Social Determinants of Health

Pamela G. Balogh

College of Nursing, East Carolina University

Doctor of Nursing Practice Program

Dr. Janet Tillman

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Dedication

I want to dedicate this project to my loving husband and best friend Trevor, my children Harper, Nora, Lucas, my mother Nancy, and my mother-in-law Ann. Thank you for all your love, support, and encouragement over these past few years. There have been many times when you have given me the courage to press on, and I am most grateful for that.

Abstract

The Social Determinants of Health (SDOH) are non-medical factors that impact our health outcomes and play a significant role in a person's ability to get and stay healthy. Standardizing the screening for SDOH can help understand how SDOH affects a patient's health, population, and community. A quality improvement project was designed to standardize a screening process for four primary SDOH domains: food security, housing, transportation, and interpersonal safety. Furthermore, determine a need followed by appropriate referrals to community resources within a local health department. The project included a staff education session, distribution of SDOH screening tools within various languages, and a handout of local resources and services. Process measures and outcomes guided the project implementation. Three clinics performing SDOH screenings were tracked over 12 weeks. Out of 965 eligible patients seen in the three clinics, 310 were screened (32%), and 142 referrals (46%) were made to assist patients with one or more SDOH. The benefits provided care of the whole person and recognition for optimal health outcomes—furthermore using a wealth of screening, referrals, and outcomes to identify interventions aligned with the triple aim. It improves patients' health and identification and may benefit from more support, particularly those underserved, reducing costs in patient care with reduced admissions, readmissions, and emergency room utilization while improving their experience and healthcare connections through the local health department.

Keywords: social determinants of health, food security, housing, transportation, interpersonal safety

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Section I. Introduction

Background

When someone asks you where you live, it matters, especially when it comes to your health. The Social Determinants of Health (SDOH) are the conditions in the community where "people are born, live, learn, work, play, worship, and age that affect a wide range of health risks and outcomes" (Office of Disease Prevention and Health Promotion [ODPHP], 2020). Those with more significant health inequalities tend to cluster in disadvantaged regions within communities. The social and physical environments in which we live have a considerable significance that impacts our health outcomes equal to ethnicity and genetics (Dwyer-Lindgren et al., 2017). With growing recognition of the relationship between neighborhoods and health, a person's zip code is vital for their overall health outcomes.

Organizational Needs Statement

Health may be determined by the resources to which we have access and the available community resources. The rural county health department (HD) serves the local community and surrounding regions to utilize their services. The HD always strives to serve the greater good, which is the people within this community. The local HD in a rural North Carolina town, on average, does about 20 visits per day in the primary care clinic, 17 visits per day in the women's health clinic, and 25 visits per day in the general clinic. The HD has always addressed some SDOH for new obstetric patients routinely at the initial intake appointment. However, there is no standardized SDOH screening tool being utilized in the HD at this time. A better SDOH screening tool to address SDOH in the entirety of services offered at the HD will increase screening rates and access to community resources.

The impact of SDOH is well established, and access to health-related social needs is crucial to being healthy. The North Carolina Department of Health and Human Services (2018) reports more than one million North Carolinians do not have affordable housing, and one in 28 children under six are left homeless. Many North Carolinians suffer a high food insecurity rate and have transportation barriers limiting access to healthy food, health care, and community supports. Identifying SDOH sets a goal to "create social and physical environments that promote health for all" (ODPHP, 2020). With a mission of "Building a Healthier Tomorrow," the HD is dedicated to disease prevention and health promotion for all residents.

This need intersects with the Triple Aim; a framework developed to improve healthcare in improving the patient experience of care, improving the health of a population, and reducing per capita costs of care (Institute for Healthcare Improvement [IHI], 2020). Addressing SDOH advances optimal health for all and promotes the objectives in the Triple Aim. By strengthening the community's capacity to manage their care overall and create a healthy future. It improves the experience, the health of populations, and reduces the cost of health care.

Problem Statement

The local HD does not have a current standardized SDOH screening tool to address the potential benefits of assessing and addressing SDOH in the clinical setting. Health starts at home, but it is in our workplaces, schools, and communities. Health is everywhere. SDOH are the conditions under which people are born, grow, live, work, and age (American Academy of Family Physicians, 2019). The circumstances in which we live are a considerable component of our overall health status.

Purpose Statement

This project aims to implement an SDOH screening tool to increase healthcare provider referral rates to community resources within a local North Carolina HD.

Section II. Evidence

Literature Review

A consultation with the Librarian Liaison to the College of Nursing from East Carolina University helped guide the literature review. An initial literature review was conducted in July 2020 and throughout the program to evaluate existing information on SDOH. Multiple databases searched included CINAHL, PubMed, SocINDEX, and Scopus. The following MeSH terms, subject terms, and search terms used: social determinants of health, determinants of health, housing, food supply, food insecurity, transportation, interpersonal violence, domestic violence, intimate partner violence, upstream, upstreaming, and health screening. Boolean operators such as AND and OR were used to connect the terms.

The most recent databases and search terms yielded 739 results. Inclusion criteria included publications in the last five years, English language, humans, Medline and nursing journals, and geographic location set to the United States. Exclusion criteria included publications, not in English, research not related to SDOH, housing, food security, intimate partner violence, transportation, screening, and referral rates. After assessing and evaluating several articles, some are not appropriate and applicable to the topic of interest because they did not directly relate nor address key concepts or components of SDOH under evaluation. The application of the inclusion and exclusion criteria yielded 25 articles that met such criteria. These 25 articles and studies further evaluated using an adaptation from Melnyk and Fineout-Overholt's (2011) model of evidence levels. The literature search yielded a variety of levels of evidence, ranging from level I to level VI. Furthermore, a review of the studies abstracts and discussion portions narrowed the search to 10 articles (see Appendix A). The identified studies found variabilities in the populations, tools, SDOH, and outcomes.

Current State of Knowledge

The SDOH concept is multifaceted, with different tools and domains that have emerged throughout the literature to address the SDOH and how it operates. The current knowledge suggests that screening SDOH impacts the overall health risk and outcomes of individuals and racial minority populations and those disproportionally affected by low-income (Gold et al., 2017; Gold et al., 2019; Kranz et al., 2020; Messmer et al., 2020). This growing body of evidence recognizes the invaluable role screening for SDOH has on the health risks and outcomes for individuals, communities, and populations, as well as the cost reduction in healthcare expenses (Gold et al., 2017; Gold et al., 2019; Henrikson et al., 2019; Kranz et al., 2020; Messmer et al., 2020). It is time to recognize and consider the barriers that are affecting population health.

Current Approaches to Solving Population Problem(s)

There is no one-size-fits-all model for SDOH screening. Each organization has and will adopt an approach based on its specific needs (Gold et al., 2019; Henrikson et al., 2019; Herrera et al., 2019). The tools commonly cited in the studies reviewed include Well-child Care Visit, Evaluation, Community Resources, Advocacy, Referral, Education (WE CARE) (Henrikson et al., 2019; Herrera et al., 2019), Health Leads (Henrikson et al., 2019), and Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE) (Gold et al., 2017; Gold et al., 2019). Further evaluation of these SDOH tools will add additional information to the area of current approaches in screening SDOH (Byhoff et al., 2019; Stenmark et al., 2018).

WE CARE. The development of the WE CARE survey instrument by principal investigator Arvin Garg and other interdisciplinary members evaluated the feasibility and impact of SDOH screening on low-income children at well-child care visits (Garg et al., 2007). The

survey has evolved from the original ten social domains to identifying six domains: parental educational attainment, employment, childcare, risk of homelessness, food insecurity, and housing utilities. The survey may identify any of the six social needs of specific patient populations and address available resources.

Health Leads. The Health Leads, a United States healthcare organization, launched a Social Needs Screening Toolkit in 2016, recognizing the connection between unmet social and environmental factors attributing to increased health outcomes (Health Leads, 2018). With guidance from the Institute of Medicine and Centers for Medicare and Medicaid Services, the Health Leads Social Needs Screening Toolkit shares knowledge about screening patients for social needs of food insecurity, housing instability, utility needs, financial strain, transportation challenges, exposure to violence, and socio-demographic information. Additionally, other options to meet the individuals' needs, such as SDOH screening for childcare, education, employment, health behaviors, social isolation and support, and mental health.

PRAPARE. The PRAPARE assessment tool development took place in 2015 by the National Association of Community Health Centers (NACHC), with national initiatives prioritizing SDOH and aligning optimal measures set forth by Healthy People 2020 (NACHC, 2020). As a nationally recognized and standardized SDOH assessment tool, PRAPARE contains 21 SDOH questions that measure personal characteristics, family and home, money and resources, social and emotional health, and other safety content.

Healthy Opportunities. The North Carolina Department of Health and Human Services (NCDHHS) collaborated in 2017 with many stakeholders across the state to devise plans to review best practices related to screening and identifying SDOH (NCDHHS, 2018). Following these meetings and North Carolina Medicaid transformation, NCDHHS (n.d.) identified four

priority domains: food insecurity, housing instability, lack of transportation, and interpersonal violence. Thus, developing the standardized SDOH screening questions aimed to address unmet resources and recognize SDOH (See Appendix B-C). Additionally, creating other initiatives such as the interactive statewide map of SDOH indicators, statewide coordinated care network (NCCARE 360), Healthy Opportunities Pilots, and the Community Health Worker Initiative (NCDHHS, 2018). All with a common goal to streamline better ways to access these programs.

The Healthy Opportunities standardized SDOH screening questions were chosen over other models as it maintains the statewide focus on SDOH. The partnering local HD felt that the utilization of the NCDHHS (2018) SDOH screening tool follows vital principles set forth by DHHS and utilizing the sole purpose of fulfilling their overall care management requirements.

Evidence to Support the Intervention

The NCDHHS (2018) launched "Healthy Opportunity Pilots" in a couple of regions across the state to test evidence-based interventions to improve health outcomes and reduce costs by addressing food insecurities, housing, transportation, and interpersonal violence for Medicaid enrollees. This strategy developed a set of standardized screening questions to identify and assist in tackling the fundamental drivers of SDOH. However, the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), later referred to the public as the novel coronavirus disease 2019 (COVID-19) pandemic caused the program to be suspended. Thus, further perpetuating specific individuals' vulnerabilities and SDOH (Abrams & Szefler, 2020). In addition, the local HD recognized that a standardized SDOH screening tool had not previously existed before COVID-19, now facing a much greater need to address SDOH for all individuals to impact health outcomes and improve access to community resources. For those reasons and the partnership

with the local HD, the permission to use the NCDHHS (2018) standardized SDOH screening tool was selected for this Quality Improvement (QI) project (See Appendix D).

Evidence-Based Practice Framework

Identification of the Framework

The framework used for this QI project is Donabedian's framework (1966), a model for measuring and evaluating care quality. Donabedian's (1966) model has three primary components the structure, process, and outcomes. These concepts of quality remain a central focus in measuring and improving quality healthcare today.

Donabedian's (1966) concept of the structure reflects the resources associated with the distribution of healthcare. The structures of care assure accountability and quality within the local HD. These include locating the screening clinics participating, training personnel on the screening and intaking of SDOH questions, and clinic staff verbally communicating during the tool’s intake and referral.

The processes often referred to as the delivery of medical care or desired outcomes are the sum of all the actions (Donabedian, 1966). The local HD processes will address the screening and intake of SDOH question timing, timeliness of referrals, healthcare provider awareness of screening results, and opportunity areas for screening and referral process. These commonly include diagnosis, treatment plans, management, and reassessment.

The final concept of Donabedian's model is outcomes. The evaluation of whether the standardized SDOH screening tool prioritized health outcomes and increased referrals to community resources. These desired and undesired healthcare results provide a care receipt, such as quality of life, health status, satisfaction, and compliance (Donabedian, 1966).

Using the Donabedian framework for this QI project, the goal is to have a healthier tomorrow aligning with the patients' and families' overall healthcare in action with standardized SDOH screening. The QI goal is to improve patients' and families' overall health at the HD through increased healthcare provider referral rates to community resources. For this to occur, the HD healthcare providers and staff must implement the NCDHHS (2018) standardized SDOH screening tool to identify those patients and families at risk.

Ethical Consideration & Protection of Human Subjects

The SDOH QI project's ethical considerations were informed consent, voluntary participation, do no harm, confidentiality, and anonymity. The implementation of the NCDHHS standardized SDOH screening tool provided equitable access to the full HD. Everyone had an equal opportunity when addressing the conditions, they live in that directly impact their health. Thereby aligning with the mission NCDHHS has for all North Carolinians in that everyone "should have the opportunity for health" (n.d.).

Before implementing the SDOH screening tool, the clinic staff needed to be aware of available community resources while addressing the SDOH tool's primary domains should one or more be identified. Potential harm could have occurred during the SDOH screening. In the case of further shaming or perpetuating the trauma of identified social needs. In that case, having supportive resources such as the NCCARE360 platform, public health social workers, and behavioral health specialists to connect the patient and families alleviated the harm.

The local HD does not have an Institutional Review Board (IRB) process. The process for approval was determined by the needs of the clinic and the desire of the clinicians. The QI project's support included the local HD and nursing faculty at East Carolina University (ECU) with IRB QI/Program Evaluation Self-Certification Tool Guidance documentation (See

Appendix E). ECU's Doctor of Nursing Practice (DNP) Program Director granted the QI project's approval. Additional preparation for the approval process required completion of the Collaborative Institutional Training Initiative (CITI) modules. Specifically, Social and Behavioral Research Investigators and Key Personnel and Social and Behavioral Responsible Conduct of Research. These modules focused on reviewing the Belmont Report, Federal Regulations, Informed Consent, Privacy and Confidentiality, and other pertinent regulations. ECU has an IRB approval process, and once the preliminary tools were approved, the ECU IRB approval process occurred.

Section III. Project Design

Project Site and Population

The project site location was a rural county health department (HD) in southeastern North Carolina. The project worked with three clinics within the HD, the primary care clinic, women's and obstetric health clinic, and general clinic. The primary care clinic has one family nurse practitioner, two nurses, and one community health assistant (CHA) working together to see child health, adult health, family planning, and sexually transmitted diseases (STDs). The women's and obstetric health clinic have one women's health nurse practitioner, two nurses, and one CHA working together to care for family planning, women's health, STDs, and maternity care. The general clinic operates with one nurse primarily and other nurses floating to provide additional support. The general clinic patients are seen for the following visits: immunizations, pregnancy tests, lab orders, tuberculosis screening, and medication dispensing.

Furthermore, the staff implementing the NCDHHS standardized SDOH screening tool included CHAs, nurses, and nurse practitioners. Before implementation, an education session was completed to informed clinical staff and non-clinical staff of implementation project specifications. This educational session discussed the QI project goals, SDOH screening tools, staff roles, staff involvement, and answered questions regarding the project. The goal was efficacy for the provider and the patients. However, the project site's barriers and facilitators included incorporating the SDOH screening tool, deciding who administered the tool, and time constraints with scheduled 15 and 30-minute appointments.

Description of the Setting

The project setting was a rural HD in southeastern North Carolina. The HD is a public and state agency serving the local and surrounding communities by assuring its services are

accessible to the population. Accredited by the North Carolina Local Health Department Accreditation Board, the HD satisfies the agency's standards imposed by state law. The HD provides the mandated services of adult health, child health, maternal health, family planning, public health laboratory, home health, and communicable disease control. With additional clinical services, their mission of "Building a Healthier Tomorrow" provides a healthier living for all residents. Funding for the HD comes from various resources; some include federal and state funds, state Medicaid programs, County appropriations, grants, and sliding fee scales based on clinical services. All funding received or spent is budgeted, disbursed, and accounted for by the local government.

Description of the Population

The HD staff implementing the standardized SDOH screening tool for the QI project included one family nurse practitioner, two primary care nurses, one women's health nurse practitioner, one maternal and women's health nurse, one general clinic staff nurse, and two CHAs. All patients being seen within the primary care clinic, women's and obstetric health clinic, and the general clinic were offered to fill out the NCDHHS standardized SDOH screening tool (See Appendix F-K). Furthermore, the Director of Nursing, all medical and nonmedical HD staff were invited to attend the staff educational session outlining the QI project and implementation process. Even though the HD staff was not directly involved in the implementation, it was decided to have everyone aware of the project goals.

The HD has extensive professional training that occurs at hiring and annually. The entire staff must complete Health Insurance Portability and Accountability Act (HIPPA), cultural competency, title VI, health literacy for public health professionals, active shooters, and Occupational Safety and Health Administration (OSHA) training. Furthermore, HD policies are

not limited to Abuse, Neglect, Violence, Bloodborne Pathogens, Civil Rights, Conflict of Interest, cardiopulmonary resuscitation (CPR), Health Disparities, and Non-Discrimination. Additionally, the nursing staff must complete Vaccines for Storage and Handling and Vaccines for Children.

Project Team

There were numerous project team members, including myself as project lead, a site champion, the Director of Nursing (DON), and the faculty of record. Furthermore, additional stakeholders include Nurse Practitioners (NPs), Registered Nurses (RNs), Licensed Practical Nurses (LPNs), and CHAs. As previously mentioned, professional training was dependent on the individual roles of the staff within the HD. Each member of the project team was invaluable. The DON and site champion consistently met informally and formally to collaborate on the QI project stages. The faculty of record guided the QI process and clinical program evaluation by reviewing submissions and scheduling regular intervals to discuss project progression and address concerns. Finally, the critical stakeholders such as the NPs, RNs, LPNs, CHAs were vital as they played an instrumental part in the project by implementing the SDOH tool.

Project Goals and Outcome Measures

The QI project's primary goal was to implement the NCDHHS standardized SDOH screening tool to maximize healthcare provider referrals for unmet needs within the HD. Before the implementation of the QI project began, approval from the HD and ECU was completed. The HD has no formal IRB approval; however, ECU does have a formal IRB approval process that requires completion of CITI modules and application documentation. The data analysis was recorded in Google sheets, Microsoft® Excel spreadsheet, Microsoft® Word document, and stored on a password-protected personal computer and analyzed at the end of the process.

Evaluation of the process measures and outcomes were determined by looking at staff fidelity and healthcare provider referral rates (See Appendix L).

Description of the Methods and Measurement

For the QI project, the NCDHHS standardized SDOH screening tool was administered to patients seen in the primary care clinic, women's and obstetric health clinic, and general clinic at the HD (See Appendix E-J). Therefore, assessing any unmet social needs and increasing healthcare providers referral rates to community resources within the HD. As the data was collected, it was essential for staff buy-in to implement the QI project to support performing the future screenings for SDOH. Additional process measurement evaluated how many patients were screened and what clinics administered the tool, thus determining whether there was an increase in healthcare provider referrals.

Discussion of the Data Collection Process

Data collection occurred once to twice a week over the entire 12-week implementation period beginning in January 2021, ending in April 2021. There were color-coded NCDHHS standardized SDOH screening tools printed in English and Spanish, front and back for each of the three participating clinics, primary care, women’s health and obstetrics, and general clinic. Each clinic had a designated color of paper, purple for the primary care clinic, pink was for the women’s health and obstetrics clinic, and yellow was for the general clinic. Each week the tools were dropped off and picked up at the HD on Monday mornings unless otherwise due to scheduled time off or state holiday. The project lead distributed the SDOH screening tools to each of the participating clinics. A collection basket was placed in each clinic where staff placed the completed or refused SDOH screening tools. All forms were to be placed in the collection basket by 1700 Friday afternoon and collected by the project lead on Monday morning at 0730

before patients arrive at 0800. After SDOH screening tools had been picked up, the data was recorded in Google sheets, Microsoft® Excel spreadsheet, Microsoft® Word document, and stored on a password-protected personal computer with no identifying data specific to staff or patients.

Implementation Plan

The project implemented the NCDHHS standardized SDOH screening tool to increase healthcare provider referral rates to community resources within an HD in rural southeastern North Carolina. The plan included an educational session with a Microsoft PowerPoint® before implementation (See Appendix M). The educational session allowed all HD medical and nonhealthcare staff to gain knowledge, recommendations, resources and answer any questions about implementing the SDOH screening tool (See Appendix M-N). When implementing the SDOH screening tool, each clinic began with 50 screening tools in both languages, English and Spanish, front and back. These were brought to the HD weekly for 12 weeks. Drop off and pick up occurred most Monday mornings at 0730 unless due to holiday or scheduling. All participating clinics initially received 50 screening tools and a collection basket for each clinic. The basket was used for placing completed and refused screening tools in by 1700 on Friday afternoons. Each week using Donabedian's model, an assessment of the HDs structure, process, and outcomes were evaluated.

Once the tools were collected, the information was entered into Google sheets, Microsoft® Excel spreadsheet, and Microsoft® Word document. The data collected was kept on a password-protected personal computer with no identifying information. Throughout the 12-week implementation period, additional staff support and post-educational sessions took place as needed. Furthermore, continuous evaluation using Donabedian's model occurred weekly with the

project site, and site champion meetings face to face on Mondays and by telephone on Fridays or as needed. A faculty of record meeting took place at least once a month throughout the entire semester.

Timeline

From May of 2020 through August 2020, the initial identification of a QI project took place at the HD. During this time, a project team's development began while inviting project members and scheduling meeting dates. As the project continued progressing, the aim statement and project goals were determined. Before ending the semester, an implementation tool was chosen with the foundation of literature research.

From August 2020 through November 2020, the development of specific QI content was completed. Including the completion of CITI training modules, IRB tool worksheets, and the completion of IRB application. The staff educational session was presented in January to inform and educate all HD staff.

Beginning in January 2021, the implementation process began and continued for 12 weeks. During that timeframe, a review and evaluation of the structure, process, and outcomes while making adjustments determined the project implementation tool's utilization. Finally, in the last semester of the DNP project course, disseminating the project and the findings will occur to ECU and the project site. See Appendix O for a timeline.

Section IV. Results and Findings

Results and Outcomes Data

The implementation data was collected from January 25, 2021, through April 16, 2021. The three clinics had a total 965 patient appointments. Completed SDOH patient screenings were 310 for a screening completion rate of 32%. Additionally, evaluating the data from each of the three clinics implementing the usage of the SDOH screening tool, a closer look revealed: (1) Primary Care saw 295 patients and 69 patients completed screenings for a total 23%; (2) Women's Health and Obstetrics saw 342 patients and 227 patients completed screenings for a total of 66%; (3) General Clinic saw 328 patients and 14 patients completed screenings for a total of 4%. See Table 1 for a visualization.

Table 1

Number of Patients Seen and Completed SDOH Screening Tools

Clinic	Number of Patients Seen	Number of Patients Screened	Percentage of Screened
Primary Care	295	69	23%
Women's Health and Obstetrics	342	227	66%
General Clinic	328	14	4%
Total	965	310	32%

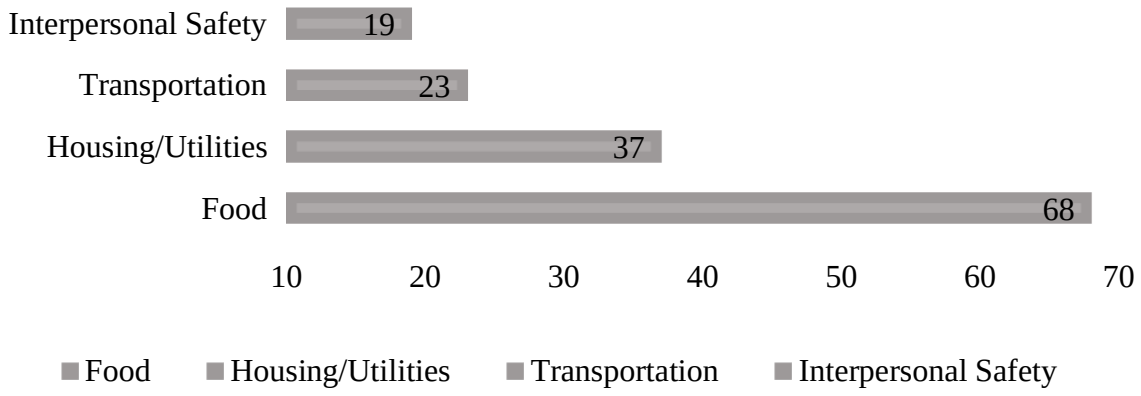
Note. This table demonstrates the three clinics that participated in the implementation of the SDOH screening tool. Percentages were calculated based on the number of patients screened to the number of patients seen in each clinic.

Furthermore, out of 310 completed SDOH screenings, 142 referrals were made to assist patients with one or more SDOH domains. Thus, of those patients screened for SDOH 46%

needed referrals to one or more SDOH domains. Taking a closer look at the 142 referrals made: 68 referrals were related to food; 37 referrals were related to housing and utilities; 23 were for transportation; 19 referrals were related to interpersonal safety; and 40 were urgent referrals (See Figure 1 below).

Figure 1

Number of Referrals



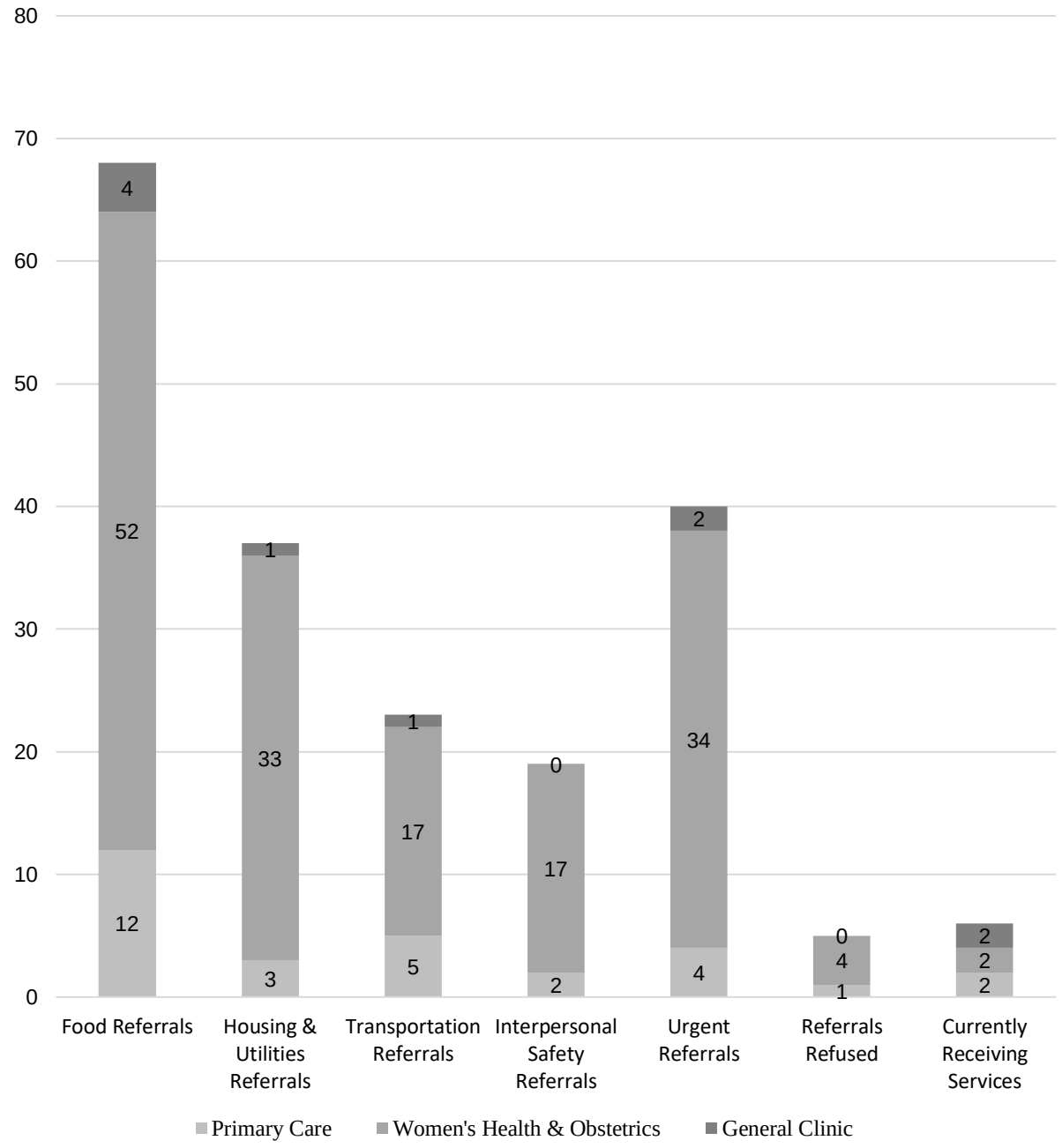
Note. This clustered bar graph shows the number of referrals made to each of the four domains addressed on the SDOH screening tool.

Additionally, evaluating the data from each of the three clinics revealed the specific data related to the collection site referrals based on the specific site and collection of data: (1) Primary Care, food referral 12, housing and utilities three, transportation five, interpersonal safety two, urgent referral four, referral refusal one, and currently receiving services two; (2) Women's Health and Obstetrics, food referral 52, housing and utilities 33, transportation 17, interpersonal safety 17, urgent referral 34, referral refusal four, and currently receiving services two; (3) General Clinic, food referral four, housing and utilities one, transportation one, interpersonal

safety zero, urgent referral two, referral refusal zero, and currently receiving services (See Figure 3 below).

Figure 2

Model Displaying Referral Content For Each Site



Note. The stacked column graph above represents each of the three clinics and the referrals to one or more SDOH domains, urgent referrals, refused referrals, and currently receiving services.

Discussion of Major Findings

A result of this project was that 310 patients completed the form, and of those, 142 (46%) patients received one or more referrals for services (See Appendix P). During the 12-week implementation, 68 referrals (46%) were related to food insecurity, and 37 referrals (25%) were completed for assistance with housing and utilities. Additionally, data collected revealed that 23 (16%) transportation referrals and 19 (13%) interpersonal safety referrals were made. The 2018 Community Health Assessment (CHA) in Pender County revealed that 14.5% of its population are considered food insecure, and 18% of the residents live in an inadequate infrastructure (Pender County Government, 2018). Pender County does not have public transportation; however, Medicaid recipients may contact the Department of Health and Human Services to arrange for Medicaid-covered transportation. In addition, for a small fee, residents may use a ride service provided by Pender Adult Services.

The QI project demonstrated the need for integration of social health needs to evaluate the whole person. Also, developing a list of referral resources in languages native to patients may connect them to needed services within the community, such as food banks and housing assistance programs. Aligning with NCDHHS view of the whole person's well-being and Healthy North Carolina 2030 desired results are to improve health and promote value to all North Carolinians (North Carolina Institute of Medicine. 2020).

Section V. Interpretation and Implications

Costs Benefit Analysis

The project's estimated costs for implementing the QI project were approximately $978.34 (see Appendix Q). A projected benefit in cost is the free SDOH screening tool, and that patients can complete the screening themselves. With minimal expenses in office supplies and time, patients spend completing the tool. The most considerable expense would be the annual salary of a patient care coordinator at $28,036 in Pender County (Zippia, 2021). Additional project benefits included voluntary screening within three clinics to everyone willing to participate in screening for SDOH, referrals to identified unmet health-related social needs, and printed materials with community resources and services.

Screening for SDOH was simple and required minimal cost with benefits to provide whole-person care and intervene early to achieve optimal health outcomes. In a Kaiser Permanente, Social Needs in America survey, a sample of 1,006 adults 18 years and older found that "if faced with a $500 emergency expense, more than one-in-ten Americans (13%) would need to redirect funds from their food budget to cover the expense" (Kaiser Permanente, 2019, p.1). Unmet social needs lead to negative consequences to the individuals' health outcomes; however, screening for SDOH will improve care quality, lower health care costs, improve collaboration, and address social needs (Horwitz et al., 2020; NACHC, 2020).

Resource Management

The component of the QI project that guided the success of implementing the SDOH screening tool was the staff's willingness to support screening patients for SDOH. The project data identified that the highest percentage of patients screened was among patients receiving care in the Women's Health and Obstetrics clinic. When discussing with the Women's Health and

Obstetrics clinic staff, it was determined that the workflow included the implementation of the form and was easily accessible to the staff during the initial encounter with the patient while capturing vital signs. The other two clinics did not adopt the same workflow and would forget to hand out screening tools to the patients. When regarding Table 1, the data shows that these clinics screened fewer patients. If the project were to be implemented again or on a larger scale, it would be imperative to upload the SDOH screening tool into the electronic medical record (EMR) to ensure everyone has an opportunity to be screened equally.

Implications of the Findings

Implications for Patients

SDOH are interrelated and have a significant and lasting impact on patients, populations, and communities (ODPHP, 2020). It matters where you live, where you learn, where you work, your socioeconomic status, and race because it impacts access to health promotion. Challenges vary geographically and tend to affect lower-income neighborhoods in ways of goods and services disproportionately. The impact of unmet social needs and their role on one's health may contribute to poor health outcomes, increased risk for chronic diseases, unnecessary use of emergency medical services, and hospitalizations (Buitron de la Vega et al., 2019). Access to medical care is crucial to patients. Social factors may determine the patients' overall health and thus influence them as well. A transformation must emerge to address SDOH through standardized screening for individuals' health and unmet social needs.

Implications for nursing practice

Nurses play an essential role at the frontline of patient care and identify the overall health of the individual, family, and community. The role of nurses is to foster patient relationships, drive the improvement of quality care and patient experiences. The SDOH impacts not only

affect patient health but healthcare costs as well. Nursing practice has a long history of leaders focusing on SDOH. Florence Nightingale addressed hygiene, nutrition, social network, and Lillian Wald, the founder of public health nursing, treated social and economic problems (Olshansky, 2017).

The implications that the role nurses play in SDOH begins with the rapport with the individuals and families. Then addressing with a standardized SDOH tool what the patient challenges are: lack of housing, transportation, food, and abuse. The nurse is well-positioned to support the patient and family in dealing with the challenges. Nursing practice is integral in the transformation of SDOH into patient care. Nurses must be knowledgeable and identify and address the unmet social needs through screening SDOH to improve individuals' and populations' health.

Impact for Healthcare System(s)

The Medicaid Managed Care transformation is underway across NC and will be transitioning from a fee-for-service to managed care. In a fee-for-service plan, the state pays a set provider directly for each covered service, and in the managed care plan, the state pays a fee to a managed care plan for each person enrolled in the plan (NCDHHS, 2021). The vision is to improve healthcare quality and patients' health outcomes to address medical and non-medical needs for individuals and families. Medicaid transformation is changing how NC manages the care for most receiving Medicaid, with services managed under one of two new plans. Having unmet social needs can significantly impact the health and well-being of individuals and increase healthcare costs. With the Healthy Opportunities pilot program and the utilization of the SDOH screening tool, NC aims to improve health, safety, and well-being that aligns with the Medicaid Managed Care transformation. Additionally, implementing the SDOH aligns with IHIs Triple

Aim objectives to improve populations' health and patient experiences and reduce care costs (IHI, 2020).

Sustainability

The implementation process for this QI project has enabled the HD to identify social factors, physical conditions, and environmental factors, such as housing and utilities. These SDOH are affecting the patients and families beyond the standard care received in three clinics. The application of the SDOH screening tool and questions takes approximately five minutes to administer. The data collected is robust and will be used to inform programs and guide interventions at both the local and state levels by integrating information and resources found in the NCCARE360 platform and additional community resources (NCCARE360, 2021). The key to sustainability is embedding the SDOH screening tool into the EMR with all routine clinic appointments and screenings. The screening tool can be implemented during the patient interview with clinic staff. Despite the completion of an additional screening tool, the information will ensure screening efforts are offered and tracked so that the HD may understand the drivers of health care or SDOH within the population served. Furthermore, discovering the role on the population's overall health, such as where the patient lives, do they access to buy food and transportation.

Dissemination Plan

The QI project results and findings were presented to the HD. A phone call was made to the NCDHHS Healthy Opportunities to discuss their interest in scheduling a meeting with the Project Lead and Faculty of Record to discuss data collection and usage of the SDOH screening tool. At this present time, no meeting has been scheduled. The project overview and findings were presented during DNP poster presentation day at ECU’s College of Nursing on July 13,

2021, sharing components of the QI project with the DNP Project Team and DNP Program Director. Additionally, a final draft of the DNP paper was submitted to the ECUs ScholarShip repository for public access. Submissions must have approval from the mentor before submitting. A manuscript will be submitted to *The Journal of Community Health* sometime later in the Fall of 2021 (https://www.springer.com/journal/10900/submission-guidelines). Finally, an abstract will be submitted to the *National Rural Health Association's Annual Rural Health Conference* for poster presentation, and the conference is set to take place in May 2022 (https://www.ruralhealthweb.org). See Appendix O for a timeline.

Section VI. Conclusion

Limitations and Facilitators

Project Limitations

There were several limitations discovered throughout the implementation of the QI project. The usage of printed resources was only in English, and therefore the Project Lead relied on the Spanish Interpreter to verbally provide resource information to Spanish-speaking participants. The usage of the SDOH screening tools varied in all three clinics. The Women's Health and Obstetrics clinic had a standardized reminder for performing the screening; they set up the clipboard with the tools at the vital sign desk. The other two clinics did not utilize any system, solely based screening on memory. With only a four percent rate in General Clinic, this at first glance appears to be a low rate; however, those visits are one episodic service visit. Meaning clinic visits for immunizations, contraceptive visits, pregnancy tests, or tuberculosis screening.

Other concerns raised included screening tool fatigue by staff, staff forgetfulness, staff turnover, lack of workflow, and the screening tools printed on paper instead of electronically embedded into the EMR. Perhaps one of the more significant setbacks to screening was the COVID-19 pandemic. Due to the COVID-19 pandemic and COVID-19 vaccine clinics, the entire HD healthcare staff worked tirelessly, and as a result, the SDOH screening tools were not completed or lost to follow-up. Staff experienced burnout and turnover during COVID-19, further reducing the administration of the SDOH screening tools. Also, the Primary Care clinic and General Clinic were closed so that healthcare staff could help alleviate the volume of COVID-19 vaccines, resulting in a lower census and fewer completed screenings for the two clinics.

Project Facilitators

Project benefits include a QI project site that was fully operational during the COVID-19 pandemic and staff commitment from the site champion and other healthcare staff who saw the need for implementing an SDOH screening tool. Having the staff buy-in of the SDOH screening tool enhanced the connection to resources and referrals placed. Additionally, the site champion included supplemental International Classification of Diseases 10th Revision (ICD-10) codes in diagnosis and problem list to help track social needs and further improve quality initiatives. An advantage was that a screening tool was already in existence, and it was easily downloadable, available in multiple languages, and easy to fill complete with yes or no options. The SDOH screening tool was free of charge and part of the Healthy Opportunities Pilot program steered by NCDHHS, a partnership of the HD.

Recommendations for Others

Recommendations for others will be to create a framework and infrastructure that can support and promote screening SDOH. Using the downloadable NCDHHS Healthy Opportunities SDOH screening questions and uploading the various languages into the EMR will be the first step. The next step would be to address the workflow, especially the when and how the screening tool is administered and to whom it is administered. It is best to determine which staff will administer the tool, who will address referrals, and follow up after referrals, and a standard process for documenting referrals. Providing the printed resources in languages for all patients screened is recommended. Finally, the healthcare provider may use the supplemental ICD-10 codes to address social factors and capture the SDOH.

Recommendations Further Study

Future work on the project would be to expand the usage of the SDOH tool to all clinics and patients seen in the HD. To then take the next step and expand across the state to other HDs. With the assistance of the NCDHHS Healthy Opportunities Pilot program, this is already occurring in some capacity in participating facilities and for Medicaid recipients. Additionally, launching a collaborative effort to utilize the NCCARE 360 network connects individuals and families to local services and resources. Furthermore, other settings to consider might include private practices in underserved communities, hospital-based patient navigators, community health workers, and religious organizations that could facilitate a health screening program. All these individuals speak the language and live the culture and conditions. Simply changing the narrative about SDOH contributes to changing the attitudes and achieving support.

Final Thoughts

Healthcare leaders must recognize that SDOH shapes the daily lives of the individual, family, and populations. Health is much more than medical care; it is access to food, transportation, housing and utilities, and personal safety. One could not simply ignore social factors that have a vast impact on one's health. Early screening and identification of SDOH through standardized screening influences health outcomes, costs, and effective interventions to address the underlying social factors influencing health. Overall, the QI project was beneficial in addressing SDOH and unmet social needs for individuals and their families. Screening enhanced the participants' access to community resources and referrals for unmet needs.

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Appendix A

Literature Matrix

Authors	Year Pub	Article Title	Journal	Purpose and take home message	Design/Analysis/Level of Evidence	Instr. Used	Sample method
Messmer, E., Brochier, A., Joseph, M., Tripodis, Y., & Garg, A.	2020	Impact of an on-site versus remote patient navigator on pediatricians' referrals and families receipt of resources for unmet social needs.	Journal of Primary Care & Community Health	To assess whether a patient navigator located on-site versus remotely is more likely to receive referrals from clinicians, successfully follow-up	randomized control trial (RCT)	social needs screening and referral care model (WE CARE [Well-child care, Evaluation, Community resources, Advocacy, Referral, Education])	Interviewed students at 3 universities. 4 federally qualified health centers (FQHCs)
Gold, R., Cottrell, E., Bunce, A., Middendorf, M., Hollombe, C., Cowburn, S., Mahr, P., & Melgar, G.	2017	Developing electronic health record (EHR) strategies related to health center patients' social determinants of health.	The Journal of the American Board of Family Medicine	Help community health centers (CHCs) document patients' SDH data in EHRs could yield substantial health benefits	Pilot study	Several options for SDH data entry included: Documentation flowsheets were accessible, article version of the SDH questions in English and Spanish, questionnaire on the patient portal. Used PRAPARE	First phase of pilot study.

Gold, R., Bunce, A., Cottrell, E., Marino, M., Middendorf, M., Cowburn, S., Wright, D., Mossman, N., Dambrun, K., Powell, B. J., Grub, I., Gottlieb, L., Dearing, M., Scott, J., Yosuf, N., & Krancari, M.	2019	Study protocol: A pragmatic, stepped-wedge trial of tailored support for implementing social determinants of health documentation/action in community health centers, with realist evaluation	Implementation Science	focus on adoption of electronic health record documentation of social determinants of health data and processes, and also consider the health impacts of this adoption	Mixed-methods, stepped-wedge, cluster-randomized trial, Level 2	step by step guidance on EHR based SDOH. Used PRAPARE	5-year study with outcome measures guided by RE-AIM framework, the outcomes were measured monthly.

Henrikson, N. B., Blasi, P. R., Dorsey, C. N., Mettert, K. D., Nguyen, M. B., Walsh-Bailey, C., Macuiba, J., Gottlieb, L. M., & Lewis, C. C.	2019	Psychometric and pragmatic properties of social risk screening tools: A systematic review	American Journal of Preventative Medicine	Literature used to identify empirical uses of screening tools that addressed at least two social risk factors (economic stability, education, social and community context, healthcare access, neighborhood and physical environment, or food). identify currently available social risk screening tools for use in clinical settings.	Systematic review, Level 1	Multi-domain was used and included at least 1 social risk screening question in 2 or more domains. The databases identified articles published January 1, 2000 to May 18, 2018.	Reviewed 6,838 citations

Kranz, A. M., Mahmud, A., Agniel, D., Damberg, C., & Timbie, J. W.	2020	Provision of social services and health care quality in US community health centers, 2017	American Journal of Public Health	To describe the types of social services provided at community health centers (CHCs), characteristics of CHCs providing these services, and the association between on-site provision and health care quality.	Cross-sectional study	web-based survey to 407 HRSA-funded CHCs in 12 states and District of Columbia.	survey
Stenmark, S. H., Steiner, J. F., Marpadga, S., Debor, M., Underhill, K., & Seligman, H.	2018	Lessons learned from implementation of the food insecurity screening and referral program at kaiser permanente colorado	Permanente Journal	Health care systems have a pivotal role in improving the quality of screening for food insecurity and referring patients to resources.	Analysis of barriers encountered and the lessons learned from implementating KPCO food insecurity screening and referral program	Initially the program handed patients a card with a phone number and instructed them to call. Finally due to low rates of improvement a representative would contact the patient.	Pilot Study

Herrera, C. N., Brochier, A., Pellicer, M., Garg, A., & Drainoni, M. L.,	2019	Implementing social determinants of health screening at community health centers: Clinician and staff perspectives	Journal of Primary Care & Community Health	SDOH screening is beneficial in supporting the mission of CHCs by identifying unmet social needs.	cluster randominzed control trial of SDOH model	How staff responded to the WECARE model	semistructed qualitative interview using the Promoting Action on Research Implementation in Health Services (PARIHS) framework. The interview assessed staffs reaction to the augmented WECARE model and the challenges.
Byhoff, E., Garg, A., Pellicer, M., Diaz, Y., Yoon, G. H., Charns, M. P., & Drainoni, M. L.	2019	Provider and staff feedback on screening for social and behavioral determinants of health for pediatric patients.	Journal of the American Board of Family Medicine	The SDOH screening tool currently used in Boston CHCs needs improvement to the workflow and process of individualizing referrals. This needs to happen with providers and clinical staff in the process.	Mixed Method study	WECARE screening took place and data on screening form implementation such as when during the visit were screenings performed, who completed the form, types of patients screened, any subpopulations targeted	Interviews at 3 sites

Buitron de la Vega, P., Losi, S., Sragué Martinez, L., Bovell-Ammon, A., Garg, A., James, T., Ewen, A. M., Stack, M., DeCarvalho, H., Sandel, M., Mishuris, R. G., Deych, S., Pelletier, P., & Kressin, N.	2019	Implementing an EHR-based screening and referral system to address social determinants of health in primary care.	Medical Care	To understand the burden of SDOH amongst patients and evaluate implementation of a strategy to screen new primary care patients for the SDOH using technology while provided printed resources.	Observational study	EHR based SDOH screening adapted from WECARE	Screened using adapted WECARE model
Garg, A., Butz, A. M., Dworkin, P. H., Lewis, R. A., Thompson, R. E., & Serwint, J. R.	2007	Improving the management of family psychosocial problems at low-income children's well-child care visits: The WE CARE project	Pediatrics	Evaluate feasiblity and impact of interventions of family psychosocial topics at well-child care visits. A brief family psychosocial screening is feasible in practice.	randomized control trial (RCT)	10-item self report psychological screening instrument	Random assignment either in intervention group or control group

Appendix B

Standardized SDOH Screening Questions: English

Health Screening

We believe everyone should have the opportunity for health. Some things like not having enough food or reliable transportation or a safe place to live can make it hard to be healthy. Please answer the following questions to help us better understand you and your current situation. We may not be able to find resources for all of your needs, but we will try and help as much as we can.

	Yes	No
Food		
1. Within the past 12 months, did you worry that your food would run out before you got money to buy more?		
2. Within the past 12 months, did the food you bought just not last and you didn't have money to get more?		
Housing/ Utilities		
3. Within the past 12 months, have you ever stayed: outside, in a car, in a tent, in an overnight shelter, or temporarily in someone else's home (i.e. couch-surfing)?		
4. Are you worried about losing your housing?		
5. Within the past 12 months, have you been unable to get utilities (heat, electricity) when it was really needed?		
Transportation		
6. Within the past 12 months, has a lack of transportation kept you from medical appointments or from doing things needed for daily living?		
Interpersonal Safety		
7. Do you feel physically or emotionally unsafe where you currently live?		
8. Within the past 12 months, have you been hit, slapped, kicked or otherwise physically hurt by anyone?		
9. Within the past 12 months, have you been humiliated or emotionally abused by anyone?		
Optional: Immediate Need		
10. Are any of your needs urgent? For example, you don't have food for tonight, you don't have a place to sleep tonight, you are afraid you will get hurt if you go home today.		
11. Would you like help with any of the needs that you have identified?		

Appendix C

Standardized SDOH Screening Questions: Spanish

Evaluación de salud

Nosotros creemos que todas las personas deberían tener la oportunidad de estar sanas. Algunas cosas como no tener suficiente alimento, transporte confiable o un lugar seguro dónde vivir, pueden hacer difícil que se encuentre sano. Por favor responda las siguientes preguntas para ayudarnos a entender mejor su situación actual. Quizá no podamos encontrar recursos para todas sus necesidades, pero intentaremos ayudarle en todo lo posible.

	Sí	No
Alimentos		
1. En los últimos 12 meses, ¿tuvo la preocupación de que se le iba a acabar el alimento antes de tener dinero para comprar más?		
2. En los últimos 12 meses, ¿el alimento que compró no le rindió y no tuvo dinero para comprar más?		
Vivienda/Servicios públicos		
3. En los últimos 12 meses, ¿ha tenido que quedarse a la intemperie, en un auto, tienda de campaña, refugio público o temporalmente en casa de alguien -quedándose en el sofá-?		
4. ¿Le preocupa la posibilidad de perder su casa?		
5. En los últimos 12 meses, ¿no le fue posible tener servicios públicos -calefacción, electricidad- cuando tenía gran necesidad de ellos?		
Transporte		
6. En los últimos 12 meses, ¿la falta de transporte le ha impedido llegar a citas médicas o realizar actividades de la vida diaria?		
Seguridad interpersonal		
7. ¿Se siente usted inseguro física o emocionalmente en donde vive actualmente?		
8. En los últimos 12 meses, ¿alguien le ha golpeado, cacheteado, pateado o lastimado físicamente?		
9. En los últimos 12 meses, ¿alguien le ha humillado o ha abusado emocionalmente de usted?		
Optional: Necesidad inmediata		
10. ¿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.		
11. ¿Le gustaría tener ayuda en cualquiera de las necesidades que usted ha identificado?		

Appendix D

Permission from the [redacted] to use the SDOH Screening Tool

[redacted]

Help protect your family and neighbors from COVID-19
Know the 3Ws. Wear. Wait. Wash.
#StayStrongNC and get the latest at nc.gov/covid19

[redacted]

[redacted]
2009 Mail Service Center
Raleigh, NC 27699-2009

Twitter | Facebook | YouTube | LinkedIn

Hi Pamela,

Yes, you can use the SDOH screening tool for your project. DHHS has made the screening tool publicly available to providers, social serveices agencies and community organizations to use.

Thank you,
[redacted]

Appendix E

Project Site Letter of Support

[redacted] County
Health Department

...Building a healthier tomorrow...

[redacted]
Health and Human Services Director

October 21, 2020

To East Carolina University College of Nursing:

We at [redacted] County Health Department have reviewed Pamela Balogh's DNP Project Proposal "*Social Determinants of Health.*" Ms. Balogh has organizational support and approval to conduct her Doctor of Nursing Practice student project within our health department. Our organization's liaison for the project is [redacted]

We understand that the timeframe for this project is from the date of this letter through November 30, 2020. Implementation at the project site will occur January 2021 through April 2021, unless otherwise negotiated. We understand that for Ms. Balogh to achieve completion of the DNP program, dissemination of the project is required by the University and will include a public presentation related to the project and submission to the ECU digital repository, The ScholarShip. In addition, we understand that ECU College of Nursing encourages students completing exemplary scholarship to develop a manuscript for publication, but that is not a requirement. Our organization understands and agrees that the student will not use our organization's name in the formal project paper or any subsequent posters, presentations, or publications.

Our organization has deemed this project as a quality improvement initiative. Our organization is aware that this project will be processed first through our organizational approval process and then through the ECU College of Nursing process, which may include a formal review through University and Medical Center Institutional Review Board of East Carolina University (UMCIRB), if needed. Our organization does not have an Institutional Review Board (IRB). We are aware that in the absence of an organizational IRB, the project will be submitted through the ECU College of Nursing review process which may include UMCIRB review if needed.

Thank you.

In the Spirit of Public Health

[redacted]

Appendix F

Standardized SDOH Screening Questions Used in Primary Care Clinic: English

Primary Care Clinic: Health Screening

We believe everyone should have the opportunity for health. Some things like not having enough food or reliable transportation or a safe place to live can make it hard to be healthy. Please answer the following questions to help us better understand you and your current situation. We may not be able to find resources for all of your needs, but we will try and help as much as we can.

	Yes	No
Food		
1. Within the past 12 months, did you worry that your food would run out before you got money to buy more?		
2. Within the past 12 months, did the food you bought just not last and you didn't have money to get more?		
Housing/ Utilities		
3. Within the past 12 months, have you ever stayed: outside, in a car, in a tent, in an overnight shelter, or temporarily in someone else's home (i.e. couch-surfing)?		
4. Are you worried about losing your housing?		
5. Within the past 12 months, have you been unable to get utilities (heat, electricity) when it was really needed?		
Transportation		
6. Within the past 12 months, has a lack of transportation kept you from medical appointments or from doing things needed for daily living?		
Interpersonal Safety		
7. Do you feel physically or emotionally unsafe where you currently live?		
8. Within the past 12 months, have you been hit, slapped, kicked or otherwise physically hurt by anyone?		
9. Within the past 12 months, have you been humiliated or emotionally abused by anyone?		
Optional: Immediate Need		
10. Are any of your needs urgent? For example, you don't have food for tonight, you don't have a place to sleep tonight, you are afraid you will get hurt if you go home today.		
11. Would you like help with any of the needs that you have identified?		

****Follow up: Completed by [redacted] County Health Department Staff (Nurses/Providers) only****

Referral Completed	Yes	No
Referral Refused	Yes	No
Already Receiving Services	Yes	No

Appendix G

Standardized SDOH Screening Questions Used in Primary Care Clinic: Spanish

Primary Care Clinic: Evaluación de salud

Nosotros creemos que todas las personas deberían tener la oportunidad de estar sanas. Algunas cosas como no tener suficiente alimento, transporte confiable o un lugar seguro dónde vivir, pueden hacer difícil que se encuentre sano. Por favor responda las siguientes preguntas para ayudarnos a entender mejor su situación actual. Quizá no podamos encontrar recursos para todas sus necesidades, pero intentaremos ayudarle en todo lo posible.

	Sí	No
Alimentos		
1. En los últimos 12 meses, ¿tuvo la preocupación de que se le iba a acabar el alimento antes de tener dinero para comprar más?		
2. En los últimos 12 meses, ¿el alimento que compró no le rindió y no tuvo dinero para comprar más?		
Vivienda/Servicios públicos		
3. En los últimos 12 meses, ¿ha tenido que quedarse a la intemperie, en un auto, tienda de campaña, refugio público o temporalmente en casa de alguien -quedándose en el sofá-?		
4. ¿Le preocupa la posibilidad de perder su casa?		
5. En los últimos 12 meses, ¿no le fue posible tener servicios públicos -calefacción, electricidad- cuando tenía gran necesidad de ellos?		
Transporte		
6. En los últimos 12 meses, ¿la falta de transporte le ha impedido llegar a citas médicas o realizar actividades de la vida diaria?		
Seguridad interpersonal		
7. ¿Se siente usted inseguro física o emocionalmente en donde vive actualmente?		
8. En los últimos 12 meses, ¿alguien le ha golpeado, cacheteado, pateado o lastimado físicamente?		
9. En los últimos 12 meses, ¿alguien le ha humillado o ha abusado emocionalmente de usted?		
Optional: Necesidad inmediata		
10. ¿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.		
11. ¿Le gustaría tener ayuda en cualquiera de las necesidades que usted ha identificado?		

****Follow up: Completed by [redacted] County Health Department Staff (Nurses/Providers) only****

Referral Completed	Yes	No
Referral Refused	Yes	No
Already Receiving Services	Yes	No

Appendix H

Standardized SDOH Screening Questions Used in Women's and Obstetric Clinic: English

Women's Health and Obstetric Clinic: Health Screening

We believe everyone should have the opportunity for health. Some things like not having enough food or reliable transportation or a safe place to live can make it hard to be healthy. Please answer the following questions to help us better understand you and your current situation. We may not be able to find resources for all of your needs, but we will try and help as much as we can.

	Yes	No
Food		
1. Within the past 12 months, did you worry that your food would run out before you got money to buy more?		
2. Within the past 12 months, did the food you bought just not last and you didn't have money to get more?		
Housing/ Utilities		
3. Within the past 12 months, have you ever stayed: outside, in a car, in a tent, in an overnight shelter, or temporarily in someone else's home (i.e. couch-surfing)?		
4. Are you worried about losing your housing?		
5. Within the past 12 months, have you been unable to get utilities (heat, electricity) when it was really needed?		
Transportation		
6. Within the past 12 months, has a lack of transportation kept you from medical appointments or from doing things needed for daily living?		
Interpersonal Safety		
7. Do you feel physically or emotionally unsafe where you currently live?		
8. Within the past 12 months, have you been hit, slapped, kicked or otherwise physically hurt by anyone?		
9. Within the past 12 months, have you been humiliated or emotionally abused by anyone?		
Optional: Immediate Need		
10. Are any of your needs urgent? For example, you don't have food for tonight, you don't have a place to sleep tonight, you are afraid you will get hurt if you go home today.		
11. Would you like help with any of the needs that you have identified?		

****Follow up: Completed by [redacted] County Health Department Staff (Nurses/Providers) only****

Referral Completed	Yes	No
Referral Refused	Yes	No
Already Receiving Services	Yes	No

Appendix I

Standardized SDOH Screening Questions Used in Women's and Obstetric Clinic: Spanish

Women's and Obstetric Clinic: Evaluación de salud

Nosotros creemos que todas las personas deberían tener la oportunidad de estar sanas. Algunas cosas como no tener suficiente alimento, transporte confiable o un lugar seguro dónde vivir, pueden hacer difícil que se encuentre sano. Por favor responda las siguientes preguntas para ayudarnos a entender mejor su situación actual. Quizá no podamos encontrar recursos para todas sus necesidades, pero intentaremos ayudarle en todo lo posible.

	Sí	No
Alimentos		
1. En los últimos 12 meses, ¿tuvo la preocupación de que se le iba a acabar el alimento antes de tener dinero para comprar más?		
2. En los últimos 12 meses, ¿el alimento que compró no le rindió y no tuvo dinero para comprar más?		
Vivienda/Servicios públicos		
3. En los últimos 12 meses, ¿ha tenido que quedarse a la intemperie, en un auto, tienda de campaña, refugio público o temporalmente en casa de alguien -quedándose en el sofá-?		
4. ¿Le preocupa la posibilidad de perder su casa?		
5. En los últimos 12 meses, ¿no le fue posible tener servicios públicos -calefacción, electricidad- cuando tenía gran necesidad de ellos?		
Transporte		
6. En los últimos 12 meses, ¿la falta de transporte le ha impedido llegar a citas médicas o realizar actividades de la vida diaria?		
Seguridad interpersonal		
7. ¿Se siente usted inseguro física o emocionalmente en donde vive actualmente?		
8. En los últimos 12 meses, ¿alguien le ha golpeado, cacheteado, pateado o lastimado físicamente?		
9. En los últimos 12 meses, ¿alguien le ha humillado o ha abusado emocionalmente de usted?		
Optional: Necesidad inmediata		
10. ¿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.		
11. ¿Le gustaría tener ayuda en cualquiera de las necesidades que usted ha identificado?		

****Follow up: Completed by [redacted] County Health Department Staff (Nurses/Providers) only****

Referral Completed	Yes	No
Referral Refused	Yes	No
Already Receiving Services	Yes	No

Appendix J

Standardized SDOH Screening Questions Used in General Clinic: English

General Clinic: Health Screening

We believe everyone should have the opportunity for health. Some things like not having enough food or reliable transportation or a safe place to live can make it hard to be healthy. Please answer the following questions to help us better understand you and your current situation. We may not be able to find resources for all of your needs, but we will try and help as much as we can.

	Yes	No
Food		
1. Within the past 12 months, did you worry that your food would run out before you got money to buy more?		
2. Within the past 12 months, did the food you bought just not last and you didn't have money to get more?		
Housing/ Utilities		
3. Within the past 12 months, have you ever stayed: outside, in a car, in a tent, in an overnight shelter, or temporarily in someone else's home (i.e. couch-surfing)?		
4. Are you worried about losing your housing?		
5. Within the past 12 months, have you been unable to get utilities (heat, electricity) when it was really needed?		
Transportation		
6. Within the past 12 months, has a lack of transportation kept you from medical appointments or from doing things needed for daily living?		
Interpersonal Safety		
7. Do you feel physically or emotionally unsafe where you currently live?		
8. Within the past 12 months, have you been hit, slapped, kicked or otherwise physically hurt by anyone?		
9. Within the past 12 months, have you been humiliated or emotionally abused by anyone?		
Optional: Immediate Need		
10. Are any of your needs urgent? For example, you don't have food for tonight, you don't have a place to sleep tonight, you are afraid you will get hurt if you go home today.		
11. Would you like help with any of the needs that you have identified?		

****Follow up: Completed by [redacted] County Health Department Staff (Nurses/Providers) only****

Referral Completed	Yes	No
Referral Refused	Yes	No
Already Receiving Services	Yes	No

Appendix K

Standardized SDOH Screening Questions Used in General Clinic: Spanish

General Clinic: Evaluación de salud

Nosotros creemos que todas las personas deberían tener la oportunidad de estar sanas. Algunas cosas como no tener suficiente alimento, transporte confiable o un lugar seguro dónde vivir, pueden hacer difícil que se encuentre sano. Por favor responda las siguientes preguntas para ayudarnos a entender mejor su situación actual. Quizá no podamos encontrar recursos para todas sus necesidades, pero intentaremos ayudarle en todo lo posible.

	Sí	No
Alimentos		
1. En los últimos 12 meses, ¿tuvo la preocupación de que se le iba a acabar el alimento antes de tener dinero para comprar más?		
2. En los últimos 12 meses, ¿el alimento que compró no le rindió y no tuvo dinero para comprar más?		
Vivienda/Servicios públicos		
3. En los últimos 12 meses, ¿ha tenido que quedarse a la intemperie, en un auto, tienda de campaña, refugio público o temporalmente en casa de alguien -quedándose en el sofá-?		
4. ¿Le preocupa la posibilidad de perder su casa?		
5. En los últimos 12 meses, ¿no le fue posible tener servicios públicos -calefacción, electricidad- cuando tenía gran necesidad de ellos?		
Transporte		
6. En los últimos 12 meses, ¿la falta de transporte le ha impedido llegar a citas médicas o realizar actividades de la vida diaria?		
Seguridad interpersonal		
7. ¿Se siente usted inseguro física o emocionalmente en donde vive actualmente?		
8. En los últimos 12 meses, ¿alguien le ha golpeado, cacheteado, pateado o lastimado físicamente?		
9. En los últimos 12 meses, ¿alguien le ha humillado o ha abusado emocionalmente de usted?		
Optional: Necesidad inmediata		
10. ¿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.		
11. ¿Le gustaría tener ayuda en cualquiera de las necesidades que usted ha identificado?		

****Follow up: Completed by [redacted] County Health Department Staff (Nurses/Providers) only****

Referral Completed	Yes	No
Referral Refused	Yes	No
Already Receiving Services	Yes	No

Appendix L

Process Measures and Outcomes

Weekly Meeting Notes

Week 1 of implementation: January 25-29, 2021

- Educational Session for the staff using a PowerPoint outlining SDOH for the Health Department and North Carolina. Additionally, what the SDOH screening tool means to those involved in implementation.
    - Provided a handout of the community resources outlining each of the domains addressed on the SDOH screening tool (Food, Housing/Utilities, Transportation, & Interpersonal Violence).
    - Q&A session post educational session.
    - Individually meet with each clinic to guide the process.

- Forms printed front and back, English, and Spanish, numbered 1-50 for each of the three clinics. Each of the clinics received 50 forms to begin implementation.
    - Primary Care (printed on purple paper)
    - Women's Health/Maternity Health (printed on pink paper)
    - General Clinic (printed on yellow paper)

- Calls to statistician to establish building of the tracking tool in Microsoft Excel.

- Calls to accountant to discuss Microsoft Excel and Google sheets.
    - Determine it best to use Google Sheets initially so everyone could see in real-time.

- Weekly check in phone call to QI staff
    - All three clinics had no concerns and no changes to be made.

Week 2 of implementation: February 1-5, 2021

- Meeting with Site Champion to discuss what worked and what did not work.
    - A shortage in nursing staff impacted the usage of the form. A discussion took place about whether the front desk staff could hand out the SDOH tools. At the meeting with the health department staff it was discussed and not approved, therefore the Primary Care Clinic will have to continue doing their best to remember the forms.
    - Pickup and dropping off forms took place.

- Meeting with staff in the Women's Health/Maternity Health Clinic and General Clinic
    - They are comfortable with the flow established and want to make no changes at this time.
    - Pickup and dropping off forms took place.

- Meeting with Dr. Tillman determined that I need to add a few additional columns to my data collecting tracking tool (Google Sheets).

- Meeting with accountant to continue discussing data collection tools and Google Sheets.

    - New fields were entered for each of the clinics and a sheet for each of the numbered forms from these clinics to capture that additional data.

- Weekly check in by phone call to QI staff
    - All three clinics had no changes to be made.

Week 3 of implementation: February 8-12, 2021

- Meeting with Site Champion to discuss what worked and what did not work.
    - No changes this week to anything in the Primary Care Clinic
    - Pickup and dropping off forms took place.

- Meeting with staff in the Women's Health/Maternity Health Clinic and General Clinic
    - Verbalized taking the referral resources guide and creating a smaller version that the patients can take home with them.
    - Pickup and dropping off forms took place.

- Telephone call to statistician
    - Editing done to the Google Sheets and columns relabeled.

- Weekly check in phone to Site Champion and General Clinic
    - No changes were made to any clinics .
        - No changes made to Women's Health/Maternity Health either since I could not reach staff by phone.

Week 4 of implementation: February 15-19, 2021

- Morning meeting
    - Addressed staff in all three clinics and the newly created quick resource guide for patients to take home.
    - Site champion was not at the meeting.
    - Pickup and dropping off SDOH forms took place.

- Meeting with Site Champion to discuss newly created quick resource guide and she stated that she preferred the original because it was packed with more resources.
    - Comments made about seeing an impact in referrals to transportation.

- Weekly check in by phone call to all clinics.
    - Women's Health/Maternity Health Clinic and General Clinic
    - Site Champion was not available by phone for the end of the week.
    - No changes were made to these clinics.

Week 5 of implementation: February 22-26, 2021

- Meeting with Site Champion to discuss what worked and what did not work.
    - We discussed what to do if someone refuses to participant. I instructed the entire staff involved in the implementation to write "Refusal" on the form and place it in the basket for collection.
    - Pickup and dropping off forms took place.

- Meeting with staff in the Women's Health/Maternity Health Clinic.
    - Staff feels like everything is going great. No changes made.
    - Pickup and dropping off forms took place.

- No meeting with General Clinic staff.
    - Pickup and dropping off forms took place.
    - No changes made.

- Meeting with accountant to rename columns.

- Weekly check in by phone.
    - Only available by phone was the Site Champion.
    - No changes were made to any clinics .

Week 6 of implementation: March 1-5, 2021

- Meeting with Site Champion to discuss what worked and what did not work.
    - No changes made.
    - Pickup and dropping off forms took place.

- Meeting with staff in the Women's Health/Maternity Health Clinic and General Clinic
    - No changes made.
    - Pickup and dropping off forms took place.

- Weekly check in by phone call to QI staff
    - All three clinics had no changes to be made.

Week 7 of implementation: March 8-12, 2021

- Morning Meeting
    - Discussed the impact on screening due to closure of clinics a couple days a week because of COVID-19 vaccine clinic.

- Meeting with Site Champion to discuss what worked and what did not work.
    - No changes made.
    - Pickup and dropping off forms took place.

- Meeting with staff in the Women's Health/Maternity Health Clinic
    - No changes made.
    - Pickup and dropping off forms took place.

- Meeting with staff in the General Clinic
    - No changes made.
    - Pickup and dropping off forms took place.

- Weekly check in by phone call to QI staff
    - All three clinics had no changes to be made.

Week 8 of implementation: March 15-19, 2021

- Meeting with Site Champion to discuss what worked and what did not work.
    - No changes this week to anything in the Primary Care Clinic
    - Pickup and dropping off forms took place.

- Meeting with staff in the Women's Health/Maternity Health Clinic and General Clinic
    - No changes to these clinics.
    - Pickup and dropping off forms took place.

- Weekly check in by phone call to QI staff
    - All three clinics had no changes to be made.

Week 9 of implementation: March 22-26, 2021

- Meeting with Site Champion to discuss what worked and what did not work.
    - No changes this week to anything in the Primary Care Clinic
    - Pickup and dropping off forms took place.

- Meeting with staff in the Women's Health/Maternity Health Clinic and General Clinic
    - No changes to these clinics.
    - Pickup and dropping off forms took place.

- Meeting by telephone with accountant
    - No changes made at this time to data collection tool (Google Sheets)

- Weekly check was different because I worked in the Primary Care Clinic
    - All three clinics had no changes to be made.

Week 10 of implementation: March 29-April 2, 2021

- No face-to-face meeting with Site Champion but we did phone conference and discuss the QI project.
    - No changes this week to anything in the Primary Care Clinic
    - Pickup and dropping off forms took place.

- Meeting with staff in the Women's Health/Maternity Health Clinic and General Clinic
    - No changes to these clinics.
    - Pickup and dropping off forms took place.

- Weekly check in by phone call and in person to QI staff
    - All three clinics had no changes to be made.

Week 11 of implementation: April 5-9, 2021

- Morning Meeting
    - Reviewed plans for clinics for the week and COVID -19 vaccine clinic. Talk with staff about wrapping up QI project.

- Meeting over the phone with Site Champion to discuss what worked and what did not work.

    - No changes made.
    - Pickup and dropping off forms took place.

- Meeting with staff in the Women's Health/Maternity Health Clinic
    - No changes made.
    - Pickup and dropping off forms took place.

- Meeting with staff in the General Clinic
    - No changes made.
    - Pickup and dropping off forms took place.

- Weekly check in by phone call to QI staff
    - All three clinics had no changes to be made.

Week 12 of implementation: April 12-16, 2021

- Morning Meeting
    - Reviewed plans for clinics for the week and COVID -19 vaccine clinic. Informed staff it was the last week of implementation. No changes made at this time.

- End of the week
    - No changes made.
    - Collected forms and thanked staff for participation.

Appendix M

Staff Educational PowerPoint

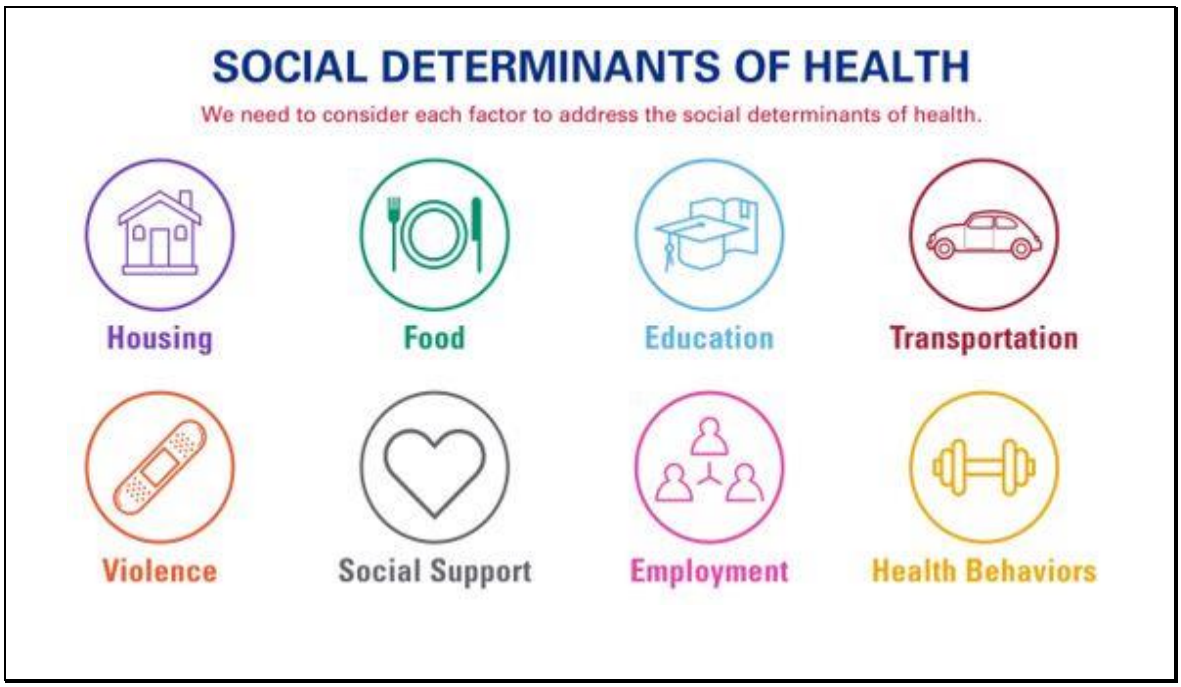
ADDRESSING SOCIAL DETERMINANTS OF HEALTH

Pamela Balogh

WHAT IS SOCIAL DETERMINANTS OF HEALTH (SDOH)?

The conditions in the community where "people are born, live, learn, work, play, worship, and age that affect a wide range of health risks and outcomes" (Office of Disease Prevention and Health Promotion [ODPHP], 2020)

https://www.youtube.com/watch?v=1iSuZngvCpY



CURRENT ENVIRONMENT FOR [redacted]

- Uninsured adults make up 14%
- The percent of people living below poverty level is 18.7%. This is higher than the rate for North Carolina 13.6%
- 18% of the resident's experience: Housing problems such as lack of kitchen facilities, structural damage, and crowding
- DSS reported overall increases in abuse and neglect and an increase in the number of investigations related to parents or guardian's substance use disorders
- Sexual assault reports nearly doubled
- 1 in 20 participants surveyed has cut or skipped a meal
- 14.5% of the population is considered food insecure
- 10% reported trouble accessing healthcare with barriers related to insurance and costs

[redacted]

WHAT IS BEING DONE

North Carolina DHHS:

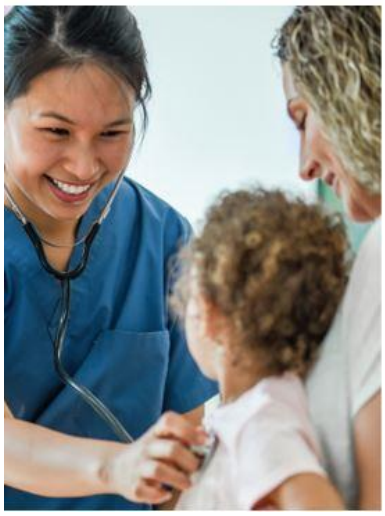
- Creating an interactive statewide map of SDOH
- Develops a set of standardized screening questions
- Statewide coordinated care network—NCCARE360
- Developing Healthy Opportunities Pilots
- Building infrastructure

WHAT IS OUR ROLE?

Know and engage with the community

Administering the NCDHHS SDOH screening

Discussion of results during appointment and referral information and resources given if applicable



WHAT IS THE PURPOSE OF THIS QI PROJECT?

To improve health outcomes and increase healthcare provider referral rates to community resources

QUESTIONS?

TAKE HOME MESSAGE

Consider:

How could attending to SDOH change how you care for your patients?

What challenges might hinder your ability to attend to SDOH issues?

Appendix N

Patient Resources Referral List - English

Resource List

Department of Social Services: 910-259-1240

- Medicaid or Health Choice Applications
- Food and Nutritional Services Applications
- Child Care Applications
- Child Support: 910-259-1223
- Work First
- Crisis Intervention Program (CIP)/Low Income Energy Assistance Program (LIEAP) Applications
- Non-Emergency Medical Transportation (NEMT): 910-259-1375 or 910-259-1240

Pender Housing Authority

- 910-259-1208
- Provides Housing Applications (there may be a waiting list)

Temporary Housing

- Support Services (Safe Haven Of Pender): 910-259-8989
- Emergency Shelter Program (Family Promise of Lower Cape Fear): 910-769-4730
- Day Shelter (Good Shepard Center): 910-763-4424 extension 100
- Open House Youth Shelter (Coastal Horizons Center): 800-672-2903
- Emergency Shelter (Domestic Violence Shelter and Services): 910-343-0703
- 24-hour Crisis Intervention (Domestic Violence Shelter and Services): 910-343-0703
- Maple Court Veterans Transitional Housing Program (Volunteers of America-Carolina): 919-477-0571
- Financial Assistance for Military Families (American Red Cross): 877-272-7337

Safe Housing

- Emergency Shelter (Domestic Violence Shelter & Services): 910-343-0703
- Sarah's House (Florence Crittenton Services): 800-448-0024
- Domestic Violence Support Services (Kiran): 877-625-4726

Sober Living Housing

- Angelic House (CommWell Health) *Women over the age of 18*: 877-935-5255
- Harvest House (CommWell Health) *Men over the age of 18*: 877-935-5255

- Stepping Stone Manor (PORT Health) *Men over the age of 18*: 910-762-1743
- Oxford House Smith Creek (Oxford Houses of NC) *Men over the age of 18*: 910-792-6030
- Veterans Substance Use Disorder (SUD) program (US Dept. of VA) *Adults over the age of 18*: 910-488-2120

Long-Term Housing

- Skilled Nursing Care (The Davis Community-Porters Neck): 910-668-7195
- The Arc of North Carolina Housing (The Arc of NC): 800-662-8706
- Homeownership Program (Cape Fear Habitat for Humanity): 910-762-4744
- Skilled Nursing Care (The Davis Community-Davis Health & Wellness at Cambridge Valley): 910-679-8300
- Senior Housing (AHEPA National Housing Corp (ANHC)-408 Senior Apartments): 910-793-6555
- Family Care Home (Suburban Guardianship): 704-652-8359
- Community Alternatives Programs for Children (CAP/C) (RHA Health Services): 888-207-7828
- The Targeting Program: (NC Division of Aging and Adult Services (DAAS): 919-855-4992
- Alternative Family Living (AFL) (RHA Health Services): 800-848-0180

Housing in New Hanover County

- Wilmington Housing Authority: 910-341-7700
- Solomon Towers Wilmington Public Housing Apartments: 341-7718
- Vesta Village Wilmington Public Housing Apartments: 910-341-7722
- Houston Moore Wilmington Public Housing Apartments: 910-341-7714
- Rankin Terrace Wilmington Public Housing Apartments: 910-341-7766
- Hillcrest Wilmington Public Housing Apartments: 910-341-7715
- Cape Fear Regional Cdc: 910-762-7555
- Amez Housing Community Development Corporation: 910-815-3826
- Creekwood South Wilmington Public Housing Apartments: 910-341-7718
- Ahepa 408 Apartments & Senior Affordable Living Apartments: 910-793-6555
- University Place: 910-392-0190
- Tidewater Townhomes: 910-762-1404
- Market North Apartments: 818-808-0600 extension 4
- Hadden Hall I: 910-792-1210
- Hadden Hall II: 910-792-1210
- Glover Plaza: 910-341-7720
- Cape Fear Hotel Apartments: 910-762-0487

Food Banks of Pender County

- Safe Haven of Pender: 910-259-8989
    - Open 24 hours

- Livingstone Tabernacle Church Food Pantry: 910-270-0720
    - Monday - Saturday (12pm-5pm)
      127 Sloop Point Loop Rd, Hampstead

- The 4 Cs (Christian Community Caring Center) Food Pantry: 910-270-0930
    - Monday, Wednesday & Thursday (9am-12pm)
    - 15200 US Hwy 17, Hampstead, NC 28443

- Pender County Christian Services: 910-259-5840
    - Monday through Thursday (9am-3:30pm), Friday (8:30am-3pm)
    - 210 W. Fremont St, Burgaw **(NO REFERRAL NEEDED)**

- Share the Table: 910-616-8897
    - Families and individuals can shop for groceries once per week
    - Sunday (4:30-6pm) - pantry box and takeout meals only
    - Tuesday & Wednesday (10-11:30am & 1-2:30pm)
    - Thursday (10-11:30am & 2-3:30pm)
    - 12395 NC Hwy 50, Hampstead, NC 28443

- St. Joseph's Food Pantry
    - Please drive up to the pantry, remain in your car, and a volunteer will place the box inside your car
    - Thursday, 2-4pm
    - 1303 Highway 117 South, Burgaw, NC 28425

- Gateway Community Church Food Pantry: 910-259-5447
    - Monday, Wednesday, Friday (11-12pm)
    - 416 W Bridgers St, Burgaw

- Catholic Charities in Wilmington, 910-251-8130
    - 20 N. 4th Street, Suite 300, Wilmington, NC 28401
    - Curbside services begin this Friday. Wednesdays from 2-4pm and Fridays from 9:30-11:30 am.
    - Individuals and families can call to make an appointment.

- Pender County Schools continues to provide breakfast and lunch for all children 18 and under.
    - Six school sites open from 11 am-1 pm and 50 alternate pickup sites.

- Food Pantry (Operation Legacy): 910-762-5797
    - 1502 East Lake Shore Drive, Wilmington NC 28401
    - Hours: Wednesday and Friday 8am -10am.

Home Delivered Meals

- Meals on Wheels (Pender Adult Services): 910-259-9119
    - Hours: Monday-Thursday 8am-5pm and Friday 8am-3pm
    - 901 South Walker Street, PO Box 1251, Burgaw, NC 28425

Transportation

- PAS-TRAN (Pender Adult Services): 910-259-9119 extension 1
    - Reservations must be made at least 48 hours prior to your trip
    - Fares: $3.00 one way in-county & $8.00 one way out-of-county (prices subject to change).
    - Hours: Monday to Friday 8am-5pm

Medical Transportation and/or Non-Emergency Medical Transportation (NEMT)

- Transportation Services is offered through the agency for those eligible Medicaid individuals needing transportation to authorized Medicaid Providers and Work First clients needing transportation to work.

- All Medicaid recipients must be assessed for need to become eligible for transportation. Transportation service is contracted out and for non-emergencies requires a five-day notice for appointments. For more information on applying for Transportation Services, please contact the agency at **(910) 259-1375 or (910) 259-1240** and ask to speak with a Medicaid Transportation worker or apply in person.

Interpersonal Safety

- Catholic Charities-Burgaw: 910-5153
    - Open Monday 8am-5pm, Tuesday 1pm-4pm, Thursday 8:30am-4pm, Friday 8am-5pm
    - 1303 U.S. 117, Burgaw, NC 28425

- Safe Haven of Pender: 910-259-8989
    - Open 24-hours

- Emergency Shelter: 910-343-0703
    - Open Monday-Friday 9am-5pm
    - 2901 Market Street, Wilmington, NC 28401

- Legal Aid: 866-219-5262
    - Open Monday-Friday 8am-5pm

    - 272 North Front Street, Wilmington NC 28401
- Pinnacle Family Services: email corporate @pinnaclefamilyservices.org
    - Open Monday-Friday 8am-5pm
    - 1608 Queen Street, Wilmington, NC 28401

- Family Promise of Lower Cape Fear: 910-769-4730
    - Open Monday-Friday 9am-5pm
    - 20 North 4th Street, Wilmington, NC 28401

- First Fruit Ministries: 910-794-9656 extension 110
    - Open Monday-Friday 8am-5pm

- The Battered Immigrant Project (BIP) (Legal Aid of NC): 866-204-7612
    - Open Tuesday 3:30pm-7:30pm and Thursday 9am-1pm

- Domestic Violence Hotline: 800-799-7233
    - Open 24-hours

- National Child Abuse Hotline (Childhelp): 800-422-4453
    - Open 24-hours

- Native Helpline-Domestic & Dating Violence (StrongHearts Native): 844-762-8483
    - Open all week 7am-10pm

- VictimConnect (National Center for Victims of Crime): 855-0484-2846
    - Open Monday-Friday 8:30am-7:30pm

Mental Health

Crisis Intervention:

- Trillium Health Resources: 877-685-2415
    - Open 24-hours

- RHA Behavioral Health Services: 855-345-1204
    - Open Monday-Friday 8am-5pm & Saturday 10am-6pm

- Mobile Crisis Team (Integrated Family Services): 866-437-1821
    - Open Monday-Friday 8am-5pm

- National Suicide Prevention Lifeline: 1-800-273-TALK (8255)

Coastal Horizons:

- Substance Abuse Intensive Outpatient Program (SAIOP): 910-259-0668

  - Open Monday-Friday 8am-5pm
  - 803 South Walker Street, Burgaw, NC 28425

- Intensive In-Home Services (IIH): 910-790-0187
  - Open Monday-Friday 8am-5pm
  - 803 South Walker Street, Burgaw, NC 28425

Strategic Behavioral Center:

- Seven Challenges Substance Abuse Treatment: 855-537-2262
  - Open 24-hours
  - 2050 Mercantile Drive Northeast, Leland, NC 28451
- Acute Psychiatric Inpatient Program: 855-537-2262
  - Open 24-hours
  - 2050 Mercantile Drive Northeast, Leland, NC 28451
- Inpatient Program: 855-537-2262
  - Open 24-hours
  - 2050 Mercantile Drive Northeast, Leland, NC 28451

CommWell Health:

- Behavioral Health Services: 877-935-5255
  - Open Monday-Wednesday 7:30am-5:30pm, Thursday 8am-8pm
  - 5531 Eleanor Roosevelt Lane, Willard, NC 28478

Additional Mental Health Resources:

- PORT Adolescent Substance Use Program:252-413-1951
  - Open Monday-Friday 8am-5pm
  - 314 316 Progress Drive Extension, Burgaw, NC 28425

- Project Pride (Telamon Corp): 919-239-8151
  - Open Monday-Friday 8am-5pm
  - 904 South Walker Street, Burgaw, NC 28425

- Substance Abuse Intensive Outpatient Program (SAIOP) (Helping Hand of Wilmington): 910-796-6868
  - Open Monday, Wednesday, Friday 8am-9pm
  - Open Tuesday & Thursday 8am-5pm

- The Carousel Center: 910-254-9898
  - Open Monday-Friday 8:30am-5pm

- Psychiatry & Behavioral Health Services (New Hanover Regional Medical Center): 910-667-7787

    - Open 24-hours
    - 2131 South 17th street, Wilmington, NC 28401

- Cape Fear Clinic: 910-343-8736
    - Open Monday-Friday 8:30am-4:30pm
    - 1605 Doctors Circle, Wilmington, NC 28401

Appendix O

Project Timeline

Objectives	**May 2020-August 2020**
Identify Problem	Completed
Organize project team and schedule monthly meeting dates	Completed
Develop project: Aim statement and goals	Completed
Literature search	Partially completed
Objectives	**September 2020-November 2020**
Development of QI content	Completed
CITI Training Modules	Completed
IRB Tools Worksheet	Completed
IRB Application	Completed
Objectives	**January 2021-April 2021**
Staff educational session	Completed
Implementation of the project: Staff administers the tool	Completed
Review and evaluate data and outcomes	Completed
Provide an opportunity for feedback from staff on the administration of the tool	Completed
Completion of post educational observation	Completed
Evaluate data from the QI project	Completed
Objectives	**May 2021-July 2021**
Contact representatives from NCDHHS Healthy Opportunities to disseminate project results	Completed
Disseminate project results to ECU faculty and project site	Completed

Appendix P

Overall Data Collection

	# dropped off	# picked up	# completed forms	lost
PC	115	69	69	5
WH/OB	258	227	227	1
GC	76	14	14	22
Total	449	310	310	28

PC %	38.98%		60.00%	
WH/OB %	75.44%		87.98%	
GC %	23.17%		18.42%	
Total %	46.53%		69.04%	

scheduled	English	Spanish	Refused	Any Refer
295	44	23	2	21
342	152	76	0	115
328	14	0	0	6
965	210	99	2	142

	63.77%	33.33%		30.43%
	66.96%	33.48%		50.66%
	100.00%	0.00%		42.86%
	67.74%	31.94%	0.65%	45.81%

New Refer	Receiving Refer	Food	Housing	Transportation
21	2	12	3	5
115	2	52	33	17
6	2	4	1	1
142	6	68	37	23

	2.90%	57.14%	14.29%	23.81%
	0.88%	45.22%	28.70%	14.78%

	14.29%	66.67%	16.67%	16.67%
	1.94%	47.89%	26.06%	16.20%

IPV	Urgent	Refused Refer
2	4	1
17	34	4
0	2	0
19	40	5

9.52%	5.80%	1.45%
14.78%	14.98%	1.76%
0.00%	14.29%	0.00%
13.38%	12.90%	1.61%

Appendix Q

Project Cost Analysis

Table 2

DNP QI Project Budget

Item	Cost per item	Number of items	Total
Ink	$15.99 per cartridge	1	$15.99
Paper	$6.99 per pack	3	$20.97
File Folders	$9.99 per box	1	$9.99
Rectangular Basket	$1.00 per basket	4	$4.00
Staff Breakfast Bars	$6.97 per box	3	$20.91
Staff Box of Coffee	$31.99 each	2	$63.98
Patient Care Coordinator	$13.48 per hour	62.5	$842.50
		Total cost:	$978.34

Note: The itemized list of expenses used during the implementation of the Quality Improvement Project.

Appendix R

American Association of Colleges of Nursing DNP Essentials

	Description	Demonstration of Knowledge
Essential I ***Scientific Underpinning for Practice***	**Competency** - Analyzes and uses information to develop practice **Competency** - Integrates knowledge from humanities and science into context of nursing **Competency** -Translates research to improve practice **Competency** - Integrates research, theory, and practice to develop new approaches toward improved practice and outcomes	• Conducted an extensive literature search and review to evaluate existing information on SDOH, specifically housing, food insecurity, intimate partner violence, transportation, housing, and screening. • The utilization of the DHHS Healthy Opportunities SDOH screening tool was an integral part of the implementation phase of the QI project. • Developed a presentation based on the knowledge and evidenced-based practice before implementation.
Essential II ***Organizational & Systems Leadership for Quality Improvement & Systems Thinking***	**Competency** - Develops and evaluates practice based on science and integrates policy and humanities **Competency** - Assumes and ensures accountability for quality care and patient safety **Competency** - Demonstrates critical and reflective thinking **Competency** - Advocates for improved quality, access, and cost of health care; monitors costs and budgets **Competency** - Develops and implements innovations incorporating principles of change **Competency** - Effectively communicates practice knowledge in writing and orally to improve quality **Competency** - Develops and evaluates strategies to manage ethical dilemmas in patient care and within health care delivery systems	• The project lead collaborated with the project site and project team (Site Champion, Faculty of Record, healthcare staff, and other teammates) weekly to make changes to the implementation plan. • The data and results updated the site by incorporating a change in utilizing the SDOH tool. • Completed CITI training and modules for compliance of ECUs IRB process.
Essential III ***Clinical Scholarship & Analytical Methods for Evidence-Based Practice***	**Competency** - Critically analyzes literature to determine best practices **Competency** - Implements evaluation processes to measure process and patient outcomes **Competency** - Designs and implements quality improvement strategies to promote safety, efficiency, and equitable quality care for patients **Competency** - Applies knowledge to develop practice guidelines **Competency** - Uses informatics to identify, analyze, and predict best practice and patient outcomes **Competency** - Collaborate in research and disseminate findings	• A literature review and literature matrix were done with additional aid from Melnky and Fine-Overholt's (2011) model of evidence levels. • The knowledge gained from reviewing the literature provided insight into the usage of the NCDHHS SDOH screening tool. • Designed education information session PowerPoint presentation and

		a resource guide printed in English to distribute for referral information. • Presented post-implementation results and findings to project site and ECU faculty. • A collaborative effort took place with the DNP project lead, site champion, faculty of record, and project site.
Essential IV ***Information Systems – Technology & Patient Care Technology for the Improvement & Transformation of Health Care***	**Competency** - Design/select and utilize software to analyze practice and consumer information systems that can improve the delivery & quality of care **Competency** - Analyze and operationalize patient care technologies **Competency** - Evaluate technology regarding ethics, efficiency and accuracy **Competency** - Evaluates systems of care using health information technologies	• An abundance of technology was utilized during this project consisted of PowerPoint, Excel, Word, Google Sheets, WebEx, Zoom, and EHR.
	Description	**Demonstration of Knowledge**
Essential V ***Health Care Policy of Advocacy in Health Care***	**Competency** - Analyzes health policy from the perspective of patients, nursing and other stakeholders **Competency** - Provides leadership in developing and implementing health policy **Competency** - Influences policymakers, formally and informally, in local and global settings **Competency** - Educates stakeholders regarding policy **Competency** - Advocates for nursing within the policy arena **Competency** - Participates in policy agendas that assist with finance, regulation and health care delivery **Competency** - Advocates for equitable and ethical health care	• Aligns with Healthy People 2030 goals and the Triple Aim objectives by highlighting the importance of factors affecting the social, physical, and economic environments that improve health and reduce health disparities. • Supports the NCDHHS vision to the commitment to buying health-related to housing, food, transportation, interpersonal safety by impact health outcomes and health care costs.
Essential VI ***Interprofessional Collaboration for Improving Patient & Population Health Outcomes***	**Competency** - Uses effective collaboration and communication to develop and implement practice, policy, standards of care, and scholarship **Competency** - Provide leadership to interprofessional care teams **Competency** - Consult intraprofessionally and interprofessionally to develop systems of care in complex settings	• Initial communication with representatives from NCDHHS Healthy Opportunities office, Unite Us in partnership with NCCARE 360, Office of Rural Health, and site of project. • During implementation weekly collaboration with site champion and project team took place continuously building rapport to improve

		patient and population health outcomes.
Essential VII ***Clinical Prevention & Population Health for Improving the Nation's Health***	**Competency** - Integrates epidemiology, biostatistics, and data to facilitate individual and population health care delivery **Competency** - Synthesizes information & cultural competency to develop & use health promotion/disease prevention strategies to address gaps in care **Competency** - Evaluates and implements change strategies of models of health care delivery to improve quality and address diversity	• Integrated change through weekly staff meetings, one on one meetings, education, and support to improve the process of implementing SDOH screening for the three clinics involved.
Essential VIII ***Advanced Nursing Practice***	**Competency** - Melds diversity & cultural sensitivity to conduct systematic assessment of health parameters in varied settings **Competency** - Design, implement & evaluate nursing interventions to promote quality **Competency** - Develop & maintain patient relationships **Competency** - Demonstrate advanced clinical judgment and systematic thoughts to improve patient outcomes **Competency** - Mentor and support fellow nurses **Competency** - Provide support for individuals and systems experiencing change and transitions **Competency** - Use systems analysis to evaluate practice efficiency, care delivery, fiscal responsibility, ethical responsibility, and quality outcomes measures	• Performed chart review for each of the three participating clinics and evaluated whether standardized SDOH screening was being implemented. It was discovered that no standardized SDOH screening was implemented for any clinics, and only a few questions addressed SDOH in the Obstetrics initial encounter and the annual wellness exam for child health.