.

Table 4. Baseline Characteristics of Study Participants

	Proactive Outreach complete, Caregiver Reached (n= 212)
Demographics	
Relationship of individual fielding call to participant, n (%)	
Mother	173 (81.60)
Father	30 (14.15)
Relative	8 (3.77)
Guardian	1 (0.47)
Number of people under the age of 18 living in the home, n (%)	
One	40 (18.87)
Two	83 (39.15)
Three	56 (26.42)
Four	24 (11.32)
>/=Five	9 (4.24)
Household Size, n (%)	
Two- Four	95 (44.81)
Five- Seven	108 (50.94)
>/= Eight	9 (4.25)
Type of last visit at LCHC, n (%)	
Well child or newborn	85 (40.09)
Follow-up	35 (16.51)
Nurse visit or injection	22 (10.38)
Social work/ case mgmt	7 (3.30)
Same day/urgent	4 (1.89)

Behavioral Health	3 (1.42)
Other	56 (26.42)
Language, n (%)	
Spanish	186 (87.74)
Arabic	8 (3.77)
Burmese	4 (1.89)
Other*	13 (6.13)
Missing	1 (0.47)
Insurance Status, n (%)	
Uninsured	149 (70.28)
Medicaid NC	60 (28.30)
Private	1 (0.47)
Other	2 (0.94)
Legal Status, n (%)	
Immigrant	201 (94.81)
Refugee	11 (5.19)
Child's Health at baseline, n (%)	
Fair	19 (8.96)
Good	62 (29.25)
Very Good	57 (26.89)
Excellent	74 (34.91)

*Other languages included: Amharic, Chatino, Dari, French, Farsi, Kinyarwadan, Malay, Pashto, Persian, Portuguese, Sango, Spanish, Swahili, Tamil, Vietnamese, Yoruba, Urdu and Korean.

We found that the baseline characteristics qualitatively differed between those that were reached at baseline and completed the questionnaire, as compared to those that were

either not reached or declined to participate. A large proportion of non-Spanish speaking participants (i.e., the refugee population) fell into the latter group; just 54% of the refugee population that completed outreach (compared to 63.50% of the Spanish speaking participants) were contacted and completed the questionnaire.

3.2 Characterizing Social Risks

Table 5. Response Patterns by Social Risk Domain

Social Risk Driver (n)	Positive screen (n, %)	Negative screen (n, %)
Economic Stability		
Food (n= 212)	138 (65.1)	74 (34.9)
Housing (n=212)	58 (27.36)	154 (72.64)
Utilities (n=211)	49 (23.22)	162 (76.78)
Employment/Income (n=212)	158 (74.53)	54 (25.47)
Neighborhood and Built Environment		
Transportation (n=209)	78 (37.32)	131 (62.68)
Healthcare Access and Quality		
Access to Healthcare (n=210)	100 (47.62)	110 (52.38)
Education Access and Quality		
Childcare (n=212)	105 (49.53)	107 (50.47)
Social and Community Context		
IPV (n=212)	26 (12.26)	186 (87.74)
Mental Health (n= 211)	40 (18.96)	171 (81.04)
Immigration Concerns (n=212)	83 (39.15)	129 (60.85)
Language Barriers (n=212)	131 (61.79)	81 (38.21)

Table 5 outlines rates of positive screening for the different SDOH domain and gives insight into social risks in the community. Participants were most likely to screen positive on 'food' (n=138, 65.1%), 'employment' (n=158, 75.53%) and 'language barriers' (n=131, 61.79%). They were least likely to screen positive on 'IPV' (n=26, 12.26%), 'mental health' (n=40, 18.96%) and utilities (n=49, 23.22). Screening for each domain was completed with between one and three questions. As illustrated above, many of the participants screened positive for more than one SDOH domain. Of the 212 participants who completed the SDOH screening, 3 (1.42%) did not screen positive on any question and just 8 (3.77%) screened positive on a single question. It was more common for participants who screened positive to have more than one social risk and need: the majority screened positive on between two to four questions (71, 33.49%) and 5-7 (56 26.42%). Of the 209 (98.58%) who screened positive on at least one social risk driver question, 128 (61.24%) indicated that a need was urgent and 81 (38.76%) indicated that the need was not urgent. Of the 208 who screened positive and responded to our offer of assistance, 194 (93.27%) asked for help while 4 (6.73%) declined assistance. Of note, when asked if they had connected to an organization to help facilitate access to community resources in the last year, 62 (29.25%) said that they had and 133 (62.74%) said that they had not.

3.3 Screening, Linkage and Resolution of Social Need

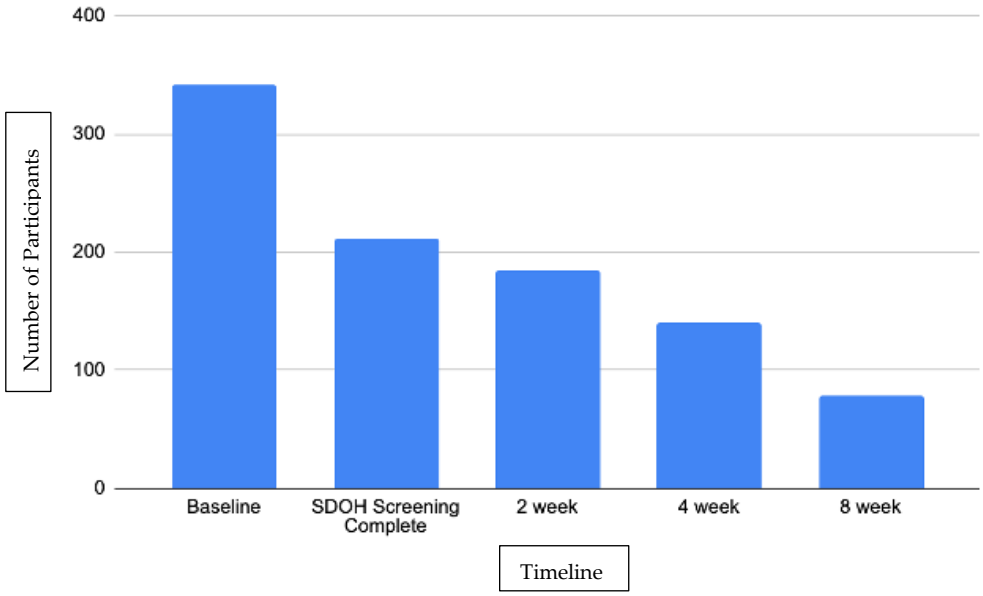

Figure 2. Retention: Calls Completed to Date

To date, we have reached out to 342 participants. Of those, 212 (62%) have completed the baseline questionnaire. We have subsequently made 184 two week calls, 140 four week calls, 78 eight week calls and three additional calls after that eight week mark to follow-up on any urgent/emergent issues.

Table 6. Priority Need: Referral, Linkage and Resolution

	Week 2		Week 4		Week 8	
# Participants with referrals	123		79		43	
Total # Referrals placed	382		239		115	
Linked (n, %)	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
	122 (100)		**81 (100)**		**41 (100)**	
	30 (24.59)	92 (75.41)	21 (25.93)	60 (74.07)	13 (31.71)	28 (68.29)
Resolved (n, %)	**Mostly/ Completely**	**Somewhat/ Not all**	**Mostly/ Completely**	**Somewhat/ Not all**	**Mostly/ Completely**	**Somewhat/ Not all**
	29 (100)		**21 (100)**		**12 (100)**	
	8 (27.59)	21 (72.41)	10 (47.62)	11 (52.38)	8 (66.67)	4 (33.33)
Continue to Access Service (n, %)	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
	28 (100)		**20 (100)**		**12 (100)**	
	23 (82.14)	5 (17.86)	19 (95.00)	1 (5.00)	12 (100.00)	0 (0.00)
Further assistance requested (n, %)	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
	29 (100)		**21 (100)**		**12 (100)**	
	10 (34.48)	19 (65.52)	7 (33.33)	14 (66.67)	4 (33.33)	8 (66.67)

Table 8 looks at linkage to a community resource, resolution of need and the desire for and acceptability of further assistance. The table illustrates the number of caregivers who reported successfully linking to the community resource at each time point based on their identified social risk and need. Of note, the number of referrals for each week are based on the participants who have completed 2-, 4- and 8-week outreach

respectively and who were contacted (these numbers do not capture the number of referrals that were not followed-up on in instances where study personnel were unable to contact the participant or for outstanding calls). To date, 123 individuals (who have received a follow-up call) had a referral to be followed up at 2 weeks. Just 19 (15.45%) had one referral placed, 83 (67.48%) had between 2-4 referrals placed; 21 (17.07%) had 5 or more referrals placed. The mean number of referrals was 3.1 with a standard deviation of 1.55 (IQR 2,4). At 4 weeks, 79 participants had a referral to follow-up on (mean number of referrals per participant was 3.03 referrals (std. dev. 1.54; IQR 2,4) and just 43 at 8 weeks (mean number of referrals per participant was 2.67; std. dev.1.36; IQR 1,4).

At the 2 week follow-up, just 30 out of 122 (24.59%) linked to their priority need. Of those 30, 8 (27.50%) indicated that their need had been mostly or completely resolved. At 4 weeks, 21 (25.93%) had linked with 10 (47.62%) reporting that their need was mostly or completely resolved. At week 8, 13 (31.73%) linked to their priority need. Of those 13, 8 (66.67%) reported that their need had been mostly or completely resolved.

Many of those who did not link for their priority need at week 2 (53, 57.6%), week 4 (27, 45.00%), and week 8 (8, 28.6%) indicated that they had encountered a specific barrier. Qualitative responses to barrier specifics were limited, but included: transportation, childcare, limited time availability, calls not being returned, and language barriers. For those who did not link to their priority need and elected not to

continue accessing the resources; at 2 weeks, 1 indicated that they had a bad experience and 4 indicated that the organization or entity did not help with the need. At week 4, one participant indicated that they were concerned that they would have to pay.

3.4 Experiences with and Perceptions of Social Risk Screening

Table 7. Experiences with and Perceptions of Social Risk Screening

Proactive Outreach Baseline and Follow-up calls helped to: (n= 39)	**Experience with SDOH Screening**		
	Yes (n, %)	**No (n, %)**	
Gain an understanding of community resources	39 (100)	0 (0.00)	
Helped to facilitate connection to needed resources	32 (82.05)	7 (17.95)	
Profession of Individual conducting screening and setting	**Perceptions of SDOH Screening**		
	Comfortable	**Neutral**	**Uncomfortable**
Community- CHW (n=37)	29 (78.34)	5 (13.51)	3 (8.11)
Clinic- SW or CM (n=38)	34 (89.47)	2 (5.26)	2 (5.26)
Phone- SW or CM (n=38)	36 (94.74)	2 (5.26)	0 (0.00)
Phone- physician or nurse (n=38)	32 (84.21)	4 (10.53)	2 (5.26)
Characteristics of individual conducting screening	**Perceptions of SDOH Screening (continued)**		
	Important	**Unimportant**	**Neutral**
Setting (home, clinic phone) (n= 38)	31 (81.58)	4 (10.53)	3 (7.89)
Professional Qualifications (n= 38)	31 (81.58)	4 (10.53)	3 (7.89)
Language (n= 38)	35 (92.11)	31 (81.58)	1 (2.63)
Cultural group similitude (n= 38)	22 (57.89)	8 (21.05)	8 (21.05)

When asked about their experience with our proactive outreach SDOH screening program at the end of the 8 week follow-up call, 39 (100%) felt that they had a greater understanding of the community resources available to them. The majority (32, 82.05%) articulated that the calls had helped to facilitate linkage to community resources.

When participants were asked who they would be most comfortable with talking about their social needs, they had a wide range of responses. The majority of participants, 29 (78.34%) expressed that they would be comfortable talking with a Community Health Worker (by virtue of their scope of practice, this would be in the home/community setting), while just 3 (8.11%) expressed that they would be uncomfortable. In the clinic setting, 34 (89.47%) participants expressed that they would be comfortable and just two (5.26%) uncomfortable talking with a social worker (SW) or case manager (CM). (Note, we had initially intended to ask if they were comfortable talking with a physician/ nurse in clinic as well, but this was inadvertently omitted from the questionnaire). Over the phone, 36 (94.74%) indicated that they would be comfortable talking with a social worker or case manager while no one expressed discomfort and 32 (84.21%) indicated that they would be comfortable talking with a physician or nurse over the phone with just 2 (5.26%) indicating that they would be uncomfortable.

Participants were asked whether language, setting, affiliation with the same cultural group and professional qualifications were important to consider when

deciding who to talk with about social needs. Language was deemed to be important by 35 (92.11%) participants, while only one (2.63%) said that it was unimportant. Setting was important to 31 (81.58%) participants, while 3 (7.89%) felt that it was less so. In regard to professional qualifications, 31 (81.58%) felt that they were important while 3 (7.89%) felt that they were unimportant. There were 22 (57.89%) participants who felt that belonging to the same cultural group was important, while 8 (21.05%) felt that it was unimportant.

3.5 Impact on Perceived Baseline Health

We asked parents/ guardians to share their perception of their child's health on a scale.

Table 8. Child's Health as Perceived by Caregiver

	Poor, Fair (n, %)	Good (n, %)	Very good, Excellent (n, %)
Baseline (n=211)	19 (9.00)	62 (29.38)	130 (61.61)
8 Weeks (n=38)	0 (0.00)	4 (10.53)	34 (89.47)

At baseline, of the 211 participants who were enrolled and who responded, 130 (61.61%) said that their child's health was excellent or very good health. There were 62 (29.38%) who said it was good and just 19 (9%) said it was fair or poor. At 8 weeks, of the 38 people who answered, 34 (89.47%) said their child's health was excellent or very good, 4(10.5%) said good

4. Discussion

We developed and implemented a proactive outreach care coordination program to screen for social risks and needs among CIRF at an FQHC in Durham, NC. We aimed to both mitigate the disproportionate impacts of COVID-19 on immigrant and refugee families and to generate evidence around the feasibility and acceptability of targeted proactive outreach and SDOH screening in under-resourced primary care settings.

The prevalence of COVID-19 in North Carolina to date is high at almost 1.5 million (NCDHHS COVID-19 North Carolina Dashboard), and our community is no exception. Of the high-risk participants who completed the screening, 33.96% noted that they or a household member had screened positive (notably, this was at the time that they completed the questionnaire. i.e., a single snapshot in time between December 2020 and October of 2021). Our proactive outreach program was one of several at LCHC that sought to respond to the COVID-19 pandemic, recognizing that the high-risk patient population of the clinic was disproportionately impacted by the virus (24). Even prior to the pandemic, it was known that patients who receive care at community health centers have higher rates of poverty, a greater burden of unmet social needs and lower health status (25); the pandemic exacerbated this reality. National and international data has begun to capture the inequities of the pandemic and we can look at evidence from other viral epidemics as well. Prior studies show that for pediatric patients, individuals from high-poverty and high-crowding areas have higher rates of influenza hospitalizations

and that communities with low intellectual capital and poor built environment also have higher rates of viral epidemic disease (26).

The recognition that social risks and needs (exacerbated by disasters and pandemics) can worsen already poor population health in at-risk groups is at the foundation of this intervention. Through this project we sought to identify social risks and to facilitate linkage to resources with the goal of resolving social needs. Our results illustrated that when contacted by a case worker at a community clinic, most caregivers were willing to participate in SDOH screening. Just 4.09% of participants that we were able to contact declined participation in SDOH screening. Of the population contacted, 61.99% completed the baseline screening. The acceptability of social risk screening is corroborated by literature which suggests that the majority of patients see a connection between social needs and health and that most support health systems interventions and outreach designed to tackle such social needs (14). Furthermore, patients believe that social risk screening is important, that there is a link between social risks and overall health and that there is a role for patient-centered implementation; for instance, "social risk questions were seen as important areas of inquiry, signaling interest in respondents as people, rather than 'just' patients (pg. S41) (5).

In describing the burden of social risks in the LCHC community, we found that individuals are likely to screen positive on more than one social risk and to have more than one social need. Food, employment, and language barriers were the most

commonly identified social needs while IPV and mental health were far less common. Proactive outreach screening strategies are able to identify social risks experienced by vulnerable individuals and can aid in determining which of those risks are social needs meriting intervention. As noted previously, while a 'risk' may be identified, this does not translate directly into a 'need.' The patient-provider relationship, trust and stigma can all affect whether a patient accepts clinic assistance and connection to community resources (3). Other studies have found that many patients who screen positive for a social risk are not interested in assistance as they may already have a grasp of what resources are available to them or that other needs are more pressing at the time (13). Our study supported these findings as 98.58% of participants screened were found to have a social risk and only 60.35% indicated that they had an urgent need.

Our study demonstrates that case managers are also able to facilitate referrals to community resources for these social needs that might otherwise have gone undetected. However, linkage to resources proves to be more difficult and can be outside the scope of a case manager to influence. At the 2 week visit, just 24.59% linked to their priority need, at four weeks 25.93% and at 8 weeks 31.73%. It is often during the referral process that participants encounter barriers to resolving their social needs. Patients can have difficulty 'linking' to the community resource (be it, for example, for reasons of language barriers, time, or limitations in transportation) and even when contact is made with a CBO, the need is often not resolved or only marginally improved (which, we can

surmise may be due to CBOs themselves lacking resources--there are calls for community needs assessments to better understand the resource landscape--or difficulty with timely follow-through on the part of the patient or the organization). Furthermore, our efforts in implementing this SDOH instrument and care program illustrate that while social needs interventions can serve to link individuals belonging to vulnerable communities to resources, the effort is very time and resource intensive (in terms of personnel's time) and can lead to loss to follow-up or instances where the fidelity of the project is compromised.

4.1 Implications for policy and practice

The results of our study corroborated some of what was already known in the SDOH literature, simultaneously filling gaps in care and highlighting the need for continued research in the area. The results also fit into the RE-AIM paradigm and allow us to contribute to the field of implementation science around SDOH interventions. Social needs interventions have the potential to improve health, health outcomes and equity. Our study contributed to the knowledge suggesting that social needs interventions, in elucidating hitherto undetected needs as well as facilitating referrals to and connections with CBOs, have the capacity to intervene on social risk drivers (13). Furthermore, SDOH interventions can increase awareness for providers, ancillary staff and healthcare leadership around needs and gaps in care and we hope can thus serve to mobilize resources for impact and policy change (13). When healthcare providers are

more aware of the social milieu of their patients' lives, they may be better able to tailor care to the individual patient (13). On an individual level, these interventions can reduce a patient's stress as they recognize that they are not alone in navigating barriers. Finally, healthcare providers may experience less burnout if they are aware that they are working in a facility that has the capacity to address social needs (13).

RE-AIM

We used the RE-AIM Framework to help with the design and implementation of our intervention. The framework allows us to put forth lessons learned, barriers encountered and recommendations to contribute to policy discussions around SDOH and requisite next steps. RE-AIM provides a framework for understanding which programs are worth a substantial and sustained investment as well as those that can withstand the pressures of a real-world environment (16), which is important as many of the communities experiencing high burdens of social needs are served by FQHCs and community organizations with limited resources.

'Reach' is concerned with how (and whether) those in need of a specific intervention are reached and whether or not the numerator (participants) is representative of the denominator (the population in question). Interventions with the greatest public health impact reach large, diverse, and representative populations (18). As such, there is a need to actively recruit those individuals from communities that are most vulnerable and to assess (and reassess) participant engagement in social needs

interventions to determine whether participant recruitment and retention should be refined (18). We hoped that 10% of our outreach calls would be to refugee families (reflecting their population density in Durham County at large). Despite our best intentions, and possibly secondary to enhanced barriers to care (language, healthcare literacy, and the time investment in outreach calls), we were below that mark. Given this, it may have been prudent to better define our outreach efforts to the refugee population in order to best meet the needs of that vulnerable population.

'Efficacy' is concerned with whether or not an intervention is working. This includes looking at program outcomes as well as the positive and negative externalities of an intervention (16). In defining the outcome measures of social needs interventions there is a call to move away from the biologic outcomes highlighted by clinical research and instead look at the efforts of staff delivering the intervention (i.e., outreach to patients, prompts, counseling, and follow-up calls), as well as the impact of the intervention on perceived health and quality of life along and perceptions of screening efforts (16). The potential efficacy of our program was well represented by our outcome measures: SDOH baseline questionnaire response rate (n=212, 61.99%), linkage to care (for priority needs, this ranges from 24.59% at two weeks to 31.73% at 8 weeks), resolution of social need, perceptions of child health and quantification of guardian receptiveness to interventions. In looking at the positive and negative consequences of our intervention, it was important for us to have systems in place to deal with some of

the potential negative fall-out. One example of this was our design and use of a Flag System through the course of the intervention to allow our student volunteers to refer patients urgently to a higher level of care, thus optimizing the positive externalities of screening and mitigating the negative ones.

'Adoption' is concerned with the ability to translate the developed program into action across desired settings and to garner the support of the implementing institution. The results of our study could be generalizable to similar health centers, encouraging more widespread adoption of SDOH screening programs.

'Implementation' relates to the feasible and reliable delivery of an intervention in order to ascertain which programs are practical enough to be effective (16). We rolled-out our intervention at the local FQHC in the hopes that it would provide baseline data around the burden of disease (i.e., the burden of social risk drivers in the community) while at the same time identifying social risks into which the health care team could intervene. Implementation can refer to both the individual and the setting level. At the individual level, participant adherence to a regimen is critical for interpreting study results and outcomes (18). At the setting level, implementation refers to the study *fidelity*; the extent to which study personnel deliver the program. As was the case with our study, fidelity is often measured by having staff complete checklists denoting completion of intervention components (20). It was evident early on in our project that the outreach calls, baseline screening and data collection process was very time intensive

and that the capacity to translate a research paradigm with the requisite fidelity to the community and clinical setting would prove challenging. We quickly encountered the realities of real-world clinical care where, for example, the 2-, 4- and 8-week timelines that we had set out were impossible to adhere to for logistical reasons (i.e., staffing issues in a busy primary care clinic, schedules of student volunteers, participant schedules, etc.). Furthermore, the resource heavy nature of our intervention was highlighted. Two of the critical aspects to this project that we adopted very early on were to: a) debrief regularly with staff and organizational partners to identify (and adapt to address) unforeseen challenges, and b) "capture real-world adaptations to systematically collect data on how, why, when, and by whom changes are being implemented in the field" (18) (pg. 5). Our weekly team meetings proved critical in troubleshooting issues that arose with our case managers and student volunteers allowing us early on to incorporate some critical changes into our standard operating procedures thus optimizing the fidelity of the intervention.

Maintenance is concerned with the institutionalization of the intervention along with the long-term benefits. The maintenance of our outreach program has yet to be determined. 'Sustainability' is another key component of maintenance to keep in mind insofar as projects are not static; rather, they need to evolve with the changing social needs of the communities that they seek to serve (15). This is important for us to keep in mind given the changing resources available to vulnerable populations before, during

the height of and at the current phase of the COVID pandemic, and the changing demographics of immigrant and refugee groups in the Durham area.

Health Equity

H*ealth equity* is at the heart of the RE-AIM framework, which is especially relevant for at-risk populations during the COVID pandemic. Researchers emphasize the idea of *equitable implementation*, highlighting the need to address and document inequities seen throughout the intervention and across all RE-AIM dimensions. This concept of equitable implementation is premised on the recognition that many communities that are the focus of public health interventions experience an inordinate burden of social stressors and significant structural barriers to care. These settings are thus at risk of being deemed 'impractical' for interventions (15). Interventions can only succeed at the population health level if they are affordable across most settings and are delivered equitably across time, communities, and target populations (15).

4.2 Implications for further research

Critical next steps include summarizing lessons learned particularly as it pertains to implementation and adaptation in different settings, and issues of scalability and efficiency (18). There is also a suggestion to use mixed methods (adding more qualitative questions to a quantitative foundation) to gain better insight into which programs succeed and which fail (18). Questions needed to advance the field pertain to both the provider and patients as well as the health system at large. For example, to what degree

should SDOH be identified and addressed by health professionals in primary care clinics? Does the integration of social risk screening create inefficiencies and exhaust already limited resources? (4). Along the same lines, do healthcare professionals even perceive that there is a need for them to conduct social risk screening and is it in their capacity to do so? Specifically, what is the impact on providers in terms of burnout with these social risk interventions? (2). On the patient side of the equation, the target population and context needs to be better addressed. What are the target populations that should receive preventive services? The prevalence of social risks is not uniform across different communities and clinical catchment areas. There is a need to more fully understand which populations experiencing social risks also experience significant adverse health outcomes (4). A related question is whether or not the availability of social services in an area confounds the effectiveness and cost-effectiveness of social risk screening interventions (13). There is very little information in the literature exploring the availability of social resources in the area where interventions are implemented (13).

4.3 Study strengths and limitations

While this study helps to characterize the SDOH and social risk drivers in the community served by an FQHC during the COVID-19 pandemic, there are certain limitations that should be taken into consideration when interpreting the results. This study funding was premised on the understanding that the evolving COVID pandemic was disproportionately affecting the underserved and marginalized communities in

Durham County, the state of North Carolina, the country and world at large. However, as the study was designed to elucidate and mitigate the worsening inequities seen in Durham County during COVID-19, the study logistics in and of themselves were limited by the pandemic realities affecting these populations. For example, all proactive baseline outreach and follow-up calls were completed remotely (over the phone), without the opportunity for real-time connection in the clinical setting. The remote nature of the intervention was difficult for study personnel and patients. These challenges may have influenced the number of individuals who were lost to follow-up (i.e., dropped out of the study before they could complete the 8-week call). Furthermore, the fact that the intervention was not in-person may also have limited efficacy and effectiveness as it was difficult to optimize efficient real-time communication between the research team. Staffing was also an issue: due to a limited number of bilingual and bicultural social workers across the system, and personal challenges for employees related to the pandemic, we lost several case managers and student volunteers through the course of our work. This required us to repeat training for personnel on the standard operating procedures, rather than focusing on study enrollment and follow-up. Our protocol also relied on student-volunteers for follow-up on initial referrals. Given demands of their student schedules, it was very challenging to ensure that follow-up calls were made at the desired time interval, thus complicating our results and interfering in optimal follow-up.

5. Conclusion

Despite the aforementioned limitations, we were able to use the RE-AIM framework to develop and implement a SDOH screening tool at a FQHC in Durham County during the COVID-19 pandemic wherein a large portion of the clinics' target population suffered from heightened social risks. Our results illustrate the ability of case managers and trained community navigators to identify social needs and to connect individuals to resources, but they also demonstrate the inherent challenges of rolling-out such an intervention in a real-world, community-clinic setting. Exploring participants' experiences with and perceptions of SDOH screening also demonstrated the importance of patient-centered program design and implementation. Continued conversations with community stakeholders should help to facilitate both uptake of social risk screenings, and also identification of a) what community resources exist and b) what community resources are in critical need. Beyond that, social screening interventions such as ours can help inform public health policy in order to better address the social risks that are at the root of health inequities that place the communities served by FQHCs at heightened risk when catastrophes such as the COVID-19 pandemic strike.

Public health policy around SDOH, if informed by studies such as ours, could strengthen the health and well-being of these communities and enhance the capacity for community resilience. Community resilience is the capacity of a group to anticipate

adversity and to pre-emptively adapt to stressors and pressures, and it is comprised of social support/ networks, social participation, and community bonds (21). FQHCs are the place where many individuals from vulnerable communities go to seek care and gain access to community programming. Given the fallout from the COVID-19 pandemic, working to enhance community resilience through addressing SDOH could help communities to withstand crises, especially among the most vulnerable communities around the nation.

Appendix A

Appendix A: Baseline Questionnaire

Fill the Gap Proactive Outreach and Care Coordination for CIRF
Lincoln Community Health Center
Baseline Questionnaire

	Connect with parent/guardian or primary caregiver	
	"Hello, I'm [your name], a case manager calling on behalf of Lincoln Community Health Center. Am I speaking with a parent/guardian/or caregiver of [child's name]?	*"Hola, mi nombre es [your name], administrador de casos, y le llamo en nombre de Lincoln Community Health Center. ¿Hablo con el padre/madre/tutor legal o cuidador de [child's name]?*
	Is parent/guardian/primary caregiver available to speak with me?	*¿Está disponible el padre/madre/cuidador primario para hablar conmigo?*
	When would be a good time to call back? *¿A qué hora sería bueno volver a llamar?*	**Date:** **Time:**

	"Hello, I'm [your name], a case manager calling on behalf of Lincoln Community Health Center. Am I speaking with a parent/guardian/or caregiver of [child's name]?	*"Hola, mi nombre es [your name], administrador de casos, y le llamo en nombre de Lincoln Community Health Center. ¿Hablo con el padre/madre/tutor legal o cuidador de [child's name]?*
	Is parent/guardian/primary caregiver available to speak with me?	*¿Está disponible el padre/madre/cuidador primario para hablar conmigo?*
	When would be a good time to call back? *¿A qué hora sería bueno volver a llamar?*	**Date:** **Time:**

Introduction		
Thank you again for talking with me today. Many of the families we see are facing additional challenges during the COVID-19 pandemic. My role is to help connect families to community resources and my goal today is to ask you some questions that will help me better understand how our team can best support you and your family. This conversation and the information that we discuss will be kept confidential. Is now a good time to have a conversation which will take about 15-20min? *Gracias de nuevo por hablar conmigo hoy. Muchas de las familias que atendemos están enfrentando más retos durante la pandemia del COVID-19. Mi función es ayudar a que las familias se pongan en contacto con recursos comunitarios y mi objetivo hoy es hacerle algunas preguntas que me ayudarán a entender mejor cómo podemos apoyarlo a usted y a su familia de la mejor manera. Esta conversación y la información de la que hablemos se mantendrá confidencial. ¿Es este un buen momento para tener una conversación que durará de 15 a 20 minutos?*		
Contact information		
		Choices
	Can you please confirm your child's name and date of birth? ¿Puede confirmar el nombre y fecha de nacimiento de su hijo?	Child Name: Child's Date of Birth:
	What is your relationship to *{child's name}*? ¿Cuál es su relación con *{child's name}*?	1. Mother 2. Father 3. Grandparent 4. Relative 5. Other, specify:
	Is this the best number for you or is there a better way to contact you? ¿Es este el número que prefiere o hay una mejor forma de comunicarnos con usted? What general days/times are easiest for us to contact you? En general, ¿en qué días y horas sería más fácil comunicarnos con usted?	Contact Information: Availability:
Family/child baseline		
Family structure		

	First, I'd like to know a little bit about who lives with you. How many live in your home (including yourself)? Primero, quisiera saber un poco sobre quiénes viven con usted. ¿Cuántas personas viven en su casa (incluyéndose)?	__ __
	Can you please list their ages and their relationship to you (e.g. your child, your partner's child, niece, friend)? ¿Puede mencionar sus edades y la relación con usted (por ejemplo, su hijo, el hijo de su pareja, sobrina, amigo)?	
Child's health		
	In general, would you say *{child's name}* health is: En general, usted diría que la salud de *{child's name}* es:	0, poor 1, fair 2, good 3, very good 4, excellent 0, mala 1, regular 2, buena 3, muy buena 4, excelente
Social Drivers Questionnaire		
Food *(Alimentos)*		
	Within the past 6 months, did you worry that your food would run out before you got money to buy more? *En los últimos 6 meses, ¿tuvo la preocupación de que se le iba a acabar el alimento antes de tener dinero para comprar más?*	1, Yes | 0, No
	Within the past 6 months, did the food you bought just not last and you didn't have money to get more? *En los últimos 6 meses, ¿el alimento que compró no le duro y no tuvo dinero para comprar más?*	1, Yes | 0, No
Housing/Utilities (Vivienda/Servicios públicos)		

	Within the past 6 months, have you ever stayed: outside, in a car, in a tent, in an overnight shelter, or temporarily in someone else's home? *En los últimos 6 meses, ¿ha tenido que quedarse a la afuera en la calle, en un auto, tienda de campaña/carpa, refugio público o temporalmente en casa de alguien -quedándose en el sofá-?*	1, Yes | 0, No
	Are you worried about losing your housing? *¿Le preocupa la posibilidad de perder su casa (hogar, vivienda)?*	1, Yes | 0, No
	Within the past 6 months, have you had problems accessing utilities (heat, electricity) when it was really needed? *En los últimos 6 meses, ¿no le fue posible tener servicios públicos -calefacción, electricidad- cuando tenía gran necesidad de ellos?*	1, Yes | 0, No
Transportation (*Transporte)*		
	Within the past 6 months, has a lack of transportation kept you from medical appointments or from doing things needed for daily living? *En los últimos 6 meses, ¿la falta de transporte le ha impedido llegar a citas médicas o realizar actividades de la vida diaria?*	1, Yes | 0, No
Income/Job		
	Are you unemployed? ¿Está desempleado?	1, Yes | 0, No
	Would you like help with finding employment and/or job training? ¿Quisiera recibir ayuda para encontrar empleo o capacitación para un puesto?	1, Yes | 0, No

	Did you lose your job after the onset of the COVID-19 pandemic in March 2020? ¿Perdió su trabajo después del inicio de la pandemia del COVID-19 en marzo de 2020?	1, Yes | 0, No
	Sometimes people find that their household income does not quite cover their bills. In the last 6 months, has this happened to you? En ocasiones, las personas sienten que los ingresos de su grupo familiar no cubren totalmente sus gastos/facturas. En los últimos seis meses, ¿le sucedió esto?	1, Yes | 0, No

Access to Health Care		
	Are you or our children uninsured (lack health insurance)? ¿Está usted o están sus hijos sin seguro (no tienen seguro médico)?	1, Yes | 0, No
	In the past year, have you or the family members had trouble accessing medicines or health care when it was really needed? En el último año, ¿tuvo usted o tuvieron sus familiares problemas para acceder a medicamentos o atención médica cuando realmente era necesario?	1, Yes | 0, No
Childcare		
	Do problems getting childcare make it difficult for you to work or study? ¿Le es difícil trabajar o estudiar debido a problemas para obtener cuidado infantil?	1, Yes | 0, No

The following questions are ones that we ask of everyone we care for. We recognize that many of these questions are about sensitive topics. As a reminder, this conversation and the information that we discuss will be kept confidential. *Hacemos las siguientes preguntas a todas las personas que atendemos. Reconocemos que muchas de estas preguntas se relacionan con temas sensibles. Como un recordatorio, esta conversación y la información de la que hablemos se conservarán confidenciales.*		
Interpersonal Safety (*Seguridad Interpersonal)*		
	Do you feel physically and emotionally unsafe where you currently live? *¿Se siente usted inseguro física o emocionalmente en donde vive actualmente?*	1, Yes | 0, No
	Within the past 6 months, have you been hit, slapped, kicked or otherwise physically hurt by anyone? *En los últimos 6 meses, ¿alguien le ha golpeado, cacheteado, pateado o lastimado físicamente?*	1, Yes | 0, No
	Within the past 6 months, have you been humiliated or emotionally abused by anyone? *En los últimos 6 meses, ¿alguien le ha humillado o ha abusado emocionalmente de usted?*	1, Yes | 0, No
Mental Health		
	Do you have any concerns about your child's mental or emotional health that are not currently being addressed? ¿Tiene alguna preocupación sobre la salud mental o emocional de su hijo que no se haya tratado actualmente?	1, Yes | 0, No
	Do you have concerns about your own mental or emotional health that are not currently being addressed? ¿Tiene alguna preocupación sobre su propia salud mental o emocional que no se haya tratado actualmente?	1, Yes | 0, No

Immigration Status		
I am going to ask you a few more sensitive questions. I want to reiterate that everything you tell me will remain confidential. I want to make sure that we can get you the resources you need. *Voy a hacerle otras preguntas sensibles. Quiero reiterarle que todo lo que usted me diga permanecerá confidencial. Quiero asegurarme de que podamos obtener los recursos que necesita.*		
	Is your child a registered refugee that arrived through a resettlement agency such as CWS, World Relief, or Lutheran Family Services? ¿Es su hijo un refugiado registrado que llegó por medio de una agencia de reasentamientos, como CWS, World Relief o Lutheran Family Services?	1, Yes | 0, No
	What was your approximate date of arrival? ¿Cuál fue su fecha aproximada de llegada?	
	Do you have concerns about any immigration matters for you or your family? ¿Le preocupa algún asunto de migración para usted o su familia?	1, Yes | 0, No

	Does concern about your immigration status ever prevent you from seeking services for your children? For example, you have told me that you have some trouble accessing ____, and ____ [*based on prior responses*]. Does your immigration status prevent you from accessing these services for your children? *(Prompts: For example, because you are fearful of immigration enforcement, you don't believe you qualify due to your immigration status, or other concerns)* ¿Le ha impedido alguna vez la preocupación sobre su estatus migratorio buscar servicios para sus hijos? Por ejemplo, usted me ha dicho que tiene algunos problemas para obtener acceso a ____ y a ____ [based on prior responses]. ¿Le impide su estatus migratorio tener acceso a estos servicios para sus hijos? *(Indicaciones: por ejemplo, debido a que usted teme que se le aplique la ley de migración, no cree poder calificar debido a su estatus migratorio o tiene otras preocupaciones.)*	1, Yes | 0, No
	What kinds of services has your immigration status prevented you from accessing for you or your children? ¿A qué clases de servicios para usted o sus hijos le ha impedido acceder su estatus migratorio?	1, Healthcare 2, Mental Health Resources 3, Personal Safety Services 4, Legal Services 5, Food Assistance 6, Employment 7, Housing 8, Transportation 9, Childcare 10, Other

	Notes about immigration matters or services not accessed. (Optional) Notas sobre asuntos o servicios de migración a los que no se tuvo acceso. (Opcional)	
	Do you feel that there are language barriers when you look for help? ¿Cree que hay obstáculos por el idioma cuando busca ayuda?	1, Yes | 0, No
	What services have you found difficult to access because of language? Probe if needed: For example, is it ever difficult to access healthcare, health insurance, food assistance, employment assistance, or any other services because of language barriers? ¿A qué servicio le ha sido difícil acceder por el idioma? Averigue, si es necesario: por ejemplo, ¿le ha sido difícil alguna vez acceder a atención médica, seguros médicos, asistencia para alimentos, asistencia para empleo u otros servicios por los obstáculos del idioma?	1, Healthcare 2, Mental Health Resources 3, Legal Services 4, Food Assistance 5, Employment 6, Housing 7, Transportation 8, Childcare 9, ____ Other
Have you or anyone in your household tested positive for COVID 19?		
Assess Immediate Need *(necesidad inmediata*)		
	Are any of your needs urgent? For example, you don't have food for tonight [give other examples based on stated needs], you don't have a place to sleep tonight, you are afraid you will get hurt if you go home today. *¿Son urgentes sus necesidades? Por ejemplo: usted no tiene comida para esta noche, usted no tiene un lugar para dormir esta noche, o si usted tiene miedo de ir a su casa porque puede confrontar problemas.*	1, Yes | 0, No

	Would you like help with any of the needs that you have identified? *¿Le gustaría tener ayuda en cualquiera de las necesidades que usted ha identificado?*	1, Yes | 0, No
	You have not identified any needs during this screen. Is there assistance that you would like today (For example, do you need help with resources for rental assistance, medical needs, employment services, or anything else) ? Usted no ha identificado ninguna necesidad durante esta evaluación. ¿Hay alguna asistencia que quisiera recibir hoy (por ejemplo, necesita ayuda para informarse de los recursos para obtener asistencia para la renta, necesidades médicas, servicios de empleo o algo más)?	
Type of assistance		
	Is there assistance that you would like today (e.g. rental assistance, medical needs, employment services, legal services etc.) ? ¿Hay alguna asistencia que quisiera recibir hoy (por ejemplo, asistencia para la renta, necesidades médicas, servicios de empleo, servicios legales, etc.)?	
	In the last year have you been connected to any organizations that have helped you to access resources (I.e. housing, food, transportation, mental health support, etc.)? En el último año ¿lo han puesto en contacto con alguna organización que le ayudó a obtener acceso a los recursos (es decir, vivienda, comida, transporte, apoyo para la salud mental, etc.)?	1, Yes | 0, No

	Which Organization?: Who did you last have contact with and when?: What resources are they helping you with?: ¿Qué organización? ¿Con quién tuvo contacto la última vez y cuándo fue? ¿Con qué recursos lo están ayudando?	
Thank you for taking the time to talk with us today. We understand that you (and many of the other families that we see in clinic) are experiencing hardships from this pandemic. Our goal is to understand your family's situation in order that we can connect you to community resources as best we can. Please know that if you have further questions after this call or if additional needs come up in the future, you can present to the Lincoln Community Clinic for care or contact me or another case manager at (919) 956-4136. *Gracias por tomarse el tiempo para hablar con nosotros hoy. Entendemos que usted (y muchas otras familias que atendemos en la clínica) están teniendo dificultades por esta pandemia. Nuestro objetivo es entender la situación de su familia para que podamos ponerlo en contacto con los recursos comunitarios de la mejor manera que podamos. Tome en cuenta que si tiene otras preguntas después de esta llamada o si le surgen otras necesidades en el futuro, puede presentarse a Lincoln Community Clinic para recibir atención médica o comuníquese conmigo u otro administrador de casos al (919) 956-4136.*		

Follow-up Call Scripts

English	Spanish
Voicemails/Texts	

Hi, I am calling from Lincoln Community Health Center. My name is ___ and I am a community resource navigator. I just wanted to do a follow up of the resources you were referred to. You can call us back at 919-666-7295 and leave a voicemail with you name and the best day or time for us to contact you. I will plan to try calling again within the week from this phone number! I'm sorry I was not able to contact you. Thank you, Goodbye.	Hola, llamo de Lincoln Community Health Center. Mi nombre es _____ y soy un navegador de recursos comunitarios. Solo quería hacer un seguimiento con usted sobre algunos recursos que fue referido. Puede llamarnos al 919-666-7295 y dejar un mensaje de voz con su nombre y el mejor día o hora para comunicarnos con usted. ¡Planearé volver a llamar dentro de la semana desde este número de teléfono! Lamento no haberlo contactado esta vez. Muchas gracias, adiós.
Hi, I am calling from Lincoln Community Health Center. My name is ___ and I am a community resource navigator. I just wanted to do a follow up of the resources you were referred to. I'm sorry I was not able to contact you. Please, do not hesitate to leave me a voicemail or send a text message with your name and availability at 919-666-7295. Again, the number is 919-666-7295. Otherwise, do not hesitate to get into contact with me through Lincoln in the future. Thank you very much. Goodbye!	Hola, llamo desde Lincoln Community Health Center. Mi nombre es _____ y soy un navegador de recursos comunitarios. Sólo quería hacer un seguimiento con usted acerca de algunos recursos que fue referido. Lamento no haber podido comunicarme con usted. Por favor, no dude en dejarme un mensaje de voz o enviarme un mensaje de texto con su nombre y disponibilidad al 919-666-7295. Nuevamente, ese es el 919-666-7295. De lo contrario, ¡no dude en comunicarse conmigo a través de Lincoln en el futuro! Muchas gracias, adiós.
"You missed a call from Lincoln Community health Center. Please send a text message or call 919-666-7295. If you would like us to call you back at another time, please leave your name and the best day and time for us to contact you"	"Perdió una llamada de Lincoln Community Health Center. Por favor, envíe un mensaje de texto o llame al 919-666-7295. Si le gustaría que le devolvamos la llamada a una hora diferent, por favor deje su nombre y el mejor día y hora para comunicarnos con usted".

Hi, I my name ____ and I am calling from Lincoln Community health center. Am I speaking with ____?	Hola, soy _____ y llamo de Lincoln Community Health Center. ¿Estoy hablando con ___-?
Is Mr./Mrs._____ available to talk? When would be a good time to return the call?	¿Está la Sra. / Sr._____ disponible para hablar? ¿Cuándo sería un buen momento para volver a llamar?
My job is to help patients utilize the community resources for things like food, financial assistance, housing, etc. I know you recently had a call with a case manager (insert name) de Lincoln, and I would like to do a follow-up to see how things were going. Also I would like to make sure you have important information about coronavirus. Is now a good time to talk for a few minutes?	Mi función es ayudar a los pacientes a utilizar recursos comunitarios para cosas como comida, asistencia financiera, vivienda, etc. Sé que recientemente tuvo una llamada con un administrador de casos [inserte el nombre] de Lincoln, y me gustaría hacer un seguimiento de cómo van las cosas. También quiero estar seguro de que tiene información importante sobre el coronavirus. ¿Es ahora un buen momento para hablar unos minutos?
Very good. We hope to talk to you soon! When would be a good time (day of the week, morning, afternoon or night) for us to call back?	Muy bien, ¡esperamos hablar contigo pronto! ¿Cuándo podría ser un buen momento [DÍA DE LA SEMANA] [MAÑANA, TARDE, NOCHE] para que le devolvamos la llamada?

Thank you for taking the time Mr./Mrs. ____! As a reminder, this conversation and the information that we discuss will be kept confidential. (their case manager) told me that you they gave you some resources and information about (specific resourse _____), (_____), (_____)…. Is that correct? Of your references, which of these do you believe are the most important for you? Ok, we will talk about this one first. Were you able to visit or connect with _____?	¡Gracias por su tiempo Sra. / Sr._____! Como recordatorio, esta conversación y la información que discutimos se mantendrá confidencial. [Su administrador de casos] me dijo que le dieron algunos recursos o información sobre [recurso específico_____], [_____], [_____] ... ¿Es correcto? De sus referencias, ¿cuál de estas cree que es la más importante para usted? Ok, hablemos de eso primero. ¿Pudo visitar o conectarte con_____?
Thank you for sharing. It sounds like (_____). Has your need been resolved completely, mostly, somewhat or not at all? Will you continue to access this service for this need? Why won't you continue access this service? Are you interested in more resources or help with (_____)?	Gracias por compartir. Suena como [____]. ¿Su [necesidad] se ha resuelto completamente, en su mayoría, algo (3) o nada (4)? ¿Continuará accediendo al [servicio] para esta necesidad? ¿Por qué no seguirá accediendo a este servicio? ¿Está interesado en más recursos o ayuda con []?

Was there a barrier or specific reason that prevented you from connecting? What barrier prevented you from accessing ____? (Transportation, financial limitations, childcare, language barriers, other___) What was the barrier? Are you still interested in connecting with (___)?	¿Hubo una barrera o razón específica que le impidió conectarse? ¿Qué barrera le impidió acceder a _____? (Transporte, limitaciones financieras, cuidado de niños, barrera del idioma, otro_____) ¿Cuál fue la barrera? ¿Sigue interesado en conectarse con [_____]?
Good. Let's see if we can work together to find a way to access this resource. Was there a specific reason you were not able to connect with (the service)? Or Is there something that we can together to help you in your endeavors? How do you usually find solutions for (insert the barrier previously mentioned)? Can you give me a minute or so to look this information up for you? Is it ok if I call you back in a few minutes after I get this information about the initial referral for you? I would recommend that you send your application through the internet or through the mail instead of in person to minimize the risk. (Can you remind me if CM helped you fill out the application, mailed the application to you to complete, or expected you to fill it out on your own?)	Bien, veamos si podemos trabajar juntos para encontrar una manera de acceder a este recurso. ¿Hubo alguna razón por la que no pudo conectarse con [el servicio]? O ¿Hay algo que podamos hacer juntos que pueda ayudarle en sus esfuerzos? ¿Cómo suele encontrar soluciones para [___ insertar la barrera mencionada anteriormente]? ¿Me puede dar un minuto más o menos para buscar esa información para usted? ¿Está bien si le devuelvo la llamada en unos minutos después de obtener información sobre la referencia inicial para usted? Le recomendaría que envíe su solicitud a través de Internet o por correo en vez de en persona para minimizar el riesgo.

Based on the circumstances, this resource is currently [Fully Working / Altered Working / Closed]. -> Guiding the patient depends on the circumstances. If they are going in person, be sure to remind them to practice social distancing, wash their hands, wear their mask. I know your CM may have referred you to some food resources, have you received information in the mail or discussed this resource with your CM in the past?	(¿Puede recordarme si CM le ayudó a completar la solicitud, le envió la solicitud por correo para completarla o esperaba que la llenara por su propia cuenta?) Basado en las circunstancias, este recurso se encuentra actualmente [En funcionamiento completo/ En funcionamiento alterado / Cerrado]. -> Guiar al paciente depende de las circunstancias. Si van a ir en persona, asegúrese de recordarles que practiquen el distanciamiento social, se laven las manos, usen su mascarilla. Sé que su CM podría haberlo referido a algunos recursos alimentarios, ¿recibió información por correo o habló sobre este recurso con su CM anteriormente?
That's fine, I completely understand. I respect those needs and your priorities during this time. Was there something that interested you in the initial reference? I wonder (if there is anything) that changed for you that caused you to change your opinion about (____). Is there something that I can do currently about _____?	Está bien, le entiendo completamente. Respeto esas necesidades y sus prioridades durante este tiempo. -¿Hubo algo que le hizo interesado en la referencia inicial? -Me pregunto (si es que hubo algo) qué cambió para ti que te hizo cambiar de opinión sobre [____]. -¿Hay algo que pueda hacer actualmente sobre _____?
Do you have any other question or concern about (the first reference)? Good. We will go on to the next section.	¿Tiene alguna otra pregunta o inquietud sobre [primera referencia]? Bien, pasemos a la siguiente sección.
Of the other referrals mentioned (mention additional referrals), Which of these is the next most important for you?	De sus otras referencias [mencione referencias adicionales], ¿cuál de estas cree que es la siguiente en importancia para usted?
Ok we will talk about this one now. Were you able to visit or connect with ____?	Ok, hablemos de eso ahora. ¿Pudiste visitar o conectarte con ____?

Great. Before we finalize the call, I would like to provide you with information about coronavirus the team at Lincoln and I believe would be useful for you. The prevention is key. The key steps you can take to protect yourself and others against the spread of coronavirus includes: Use a mask, social distance (stay 6 feet away from others and stay at home whenever possible), wash your hands and other surfaces frequently (after blowing your nose, coughing, sneezing; going to the bathroom; before and after eating or preparing food). Do no touch your face : eyes, mouth or nose. There is a text message service from the State of North Carolina that provides updates and important information. Would you be interested in receiving the text message updates? All you have to do is send a text message with the following word COVIDNC in all capitals to 898211 and they will send you the information Very good. Do you have any other question that I can help you answer? I know that we have talked about a lot of things just now. _____. Does this sound correct? What else would you like to add? From our conversation, where would you like to go from here, in terms of connecting with ____?	Genial. Antes de finalizar la llamada, me gustaría brindarle información sobre el coronavirus que el equipo de Lincoln y yo creemos que sería útil para usted. La prevención es clave. Los pasos clave que puede tomar para protegerse a sí mismo y a los demás contra la propagación del coronavirus incluyen: Usar una mascarilla, distanciamiento social (manténgase a seis pies de los demás y quédese en casa cuando sea posible), lavarse las manos y otras superficies frecuentemente (después de soplarse nariz, toser o estornudar; ir al baño; y antes de comer o preparar alimentos). No te toques la cara: ojos, boca y nariz Hay un servicio de mensajes de texto del estado de Carolina del Norte que le brindará actualizaciones e información importante. ¿Le interesaría recibir actualizaciones de texto? Todo lo que tiene que hacer es enviar un mensaje de texto con la siguiente palabra COVIDNC en mayúsculas al 898211 y le enviarán la información. Muy bien, ¿tienes otras preguntas que pueda ayudarle a responder? Sé que hemos hablado de algunas cosas justo ahora. _____. ¿Esto le suena correcto?

Based on our routine follow-up, I think that it would be useful for us to talk again in the next 2 weeks, just to see how things are going and verify _____. Can I call you back in 2 weeks around this time? Thank you so much for your time today Mr./Mrs. ____. I look forward to following up with you in about 2 weeks. I hope you have a beautiful day! Bye!	¿Qué más le gustaría agregar? Según nuestra conversación, ¿a dónde le gustaría ir desde aquí, en términos de conectandose con _____? Basado en nuestro seguimiento de rutina, creo que sería útil para nosotros hablar nuevamente en las próximas 2 semanas, solo para ver cómo van las cosas y verificar [_____]. ¿Puedo devolverle la llamada en 2 semanas aproximadamente a esta hora? Muchas gracias por su tiempo hoy Sr. / Sra. _____. Espero hacer un seguimiento con usted en las próximas 2 semanas. ¡Que tenga un lindo día! ¡Adiós!

Week 4	
It's good to talk to you again. I would like to do a follow-up of our conversation that we had about 2 weeks ago about relating to _____(or the voicemail that I left). I am curious to know more about how was your day today and I would love to do a follow-up. Is now a good time to have a brief call?	Es bueno hablar con usted de nuevo. Quería hacer un seguimiento de nuestra conversación que tuvimos hace aproximadamente 2 semanas relacionada con [_____] [o el mensaje de voz que dejé]. Tengo curiosidad por saber más sobre cómo le fue y me encantaría hacer un seguimiento. ¿Es ahora un buen momento para una breve llamada?
The last time we talked about (_____), and you mentioned that _____ was the most important. I believe that we discussed _____ as your next steps. I would love to hear more about how it went! Were you able to visit or connect with _____?	la última vez que hablamos de [_____], y menciono que _____ era lo más importante. Creo que discutimos _____ como sus próximos pasos. Me encantaría escuchar más sobre cómo le fue! ¿Pudo visitar o conectarse con_____?
I know you were referred to as well but did not connect with (___), (____) the last time we spoke. I just wanted to be able to share with our team at Lincoln, since then, have you been able to connect with any of (these additional services) We want to a great help to you, do you still want to talk with (these other services)? Is there something I can help you with?	Sé que también le referieron, pero no se conectaste con [_____], [_____] la última vez que hablamos. Solo quería poder compartir con nuestro equipo en Lincoln, desde entonces, ¿pudo conectarse con alguno de [estos servicios adicionales]? Queremos ser de gran ayuda para usted, ¿todavía quiere hablar sobre [estos otros servicios]? ¿Es eso algo en que lo puedo ayudar?

I'm happy to that talked about that. Do you have a question about any of the resources that was have discussed? Great. Before we end the call, I want to talk about the coronavirus. The last time we spoke about the current coronavirus outbreak and you were able to answer some questions about it. I just want to remind you again to continue to wear your mask when you are in public, to keep at least six feet away from others, wash your hands and surfaces that you touch on a regular basis. Finally, make sure to call your doctor if you experience symptoms of coronavirus. How do you feel about all of this? Are you comfortable taking these steps? Based on our routine follow-up, I think that it would helpful if we spoke again over the next month, just to see how things are going and to check (_____). Can I call you back in a month at this time? In the meantime, you can always reach our team by calling the Lincoln main line and speaking to Behavioral Health. Thank you very much for your time today Mr./Mrs. ____. It was wonderful to be able to speak with you. Have a nice day! Goodbye!	Me alegro de que hayamos hablado de eso. ¿Tiene alguna pregunta sobre alguno de los recursos que hemos mencionado? Genial. Antes de terminar la llamada, quiero hablar sobre el coronavirus. La última vez hablamos sobre el brote actual de coronavirus y pudo responder algunas preguntas al respecto. Solo quiero recordarle nuevamente que continue usando su mascarilla cuando esté en público, mantener al menos 6 pies de distancia de los demás y lavarse las manos y las superficies que toca frecuentemente con regularidad. Finalmente, asegúrese de llamar a su médico si experiencia síntomas de coronavirus. ¿Cómo se siente con todo esto? ¿Se siente cómodo tomando estos pasos? Basándonos en nuestro seguimiento de rutina, creo que sería útil que volviéramos a hablar durante el próximo mes, solo para ver cómo van las cosas y verificar [_____]. ¿Puedo volver a llamarle dentro de un mes a esta hora? Mientras tanto, siempre puede comunicarse con nuestro equipo llamando a la línea principal de Lincoln y hablando con Behavioral Health.

	Muchas gracias por su tiempo hoy Sr. / Sra. _____. Fue maravilloso poder hablar con usted. ¡Que tenga un lindo día! ¡Adiós!
Week 8	

Hi, it is a pleasure to speak with you again. I just wanted to follow-up on our (conversation or voicemail) that we have about one month ago related to (_____). I am curious to know more about how it went and would love to follow-up. Is now a good moment for a short call?	Hola, es un gusto volver a hablar con usted. Quería hacer un seguimiento de nuestra [conversación o mensaje de voz] que tuvimos hace aproximadamente un mes relacionado con [_____.]. Tengo curiosidad por saber más sobre cómo le fue y me encantaría hacer un seguimiento. ¿Es ahora un buen momento para una breve llamada?
I know that you were also referred to, but were not able to connect to (_____), (_____) the last time that we talked. I would just like to be able to share with our team at Lincoln, since then, have you been able to connect with (_____)? We want to be of great help to you, do you still want to talk about (____)? Is there something I can help you with?	Sé que también le referieron, pero no se conecto con [_____], [_____] la última vez que hablamos. Solo quería poder compartir con nuestro equipo en Lincoln, desde entonces, ¿pudo conectarse con alguno de [_____]? Queremos ser de gran ayuda para usted, ¿todavía quiere hablar sobre [_____]? ¿Es eso algo en que le puedo ayudar?
Our goal in communicating with you over past weeks has been to ensure that you needs have (in terms of housing, food, health, legal assistance, etc.) been met. I am interested in understanding your experience with these efforts. Have these calls from our team been helped you understand what community resources are available to you? Did these calls help you to connect with the necessary resources? How did the calls help you access resources? How can we make this system more effective for you?	Nuestro objetivo al comunicarnos con usted durante las últimas semanas ha sido asegurarnos de que se satisfagan sus necesidades (en cuanto a vivienda, alimentación, salud, asistencia legal, etc.). Me interesa comprender su experiencia con estos esfuerzos. ¿Le han ayudado estas llamadas con nuestro equipo a comprender qué recursos comunitarios están disponibles para usted? ¿Le ayudaron estas llamadas a conectarse con los recursos necesarios? ¿Cómo le ayudaron estas llamadas a acceder a los recursos?

	¿Cómo podemos hacer que este sistema sea más eficaz para usted?
Before we end, I would like to ask you how you think we can improve how we ask these types of question to meet your social needs or of other families in your community. So far, we have spoken by phone, initially with a case manager and since then with me or other volunteer community navigators.	Antes de terminar, quiero preguntarle cómo cree que podemos hacer mejor este tipo de preguntas para ayudarle a satisfacer sus necesidades sociales o las de otras familias de su comunidad. Hasta ahora hemos hablado por teléfono, inicialmente con un administrador de casos y desde entonces conmigo u otros navegantes comunitarios voluntarios.

Who do you think you would feel most comfortable talking with about your social needs? Rate on a scale of 1 to 5: 1= very uncomfortable; 2 = uncomfortable; 3 = Neutral; 4 = Comfortable; 5= Very comfortable) CHW (Community Health Worker)(member of your community who visits your home to assess your needs) In clinic- Social workers or case manager Clinician/nurse By Phone with a social worker or case manager By phone with a doctor or nurse	¿Con quién cree que se sentiria más cómodo hablando sobre sus necesidades sociales? (Califique en una escala de 1 a 5: 1 = Muy incómodo; 2 = Incómodo; 3 = Neutral; 4 = Cómodo; 5 = Muy cómodo)

	1	2	3	4
CHW (Trabajador comunitario de salud) (miembro de su comunidad que visita su hogar para evaluar sus necesidades)				
En Clínica-Trabajador social o administrador de casos				
Médico clínico / enfermero				
Por teléfono con un trabajador social o administrador de casos				
Por teléfono con un médico o enfermero				

<table>
<tr>
<td>What characteristics are most important for you when considering who you could talk to about your social needs?
(Please rate on a scale of 1 to 5: 1= Not very important; 2 = not very important 3 = Neutral; 4 = important 5= Very important)

Language
Environment (home, clinic, phone)
Professional Qualifications
Belonging to a cultural group</td>
<td>¿Qué características son más importantes para usted cuando considera con quién podría hablar sobre sus necesidades sociales?
(Califique en una escala del 1 al 5: 1 = Sin mucha importancia; 2 = Sin importancia 3 = Neutral; 4 = Importante; 5 = Muy importante)

<table>
<tr><td></td><td>1</td><td>2</td><td>3</td><td></td></tr>
<tr><td>Idioma</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Entorno (hogar, clínica, teléfono)</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Cualificaciones profesionales</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Pertenecer a su grupo cultural</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
</tr>
<tr>
<td>Child Health Assessment

In general would you say that (child’s name) is healthy:
0, poor
1, fair
2, good
3, very good
4, excellent</td>
<td>Evaluación de la salud infantil

En general, diría que la salud de {nombre del niño} es:
0, pobre
1, justo
2, bueno
3 muy bien
4, excelente</td>
</tr>
<tr>
<td>Thank you so much. Would it be OK if we spoke to you in the future with more questions about your experience accessing resources and participating in the Social Determinants of Health Assessment?</td>
<td>Muchas gracias. ¿Estaría bien si nos comunicamos con usted en el futuro con más preguntas sobre su experiencia al acceder a los recursos y participación en la evaluación de Determinantes Sociales de la Salud?</td>
</tr>
</table>

Based on our routine follow-up, we currently have no other follow-ups scheduled. However, you can always reach out team by calling the Lincoln Main Line and speaking to Behavioral Health Thank you very much for your time today Mr./Mrs. _____. It was wonderful to be able to speak with you. Have a nice day! Goodbye!	Según nuestro seguimiento de rutina, actualmente no tenemos ningún otro seguimiento programado. Sin embargo, siempre puede comunicarse con nuestro equipo llamando a la línea principal de Lincoln y hablando con Behavioral Health. Muchas gracias por su tiempo hoy Sr. / Sra. _____. Fue maravilloso poder hablar con usted. ¡Que tenga un lindo día! ¡Adiós!

Appendix B

Standard Operating Procedures

SOP: Case Management Baseline Calls	
Subject	This SOP describes procedures for completing data collection.
Responsible Staff	Co-PIs, Duke students, and Case Management are responsible for following this SOP.

Procedure

Set-up

1. Co-PIs are responsible for requesting and providing a list of patients that fit the required criterion for the study to initiate phone calls (Eligibility criteria: Age 0-5, LCHC patient, Non-English speaking, seen in the last 2 years. Patient population will be sorted by insurance status and income).
2. Patient population will be divided into two lists: a) Spanish b) non-Spanish speaking. The lists will be prioritized by income status and insurance status.
3. Using the patients lists, case management will pre-populate the schedule with 5-8 patients per day. The composition of patients will reflect the overall patient population (~2 patients or 10%) will be non-Spanish speaking. The schedule will be dynamic as, if a patient is not contacted one day, they will be added on to the next day's schedule. If spots open on the schedule for the day (i.e. a patient does not answer), a new patient will be selected from the participant list in order to meet targets of patients called/ connected with.

Enrollment

4. Open the FTG REDCap database entitled "Fill the Gap LCHC" using your username and unique password.
5. Select the *Patient Data from EHR* Instrument
    a. Record (prior to the call): Patient MRN, DOB, patient/guardian's name and phone number, date of last clinic visit, preferred language, insurance status and what Behavioural Health referrals were previously placed

6. Contact the patient:
    a. If the patient speaks a language other than Spanish, call the interpreter line by:

    -Logging-in to EPIC

    -Locating Patient's chart: select chart icon at the top of the home page and enter the patient's MRN in the search box.

    -Verify patient: Locate patients name and date of birth to confirm that it is the correct patient.

    -Call interpreter line 1866.421.3463 access code: 230279, Provider name: Dr. Emily Esmaili

    b. Call the patient's number- start with first phone number, if no answer move on to second number. If no answer is received from both numbers make a second call attempt the next day using both phone numbers.

    -If not reached, leave VM: "Hi, my name is _____ and I am calling from Lincoln Community Health Center. You can call me back at 919-956-4136 or I will plan to call you again later this week from this phone number! Sorry we did not reach you this time. Thanks so much, bye."

    - At that time, if there is still no answer, send a text message via google voice ""You missed a call from Lincoln Community Health Center. Please call 919-956-4136. If you would like us to call you back at a different time please give the best day and time to reach you."

    c. Record phone call details in REDCap *Outreach Instrument as described* below.
7. Select the *Outreach Instrument* and Document outreach efforts:
    - Date and time of first call attempt (and phone number tried)
    - On subsequent day, date/time of second call attempt (and phone number tried).
    - Leave Voicemail as above if not reached.
    - and, on the third day, whether or not a text message with a message providing had been sent.
    - If a preferred time to call is provided, that should be documented in the designated REDCap field.
8. Once contact is made, case management will assess parent/guardian's willingness to participate in the call. Case management will explain that the goal of the call is to understand how LCHC can best provide support and access resources and will ask if it is a good time to have a conversation.

9. Once verbal consent to proceed with the call is obtained, enrollment is considered complete.
10. The answer to the above question determines the pathway that will be followed:
    a. If guardian has time to participate, case management will continue on to the data collection portion of the process
    b. If they do not have time right now, case management will ask for a better time/date to complete the questionnaire
    c. If the patient declines to participate in the SDOH screener, the case manager will let them know that LCHC is available if needs should arise in the future. If patient expresses a concern at this juncture, the case manager will help to connect them with a resource. The patient will not be passed to FTG students for follow-up.

Recording

11. Obtain permission to record the call: request permission from the parent/ guardian to record the call for quality assurance purposes. The recording will not be disseminated and will be stored on a secure Duke drive.
12. If permission is granted, start the recording on the 'Zoom' application on the Tablet.
13. Note: After the call, the zoom recording will be sent to Case Managers/ users Duke email address. The recording should be uploaded to 'Duke Box'--> 'Fill the Gap 2020-2021'--> 'Recordings.' The recording should be saved as 'REDCapRecordID_Date(xx.xx.xx)_researcher initials(xx)'

Data Collection

14. Once data has been collected in the *Patient data from EHR* and O*utreach* instruments the *Demographics* instrument will be opened and the child's name/identity will be confirmed along with the name and identity of the guardian. The preferred availability and contact number of the guardian is also recorded.
15. Next, the *Social Drivers Questionnaire i*nstrument (again on REDCap) will be opened. The case manager will proceed through the questionnaire in REDCap, ensuring all standardized questions are answered.
16. Immediate needs will be addressed and the type of need required will be recorded into REDCap.
17. On completion of the screener, social risks for which participants screened (+) will be extracted and the SOP for each specific social driver (food, housing, employment, etc.) followed to ensure resource linkage.

18. Referrals will be placed based upon the severity of need that the patient has and the quickest point of contact from the pool of resources available. Referrals will be made through one of the following:
    - Lincoln Community Health Center Resources
    - Covid 19 Resource Listing from CEF
    - NC Care 360 Platform
    - General referral listing of local resources
19. Referral through NCCARE360 will be considered and used if patient and appropriate CBO are enrolled. Verbal consent can be obtained from participant.

(For NCCARE360 Go to https://app.uniteus.io)

- Log-in with username and password
- Select dashboard at the top of your home screen
- Select the plus sign located at the top right hand corner of your screen, next to your name
- Select new client or new referral
- Enter the patient's full name and date of birth
- Follow the prompts that pop-up on your screen throughout the referral process

20. Case manager will send text message to patients with brief summary of referrals made. Message will start with case manager stating their name and informing them that they spoke on the phone earlier. Next, case manager will write the referrals that were made. If referral was made through NCCare360, case manager will explain in text message that patient should be expecting a call from that particular CBO. If patient has to contact CBO, case manager will send name of CBO, contact number, and address (if in person visit is required). Message will end by thanking patient for their time, inform them that they can contact case manager if they have any questions, and wishing them a good day. These text messages will be sent in Spanish and English depending on the primary language of the patient. If patient speaks another language than English or Spanish, message will still be sent in English. Example of message are below:
    - Spanish: Buenas tardes (patient name), soy Paul de Lincoln Community Health Center, hablamos mas temprano. Para asistencia con su factura de electricidad, puede llamar al departamento de servicios sociales al 919-560-8000. Tambien puede llamar a Catholic Charities al 919-682-3449. Para asistencia para encontrar empleo puede comunicarse con el Centro Hispano 919-687-4635. Muchas gracias por hablar conmigo hoy. Si tiene alguna pregunta o comentario me puede escribir aqui o llamarme al 919-956-4060. Que tenga un buen dia!
    - English: Good afternoon (patient name), this is Paul from Lincoln Community Health Center, we spoke earlier. For assistance with your electric bill, you can

call the department of social services at 919-560-8000. You can also call Catholic Charities at 919-682-3449. For assistance in finding employment, you can contact El centro Hispano at 919-687-4635. Thank you very much for speaking with me today. If you have any questions or comments, you can write to me here or call me at 919-956-4060. Have a nice day!

21. Screened clients will be maintained in REDCap under their unique study ID and a list of patients will be kept in a tracking document (in Duke Box) to let students know who needs a follow-up call and at what interval. Students be responsible for following up on the initial referrals made by case management and will focus on connecting patients to community resources (see student follow-up SOP)
22. Follow-up phone calls will be made by students at 2, 4, and 8 weeks out from that patients' initial point of contact (see student follow-up SOP). If a patient was not successfully linked to a resource, student interns will facilitate connection to community resources.
23. Based on the follow-up calls, the care will either be closed out or rerouted to case management for further needs assessments.
24. Students will assign a flag after each successful follow-up call indicating requisite case management follow-up (see student follow-up SOP).

Scheduling

25. Once the baseline call is complete, an event will be created on the REDCap calendar (tied to the patient record) indicating when the two week follow-up, four week follow-up, and eight week follow-up are due. (select 'calendar' on left side of REDCap screen, once calendar is open select 'add event,' under 'notes' add Wk2_patientname and then select patients REDCap record ID in the drop down below). Each week on Friday, case manager will assign the specific patients that the students will be contacting the following week, these cases will also be displayed on the schedule in REDCap. Students will be responsible for finding time throughout the week when they can contact the patients for their follow up. Students should make calls no later than 3 days after patients are scheduled- if this is not possible please reach out to Paul and Rushina so that patient can be reassigned.

Data management and reporting

26. Data will be kept in the secure Duke REDCap database
27. A Tracking sheet will be kept in Duke Box to log patient's study ID, initial contact and 2, 4, 8 and week follow-ups.

28. A second tracking sheet will be kept in Duke Box denoting those participants who screened positive on a social driver and the status of their referral
29. Monthly reports will be written at the end of each month by (case management OR project Managers OR PI's) to summarize number of participants screened and referrals made, as well as successful connection to resources when possible.

Documentation in EPIC

30. Log-in to EPIC

-Locate Patient's chart: select chart icon at the top of the home page and enter the patient's MRN in the search box.

-Verify patient: Locate patients name and date of birth to confirm that it is the correct patient.

31. Document as a telephone encounter in EPIC
32. Document Social Drivers in the PRAPARE flowsheet

Exceptions: This SOP should be followed without exception. If conflicting procedures arise they will be handled on a case by case basis and documented in detail.

Version #, Date	5.0, 1 Dec 2020

SOP: Student Follow-Up Calls	
Subject	This SOP describes procedures for student volunteers conducting follow-up calls at 2, 4 and 8 weeks
Responsible Staff	Co-PI's, FTG students and Case Management are responsible for following this SOP.

Procedure and Data Collection

1. At the conclusion of each initial screening call, case management will ask each parent or guardian if they are willing to follow-up with the FTG students in two weeks time.
2. If yes, an encounter will be scheduled in REDCap Calendar for a follow-up
3. Open the FTG REDCap database entitled "Fill the Gap LCHC" using your username and unique password.
4. Select the appropriate instrument (2 week, 4 week or 8 week follow-up)

5. FTG students will attempt to call the patient on the scheduled day:

Note: If the patient speaks a language other than Spanish, call the interpreter line by:

-Logging-in to EPIC

-Locating Patient's chart: select chart icon at the top of the home page and enter the patient's MRN in the search box.

-Verify patient: Locate patients name and date of birth to confirm that it is the correct patient.

-Call interpreter line 1866.421.3463 access code: 230279, Provider name: Dr. Emily Esmaili

Call the patient's number- start with first phone number, if no answer move on to second number. f no answer is received from both numbers make a second call attempt the next day using both hone numbers.

-If not reached, leave VM: "Hi, my name is _____ and I am calling from Lincoln Community Health Center. You can call me back at 919-666-7295 or I will plan to call you again later this week from this phone number! Sorry we did not reach you this time. Thanks so much, bye."

- At that time, if there is still no answer, send a text message via google voice ""You missed a call from Lincoln Community Health Center. Please call 919-666-7295. If you would like us to call you back at a different time please give the best day and time to reach you."

If the patient:

a. Does not answer/there is no contact, this will be recorded in REDCap and Case Management alerted (in order that they can triage subsequent need to intervene based on severity of social need).
b. Answers the phone, but indicates that they would not like to participate or speak with the team, their response will be recorded in REDCap and Case Management alerted (in order that they can triage subsequent need to intervene based on severity of social need).
c. Answers the phone, the FTG student's script (in the REDCap database) will be used to assess if patient's families were able to access resources, what barriers (if any) exist, and if they need additional resources.
d. If social issue is in the scope of student practice, they will use the resource manual or search engine to provide appropriate resource as needed. The information will also be shared via text message (using the 'FTG google voice account') and includes: name of agency, resource being provided, contact person if applicable, address, telephone number and hours of operation.

e. For patients **with** additional needs beyond scope of FTG students, the following flag system will be used and recorded in REDCap

i. **Black Flag**: urgent help needed. Call recipient is experiencing a physical or verbal attack when they pick up the phone.

1. FTG students tells them to get somewhere safe from harm if possible
2. Advises them to call 911
3. Alert the Team of the situation (Emily, Rushina and Carolyn Crowder via Text messaging (being sure to leave out PHI))
4. During business hours call Lincoln Hotline: 919-520-0208

Note: If the FTG students receive a follow-up behavioral health referral they should only call these people between the hours of 8:00am-5:00pm Monday-Friday to avoid any unexpected emergencies after hours.

ii. **Red Flag**: Help needed Within 24 hours or same day. Behavioral health, domestic violence and concerns for safety. Flag also applies to issues that require same-day attention.

1. FTG students will make sure that the parent/ guardian and their family are safe. Will advise evacuation of the home if possible or necessary.
2. If during work hours, students will call Case Manager (at this time Carolyn Crowder at _____)
3. If NOT during work hours, Help Desk Volunteers will refer patients to the Duke Emergency Department (or Alliance Behavioral Health).
4. FTG students will assess severity of need and link to services when able (i.e. Do you have a place to stay for the night? If not, refer to shelters). (Students will follow FTG resource documents)
5. EPIC consult (Send an in basket message via EPIC to Care Coordinator and CC Carolyn Crowder, Emily Esmaili and Rushina Cholera).

iii. **Orange Flag**: Help needed within a week or before the next follow-up

1. FTG students will provide the appropriate resource and tell patient that the care coordinator will contact them
2. EPIC consult (Send an in basket message via EPIC to Care Coordinator and CC Carolyn Crowder, Emily Esmaili and Rushina Cholera).

6. At the end of the call, FTG students will ask each parent or guardian if they are willing to follow-up (at the 4 week and 8 week mark)
    a. If NO, thank parent/ patient for their participation
    b. If YES, let them know that a volunteer will follow-up in 2 (or 4 weeks)
    c. At the 8 week mark, thank patient/ parent for their participation and ensure that patients are referred back to case management if needed

Scheduling

7. Once the follow-up call is complete, an event will be created on the REDCap calendar (tied to the patient record) indicating when the subsequent follow-up is due (at the 4 week or 8 week mark). (select 'calendar' on left side of REDCap screen, once calendar is open select 'add event,' under 'notes' add WkX_patientname and then select patients REDCap record ID in the drop down below)

Data management and reporting

8. Data will be kept in the secure Duke REDCap database
9. A Tracking sheet will be kept in REDCap to log patient's study ID, initial contact and 2, 4 and 8 week follow-ups.
10. Monthly reports will be written by the case manager, PIs or project manager to summarize number of participants screened and referrals made, as well as successful connection to resources when possible.

Exceptions: This SOP should be followed without exception. If conflicting procedures arise they will be handled on a case by case basis and documented in detail.

Version #, Date	3.0, 17 Dec 2020

References

1) Gottlieb, Laura M., et al. "Healthcare Sector Activities to Identify and Intervene on Social Risk: An Introduction to the American Journal of Preventive Medicine Supplement." *American Journal of Preventive Medicine*, vol. 57, no. 6, Dec. 2019, pp. S1–5, doi:10.1016/j.amepre.2019.07.009.

2) Provider Impacts of Socioeconomic Risk Screening and Referral Programs: A Systematic ScopingReview | SIREN.<https://sirenetwork.ucsf.edu/tools-resources/resources/provider-impacts-socioeconomic-risk-screening-and-referral-programs-0.> Accessed 12 Sept. 2021.

3) Alderwick, Hugh, and Laura M. Gottlieb. "Meanings and Misunderstandings: A Social Determinants of Health Lexicon for Health Care Systems." *The Milbank Quarterly*, vol. 97, no. 2, May 2019, doi:10.1111/1468-0009.12390

4) Krist, Alex H., et al. "Social Determinants as a Preventive Service: U.S. Preventive Services Task Force Methods Considerations for Research." *American Journal of Preventive Medicine*, vol. 57, no. 6, Dec. 2019, pp. S6–12, doi:10.1016/j.amepre.2019.07.013.

5) Byhoff, Elena, et al. "Part II: A Qualitative Study of Social Risk Screening Acceptability in Patients and Caregivers." *American Journal of Preventive Medicine*, vol. 57, no. 6, Dec. 2019, pp. S38–46, doi:10.1016/j.amepre.2019.07.016.

6) Henrikson, Nora B., et al. "Psychometric and Pragmatic Properties of Social Risk Screening Tools: A Systematic Review." *American Journal of Preventive Medicine*, vol. 57, no. 6, Dec. 2019, pp. S13–24, doi:10.1016/j.amepre.2019.07.012.

7) Lincoln Community Health Center, Durham, NC. <https://lincolnchc.org/.> Accessed 4 Nov. 2021.

8) Social Determinants of Health - Global. <https://www.who.int/teams/social-determinants-of-health.> Accessed 4 Nov. 2021.

9) North Carolina Department of Health and Human Resources. 2018. Accessed 10/29/2021<https://files.nc.gov/ncdhhs/documents/SDOH-Screening-Tool_Paper_FINAL_20180405.pdf>

10) De Marchis, Emilia H., et al. "Assessment of Social Risk Factors and Interest in Receiving Health Care–Based Social Assistance Among Adult Patients and Adult Caregivers of Pediatric Patients." *JAMA Network Open*, vol. 3, no. 10, Oct. 2020, pp. e2021201–e2021201, doi:10.1001/jamanetworkopen.2020.21201.

11) *USDA ERS - Definitions of Food Security*. https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx. Accessed 4 Nov. 2021.

12) *Violence Prevention Alliance Approach*. <https://www.who.int/groups/violence-prevention-alliance/approach>. Accessed 4 Nov. 2021.

13) Fichtenberg, Caroline M., et al. "Improving Social Needs Intervention Research: Key Questions for Advancing the Field." *American Journal of Preventive Medicine*, vol. 57, no. 6 Suppl 1, Dec. 2019, pp. S47–54, doi:10.1016/j.amepre.2019.07.018.

14) Rogers, Artair J., et al. "Patients' Attitudes and Perceptions Regarding Social Needs Screening and Navigation: Multi-Site Survey in a Large Integrated Health System." *Journal of General Internal Medicine*, vol. 35, no. 5, May 2020, pp. 1389–95, doi:10.1007/s11606-019-05588-1.

15) Shelton, Rachel C., et al. "An Extension of RE-AIM to Enhance Sustainability: Addressing Dynamic Context and Promoting Health Equity Over Time." *Frontiers in Public Health*, vol. 8, 2020, p. 134, doi:10.3389/fpubh.2020.00134.

16) Glasgow, R. E., et al. "Evaluating the Public Health Impact of Health Promotion Interventions: The RE-AIM Framework." *American Journal of Public Health*, vol. 89, no. 9, Sept. 1999, pp. 1322–27, doi:10.2105/ajph.89.9.1322.

17) Jilcott, Stephanie, et al. "Applying the RE-AIM Framework to Assess the Public Health Impact of Policy Change." *Annals of Behavioral Medicine: A Publication of the Society of Behavioral Medicine*, vol. 34, no. 2, Oct. 2007, pp. 105–14, doi:10.1007/BF02872666.

18) Harden, Samantha M., et al. "RE-AIM in Clinical, Community, and Corporate Settings: Perspectives, Strategies, and Recommendations to Enhance Public Health Impact." *Frontiers in Public Health*, vol. 6, 2018, p. 71, doi:10.3389/fpubh.2018.00071.

19) *RE-AIM – Home – Reach Effectiveness Adoption Implementation Maintenance*. <https://re-aim.org/.> Accessed 4 Nov. 2021.

20) Holtrop, Jodi Summers, et al. "Qualitative Approaches to Use of the RE-AIM Framework: Rationale and Methods." *BMC Health Services Research*, vol. 18, no. 1, Mar. 2018, p. 177, doi:10.1186/s12913-018-2938-8.

21) Yamanis, Thespina (Nina) J., et al. "'Hay Que Seguir En La Lucha': An FQHC's Community Health Action Approach to Promoting Latinx Immigrants' I Individual and Community Resilience." *Behavioral Medicine*, vol. 46, no. 3–4, Oct. 2020, pp. 303–16, doi:10.1080/08964289.2020.1738320.

22) *Social Determinants of Health - Healthy People 2030 | Health.Gov*. https://health.gov/healthypeople/objectives-and-data/social-determinants-health. Accessed 9 Nov. 2021.

23) Sandhu, Sahil, et al. "A Community Resource Navigator Model: Utilizing Student Volunteers to Integrate Health and Social Care in a Community Health Center Setting." *International Journal of Integrated Care*, vol. 21, no. 1, Feb. 2021, doi:10.5334/ijic.5501.

24) Sandhu, Sahil, et al. "Addressing the Social Determinants of Health During the COVID-19 Pandemic: Ensuring Equity, Quality, and Sustainability." *Family & Community Health*, vol. 44, no. 2, June 2021, pp. 78–80, doi:10.1097/FCH.0000000000000290.

25) Cottrell, Erika K., et al. "Variation in Electronic Health Record Documentation of Social Determinants of Health Across a National Network of Community Health Centers." *American Journal of Preventive Medicine*, vol. 57, no. 6, Dec. 2019, pp. S65–73, doi:10.1016/j.amepre.2019.07.014.

26) Navaranjan, Debeka, et al. "Ethnic Disparities in Acquiring 2009 Pandemic H1N1 Influenza: A Case–Control Study." *BMC Public Health*, vol. 14, no. 1, Mar. 2014, p.214, doi:10.1186/1471-2458-14-214.

Bibliography

Beck, Andrew F., et al. "Perspectives from the Society for Pediatric Research: Interventions Targeting Social Needs in Pediatric Clinical Care." *Pediatric Research*, vol. 84, no. 1, July 2018, pp. 10–21, doi:10.1038/s41390-018-0012-1.

Beck, A. F., et al. "The Color of Health: How Racism, Segregation, and Inequality Affect the Health and Well-Being of Preterm Infants and Their Families." *Pediatr Res*, vol. 87, no. 2, Jan. 2020, pp. 227–34, doi:10.1038/s41390-019-0513-6. 31357209.

Berkowitz, Seth A., et al. "Health Center-Based Community-Supported Agriculture: An RCT." *American Journal of Preventive Medicine*, vol. 57, no. 6 Suppl 1, Dec. 2019, pp. S55–64, doi:10.1016/j.amepre.2019.07.015.

Braveman, P., and L. Gottlieb. "The Social Determinants of Health: It's Time to Consider the Causes of the Causes." *Public Health Rep*, vol. 129 Suppl 2, no. 1468-2877 (Electronic), Jan. 2014, pp. 19–31, doi:10.1177/00333549141291S206. 24385661.

Byhoff, Elena, and Lauren A. Taylor. "Massachusetts Community-Based Organization Perspectives on Medicaid Redesign." *American Journal of Preventive Medicine*, vol. 57, no. 6, Dec. 2019, pp. S74–81, doi:10.1016/j.amepre.2019.07.017.

Chung, E. K., et al. "Screening for Social Determinants of Health Among Children and Families Living in Poverty: A Guide for Clinicians." *Curr Probl Pediatr Adolesc Health Care*, vol. 46, no. 5, May 2016, pp. 135–53, doi:10.1016/j.cppeds.2016.02.004. 27101890.

Community Resource Referral Platforms: A Guide for Health Care Organizations | SIREN. <https://sirenetwork.ucsf.edu/tools-resources/resources/community-resource-referral-platforms-guide-health-care-organizations.> Accessed 4 Nov. 2021.

Cottrell, Erika K., et al. "Variation in Electronic Health Record Documentation of Social Determinants of Health Across a National Network of Community Health Centers." *American Journal of Preventive Medicine*, vol. 57, no. 6, Dec. 2019, pp. S65–73, doi:10.1016/j.amepre.2019.07.014.

De Marchis, Emilia H., et al. "Part I: A Quantitative Study of Social Risk Screening Acceptability in Patients and Caregivers." *American Journal of Preventive Medicine*, vol. 57, no. 6, Supplement 1, Dec. 2019, pp. S25–37, doi:10.1016/j.amepre.2019.07.010.

Garg, A., et al. "Addressing Social Determinants of Health at Well Child Care Visits: A Cluster RCT." *Pediatrics*, vol. 135, no. 2, Feb. 2015, pp. e296-304, doi:10.1542/peds.2014-2888. 25560448.

Garg, A., et al. "Addressing Social Determinants of Health: Challenges and Opportunities in a Value-Based Model." *Pediatrics*, vol. 143, no. 4, Apr. 2019, doi:10.1542/peds.2018-2355. 30902829.

Garg, A., et al. *Screening and Referral for Low-Income Families' Social Determinants of Health by US Pediatricians*. no. 1876-2867 (Electronic), 2019.

Garg, Shikha. "Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 — COVID-NET, 14 States, March 1–30, 2020." *MMWR. Morbidity and Mortality Weekly Report*, vol. 69, 2020, doi:10.15585/mmwr.mm6915e3.

Gottlieb, L. M., and H. Alderwick. *Integrating Social and Medical Care: Could It Worsen Health and Increase Inequity?*no. 1544-1717 (Electronic).

Gottlieb, L. M., et al. "Effects of Social Needs Screening and In-Person Service Navigation on Child Health: A Randomized Clinical Trial." *JAMA Pediatr*, vol. 170, no. 11, Nov. 2016, p. e162521, doi:10.1001/jamapediatrics.2016.2521. 27599265.

Gottlieb, L., et al. "A Randomized Trial on Screening for Social Determinants of Health: The IScreen Study." *Pediatrics*, vol. 134, no. 6, Dec. 2014, pp. e1611-8, doi:10.1542/peds.2014-1439. 25367545.

Huffstetler, Alison N., and Robert L. Phillips. "Payment Structures That Support Social Care Integration With Clinical Care: Social Deprivation Indices and Novel Payment Models." *American Journal of Preventive Medicine*, vol. 57, no. 6 Suppl 1, Dec. 2019, pp. S82–88, doi:10.1016/j.amepre.2019.07.011.

Manian, N., et al. "Relationship between Intervention Dosage and Success of Resource Connections in a Social Needs Intervention." *Public Health*, vol. 185, Aug. 2020, pp. 324–31, doi:10.1016/j.puhe.2020.05.058.

Morone, J. "An Integrative Review of Social Determinants of Health Assessment and Screening Tools Used in Pediatrics." *J Pediatr Nurs*, vol. 37, Nov. 2017, pp. 22–28, doi:10.1016/j.pedn.2017.08.022. 28811057.

Pantell, Matthew S., et al. "Effects of In-Person Navigation to Address Family Social Needs on Child Health Care Utilization: A Randomized Clinical Trial." *JAMA Network Open*, vol. 3, no. 6, June 2020, p. e206445, doi:10.1001/jamanetworkopen.2020.6445.

Workforce Models to Screen for and Address Patients' Unmet Social Needs in the Clinic Setting: A Scoping Review - Sahil Sandhu, Jacqueline Xu, Howard Eisenson, Janet Prvu Bettger, 2021. https://journals.sagepub.com/doi/10.1177/21501327211021021. Accessed 9 Nov. 2021.

Sokol, R., et al. "Screening Children for Social Determinants of Health: A Systematic Review." Pediatrics, vol. 144, no. 4, Oct. 2019, doi:10.1542/peds.2019-1622. 31548335.